

**PLACE-BASED LANGUAGE LEARNING USING MOBILE
TECHNOLOGY: AN ANALYSIS OF AN ORIGINAL MALL GAME AND
ITS REDESIGN FOR AN ESL COURSE**

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ABSTRACT

In the field of Second Language Studies (SLS), there has been a growing interest in research in the areas of Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL) since the early 2000s. In addition to these researcher interests, the idea of using video games as language learning tools, particularly in online contexts, has been gaining popularity as well. In Holden and Sykes (2011), the researchers describe their unique work in a high school Spanish classroom which used an augmented reality MALL game that combined elements of mobile technology and video game design to create a new experience for the second language users. By utilizing a combination of theories of place-based learning and MALL, the research team at the University of Hawai'i at Mānoa was able to design their own augmented reality game to be implemented in the Hawai'i English Language Program (HELP).

After analyzing both in-game data and data gathered in a series of post-game interviews with both students and administrators, the game, *Guardians of the Mo'ō* (Mo'ō 1.0), was deemed to be successful in achieving its initial design goals and was given support to possibly become part of the regular HELP curriculum, pending modifications. This paper outlines the theoretical background for creating such a game and provides a detailed analysis of how Mo'ō 1.0 was created and ultimately played by the target group of language learners. Then, the focus will be shifted to explaining how the second version of the game (Mo'ō 1S) was redesigned and modified to fit into a new experimental course in the HELP summer curriculum.

INTRODUCTION

As the world continues moving into the 21st century, it is important for educators to be able to keep up with the changing world and the advances being made in technology. Though classroom learning and textbook literacy remains an integral part of the traditional schooling world, teachers must build their own awareness of the new literacies that are developing throughout the world (Gallego & Hollingsworth, 1992). Educators working in the field of Second Language Acquisition (SLA) have recently begun integrating various tools associated with the term “Web 2.0” and more specific online language learning tools into the classroom (Steel & Levy, 2013). While this has been an excellent first step, 21st century educators must also be thinking about the emerging literacies that are being developed by their students every day in online virtual spaces and on their mobile devices.

As more and more language students are able to use their mobile devices and integrate themselves in educational online environments, language teachers could be playing more of a role in guiding these students in how they use this new technology and presenting them with the affordances for using such devices both inside and outside the classroom (Thorne, Black, & Sykes, 2009; Steinkuehler & Squire, 2014). In fact, some educators have already been focusing on combining ideas of place-based learning in conjunction with mobile technology in order to create language learning experiences that extend beyond traditional classroom situations (Holden & Sykes, 2011; Zheng & Newgarden, 2012).

However, as these educators find new and interesting ways to implement new ideas into their classes, they must also take care in their integration by looking more closely at their student perceptions of these new additions to the curriculum; in doing so, language instructors can better understand what students can gain from participating in these projects, particularly using mobile technology.

The purpose of this paper is to look more closely at how a recently implemented place-based augmented reality English-language game using mobile technology recently became a full month-long course in an intensive English language program in Hawai‘i and to address the following research questions:

1. How did the student communicative activity types change between the first version of the game and the second version?

2. How do mobile language learning games broadly cater to students with different learning styles? How do student values contribute to their experiences with gameplay?
3. How can the mobile game-based curriculum create a community of practice within educational institutions?

The paper will be split into two distinct sections: the first version on game's development and the second version on the new course's development. For both versions, aspects of the needs analysis, the overall goals of the project, the materials development, and their evaluation will be addressed. Following this, relevant data regarding the research questions will be presented and analyzed.

GUARDIANS OF THE MO'O (MO'O 1.0)

Theoretical Background of the Initial Game Design

Since the early 2000s, computer technology has become more and more prevalent in classrooms, and many researchers in Second Language Studies (SLS) have been attempting to use technology more effectively for the benefit of students. One of the most documented recent trends in SLS has been in Computer Assisted Language Learning (CALL), with studies done in new literacies (Leu, Kinzer, Coiro, & Cammack, 2004), vocabulary instruction (Chiu, 2013), telecollaboration (Guth & Helm, 2010), and glossing frequency (Taylor, 2014).

However, due to the many variations on research that fall under the CALL umbrella, commentary done in the area has often used broad terms, like "Web 2.0" and lacked specificity when making distinctions between technology itself and tools (Steel & Levy, 2013, p. 307). Steel and Levy (2013) conducted their own research in this area and attempted to find out what kind of technology was being used by undergraduate foreign language students the University of Queensland in 2011. According to the study, 82-85% of the students were using online dictionaries and web-based translators, 69% of students were using YouTube regularly, and 50-60% of students were using social networking sites, mobile applications (apps), and online language learning games. What is of particular interest is that these students were using these technologies both inside *and* outside of the classroom (p. 313).

Taking into the account that the most popular tools were being used by students in the language classroom context, it is notable that each of the tools mentioned can be and is often

used on mobile devices. Due to the advent of the smartphone and other mobile computing devices, this has led researchers interested in CALL to also look more closely at Mobile Assisted Language Learning (MALL) as well (Squire & Dikkers, 2012). In terms of variation and potential, the use of MALL in language learning contexts has been explored in areas such as listening (Huang & Sun, 2010), speaking (Kukulka-Hulme & Shield, 2008), vocabulary (Wu, 2015), and digital language learning games (Cornillie, Thorne, & Desmet, 2012). Because of the introduction of such language learning games, the idea of gamification in the classroom has been becoming more popular (Squire & Dikkers, 2012).

In accordance with the research that has been done in CALL and MALL in the realm of language learning, video games and the aforementioned language learning games have been receiving focus due to the unique affordances that can be provided within in-game interactions. Once seen as possible negative influences on the development of children, games are now seen more as applicable learning tools as more research has been conducted on them (Gee, 2007). In fact, learning gains have been attributed to video games in a number of different areas as Kingsley and Grabner-Hagen (2015) discuss:

[T]he potential of gamification to become a constructive force in education by supporting new literacies involving creativity, critical thinking, collaboration, and communication. To ensure meaningful approaches for technological practices, there is a need to align instruction to the ethos of new literacies...Not only is literacy situated within social contexts but digital tools afford new and increased opportunities for social interaction and collaboration, therefore providing authentic opportunities within multiple modalities (p. 9).

Games afford language learners with unique social experiences due to the fact that these learners will have multiple opportunities to interact with each other in various ways during a gameplay session, much like the theories of SLS in interaction and task-based language learning¹ (Ellis 2003). Players must be able to adeptly understand the situation that they are facing within the given moment, seek out additional information to prepare themselves for a challenge, and then take action. This new kind of environment promotes different communication tactics and allows for in-game consequences when there is a clear distinction between success and failure.

¹ However, the MALL team for this project would like to make a clear distinction with the Ellis' definition of "task" in the sense that, in the ecological, dialogical and distributed (EDD) framework, the orientation toward activities or tasks is more flexible as both the designers and the students co-create meaning in the teaching environment (Zheng et al., 2017).

In the consideration of games as language learning environments, Sykes and Reinhardt (2012) outline the following key terminology as such: *language* is defined in terms of Halliday's (1978) notion of social-semiotic practice; *game* as something that is often "rule-bound with internal reward systems," and it may include imaginative/creative experiences along with problem solving (p. 7). They go on to discuss the importance of social interaction in terms of SLS by using the lens of systemic functional linguistics; the authors discuss how gaming can produce "ideational interactions" about games (p. 36) and "interpersonal interactions" through and around games (p. 38), but perhaps more importantly for this study, they explain how games create a social context that creates opportunities to negotiate for action (Zheng, Young, Wagner, & Brewer, 2009).

Due to the awareness of emerging opportunities that gaming can provide, there have been varying levels of CALL research that has been done in the area of massively multiplayer online role playing games (MMORPG) as outlined in Cornillie, Thorne, and Desmet (2013). The authors explain the process in which they conduct searches on "language learning" and "CALL" within the academic journal databases, concluding that while there has been a steady amount of game *design* research since the 1980s, there has been a significant increase in the amount of research being done in game *theory*, experimental research, and pedagogy. They explain the appeal for language learning researchers for MMORPGs as follows:

Gaming environments, MMOs in particular, seem to present useful sites for investigating whether learners are oriented towards outperforming themselves and/or others, whether they are driven by mastery goals, and with which learning patterns these goals are associated (p. 250).

Taking this one step further, Zheng, Bischoff, and Gilliland (2015) conducted a CALL study in which their two participants took part in a MMORPG called *World of Warcraft* (WOW), and each of the participants (one native English speaker and one native Japanese speaker) were asked to work together during the gameplay to accomplish a quest. While the focus for the participants was not on the idea of language learning itself, the researchers were interested in what would happen "in the wild" (Hutchins, 1995), meaning how will the participants react to language interactions (both visual and verbal) especially considering the virtual world that they were engaged in. The researchers explain: "Cognitive and communicative activities are equally dependent on other individuals and artifacts or tools" (p. 776).

Since the goal of this study was focusing on the vocabulary learning, the researchers were able to conclude that the virtual space afforded the participants a unique experience because the Japanese participant was able to learn new vocabulary and utilize it immediately, given the setting and the urgency of language that is needed to progress through the game. In addition to this, the researchers explain that “WOW naturally encourages learner agency” unlike traditional classroom spaces where the teacher is expected to “foster agency” (p. 786). In this sense, one could conclude that a natural benefit of placing language learners in virtual spaces is that the learners will have to use their target language “in the wild” in order to progress through the situation and can rely on others to help them when they face a difficult challenge, as well as the fact that these learners are able to work independently from traditional classroom methods in order to accomplish these goals.

However, what if language learners did not have to necessarily enter a completely virtual world in order to receive the same benefits as outlined above? Due to the convenience of readily available mobile technology, these devices can be used along with the theory of place-based learning to create an entirely new experience for language learners.

Combining MALL and Place-Based Research

Just as there has been an increase in MALL-related research, there has also been a push for place-based education as well, in order to better situate learners in the space around them. This style of education “highlights disciplinary concepts that are embedded within local systems, histories, and interactions. Researchers adopt place-based education to transform disciplinary information from abstracted knowledge to local knowledge that is related to communities’ cultural practices” (Zimmerman & Land, 2014, p. 78).

In Holden and Sykes (2011), the researchers designed and implemented their own augmented reality game inside a high school Spanish classroom with the goal of placing Spanish learners in real-world situations, building intercultural competence. The researchers’ theory was that many language students are ill-prepared for situations that require them to speak their target language because much of their practice was done in a classroom environment (imaginary world), and their assessment is based on language gains made in this controlled environment. If the students are unable to produce their target language outside of the classroom, then it must be seriously considered that this style of assessment is somewhat invalidated in the sense that there is a mis-

match between the needs and the assessment (Warschauer, 2007). This indicates a need for additional language support where a semi-structured activity that focused on social interaction could fill in the missing gap.

With this point in mind, Holden and Skyes designed their mobile-app game to place the students in real-life contexts in order to challenge students to work together to succeed in an uncontrolled environment. Because of the affordances of mobile devices, which are able to customize our understanding of place within the moment, students have the opportunity to bring more of themselves to that place by researching information dynamically, according to their interests (Squire, 2009). In other words, the students could draw on both their classmates to solve the language tasks as well as use the mobile technology to try to solve problems.

In their study, Holden and Sykes created the language game *Mentira* for students studying fourth semester Spanish, arguing that the learners with a lower overall fluency would benefit more from the language gains. The students had to physically travel around the Los Griegos neighborhood of Albuquerque and were asked to pick up clues about a fictional “historical” murder mystery in the area. The researchers collected information about sites in the area and enlisted the help of local community members to interact with the students when they arrived at specific locations (p. 5).

As a result of the study, the researchers found that the students actually were interested in playing the game and read the majority of the information that they were presented with. Holden and Sykes found that students were excited to engage with people in the local community and had a generally positive reaction to using Spanish in this way, supported by both observational and interview data (p. 12).

A Key Limitation of CALL/MALL Studies in SLA

While the research team found that Holden & Sykes’ actual experiment to be quite unique, the brief analysis of the data that was presented in the article itself was cause for concern. One key point of criticism that can be said about this study is that, despite its successful outcomes and reports of students having positive experiences surrounding the game, both the actual perceptions of students and administrators are left absent from the final paper.

In fact, when reviewing the published material on SLS studies with MALL orientations, perceptions of this technology from those outside of the researcher team in regard to the related

learning tasks are often left absent. There will be a few lines dedicated to the overall assessment, but rarely ever are students or administrators involved in the process of the game design/refinement, and they are not given an opportunity to become involved in many of the published articles discussed previously. Those individuals who could provide some of the strongest voices in support for further MALL research are often left silent.

While it is very important that the CALL/MALL studies about games and tasks themselves have been designed to be ultimately beneficial for language acquisition, it is also vital that these tasks are also perceived to be beneficial by the students and the school's administration as well. Steel and Levy (2013) wrote: "While the processes and products of language teaching and learning twist and evolve, the learner voice can easily be overlooked and yet...we believe it is increasingly critical to understand the role of the learners, their priorities and, of course...their approach to and use of new technologies" (p. 308). Considering this, while it is possible that students will enjoy CALL/MALL projects designed by researchers, it is also just as possible that language researchers are not able to predict all of the needs and the priorities of a target language learning population, and perhaps more importantly, the school itself.

The Context of the University of Hawai'i's MALL Experiment

Based on a strong belief in the benefits of place-based and mobile language learning as well as a goal to include student feedback into their research design, the research team at the University of Hawai'i decided to design their own augmented reality MALL game, officially titled *Guardians of the Mo'o* (Mo'o 1.0) to be played on the upper campus of the university by a target population of English language learners.

On the University of Hawai'i at Mānoa campus, the SLS department runs an intensive English language program by the name of HELP (Hawai'i English Language Program). These students are typically staying in Hawai'i for only a three to six month period with their primary goal being that they are able to improve their English to the appropriate level to attend university in the United States. The HELP facility is located on the lower campus near the sporting facilities, and due to the layout of academic buildings, this means that HELP students are not experiencing the daily academic culture of life on the upper campus. Because the program itself is short-term, students are typically in the classroom for 5-6 hours on Monday through Thursday

and have a lot of homework to do for each class, there are few opportunities for the students to use their improved language abilities in real contexts in Hawai'i.

Since the original conception of this MALL game was that it was meant to be played outdoors in an unstructured area, the research team believed that it would fit with the idea of language learning in an informal setting, which means that it is a context in which language learners are exposed to the target language primarily through their social interaction (Lightbown & Spada, 2001). The major element that makes the game relevant linguistically comes from the social interaction elements involved during the gameplay. As explained by Bahrani, Sim, and Nekoueizadeh (2014):

The social interaction in ESL contexts is one of the authentic sources of language input which can help language learners acquire the language in informal settings...Indeed, the use of English language is mainly limited to formal settings at universities, language institutes or language classrooms. As a matter of fact, in EFL contexts, limited usage of English language can only be observed when language learners use English language in interactions with their instructors and their peers (p. 1718).

One of the key benefits for the target learners, who mainly come from overseas, is that they are placed within an English as a Second Language (ESL) environment and there are language learning opportunities available to them within the greater Honolulu area as opposed to an English as a Foreign Language (EFL) context. However, from the preliminary research conducted, it seemed that the majority of these types of students did not often take advantage of the linguistic landscape, and often grouped together with classmates from the same country in order to speak their native languages outside of the classroom. The MALL game was designed to present an alternative to this typical trend and create more opportunities for language learning in a local context.

Table 1

The Timeline of the Guardians of the Mo'o (Mo'o 1.0) Project

Project Timeline	Events that Occurred
Mid-February, 2015	<ul style="list-style-type: none"> • Serious discussion about the project begins between the research team. Some members take on the role of bringing in interested HELP participants, while others take on the lead of designing the project itself using ARIS software. A tentative timeline is created. • No storyline has been developed.
Early March, 2015	<ul style="list-style-type: none"> • A survey is developed that is meant to be distributed to HELP students, in order to assess their needs as language learners. The team developed a questionnaire that comprised of more than 10 multiple choice questions about the students' technology use and 3 open-ended questions. <ul style="list-style-type: none"> ○ HELP administrators ask for the survey to be cut down to only 5 multiple-choice questions, due to time limitations placed on the HELP students. The team complied. • The HELP students fill out the survey, but due to the brevity of information, the team is unable to use much information from the survey. • Interview sessions were supposed to have taken place with a number of HELP students, but they were scheduled during the spring break season, and most of the students were unavailable at this time. <ul style="list-style-type: none"> ○ As a result, only two interview sessions are conducted with a total of 3 Japanese female HELP students. The interview questions are asked in a free-form way; discussion is encouraged between the interviewers and interviewees. • Based on the information shared within these interviews, the content of the game begins to take shape.
Late March, 2015	<ul style="list-style-type: none"> • Development on the actual app begins and an outside party is brought on to create a narrative for the overall story. • The team investigates possibilities for place-based learning on the campus and decide to incorporate culturally-specific sites, including the Japanese Garden and the Center for Korean Studies. • The team meets with a Horticultural Cartographer, and a member of the UH Landscape Mapping Project. They are in

charge of creating an interactive map with information on every significant tree and plant on the Mānoa campus.

- The team wants to incorporate “trees” into the game itself as an example of side information for students.

Early April, 2015

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- The app is tested internally on a rainy day with a research participant.
 - On this day, the game itself is still incomplete, and there are a lot of technical issues that still need to be addressed.
 - The participant² complains about the weather, the insects, and the lack of seating in specific areas. Also, she believed that game’s instructions were unclear.
 - The app is refined and another participant³ plays through the game for the first time.
 - The app was amended to explicitly tell students to take a break, and go to a local cafeteria if they want to get something to eat or drink.
 - The game now includes a section in the library that involves a Chinese tea exhibit (which was available to UH students to see for a limited time) as well as QR codes.

Late April, 2015

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- Various colleagues of the researchers test the game.
 - Multiple endings of the story are created depending on what students choose to do during the gameplay.
 - HELP students are scheduled on specific days to play.
 - The team visits 4 HELP classrooms (intermediate level) in order to promote the game.
 - The complete version of the game is titled *Guardians of the Mo’o*.

April 29th, 2015

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- 4 HELP students are given the opportunity to leave their regular class to play the game at 1pm. The participants include 3 Korean students and 1 Japanese student. It took a little less than 3 hours for them to complete the entire game.
 - During the post-interview sessions, the students agreed the game was fun, but became difficult. They were all fatigued because of the demands of the HELP curriculum. They had trouble understanding some of the people they required to speak with during the game. One student also expressed that some of the questions given were “too abstract.”

² This participant was a visiting scholar from China, who was interested in working closely with the primary researcher. She is an Associate Professor in her own university, so she was asked to play the game to give feedback from both the teacher and the Chinese students’ perspective.

³ This participant was the author of this paper. At that time, the author was not included in the game design process, so the rest of the team used the opportunity to do a test for bugs and other technical issues.

May 1st, 2015

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- 3 HELP students signed up to play the game a week in advance and arrived ready to play. The participants are 3 Korean students, and app's former issues have been completely fixed. It took them a little over 2 hours to complete.
 - Students are excited to play at the beginning, and are able to overcome all of the challenges in the game by themselves. The researchers are only there for support.
 - During the post-interview, the students really seemed to enjoy the game for various reasons. They expressed that they learned new vocabulary, increased their confidence levels in speaking to new people, and felt that it was more interesting than going to a typical class at HELP after the lunch period.
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Needs Analysis

A timeline for this project is presented in Table 1. In order to understand the needs of our target students at the outset of the project, especially in terms of their technology usage patterns and their daily English learning experience, an initial survey was conducted, as well as two rounds of group interviews (see Table 1 “Early March, 2015”).

Initial surveys. Multiple-choice “opinion surveys” with a few additional short answer questions were sent out in early March 2015 to HELP administrators for approval (Brown, 1995, p. 50). The original intent was to have as many HELP students in various classes as possible fill out the survey fully. However, HELP administrators quickly responded to the research team by saying that there were too many questions on the survey and that they were only willing to accept five multiple-choice questions in total for the students to answer.

The research team revised their original survey to only include five multiple-choice questions, but even so, they received a small number of responses compared to the number of students in the program.

Therefore, the data that were collected from the initial surveys were actually discarded in the end; however, the researchers used the contact information of the students who filled out the surveys to recruit them for group interviews to be conducted in mid-March.

Group interviews with HELP students. The research team originally contacted around 10 HELP students to conduct interviews with them, but were only able to secure three students in the end. Unfortunately, the research team tried to schedule their interviews during HELP’s Finals week and subsequent Spring Break, further reducing the number of willing participants. Group

interviewing style was ultimately decided upon to try to provide a more natural atmosphere, despite an awareness that group interviewing can ultimately produce different answers than one-on-one interviews (Brown, 1995, p. 49)

In the first interview, one Japanese student was interviewed by three researchers in an unstructured style and in the second interview, 2 Japanese students were interviewed by four researchers in a similar style. Both of the group interviews were conducted in the office of one of the researchers and took approximately 45 minutes for each session.

During these interview sessions, the participants confirmed the initial theories that the researchers had in regard to how HELP students relate to technology as language learning tools and their experience with the surrounding campus life.

In terms of technology, the HELP students explained that they use their smartphones throughout the day, but use the phones in their L1 and speak to other friends/family in their L1. When asked about how often the students use technology to help their language learning, the students said “hardly ever.” However, one student said that she did use her phone to access an English dictionary during class.

Considering the area of place-based education, all of the students interviewed explained that they rarely go anywhere in Honolulu aside from HELP, Waikiki, and Ala Moana. When one student was asked about coming to the upper campus, she explained the following: “I only come up [to the upper campus] to go to Starbucks.”

When further asked about some of these issues, each of the three participants said that they felt some frustration with their schooling at HELP because of the amount of homework given for each class and the tendency for the classes to have many students from East Asia. As a result, most of the students tended to become friends with other students from the same country. The participants were asked if they were able to make any American or primarily English speaking friends, and each of them replied that they had not. Reasons for this included “no time” and “there aren’t any opportunities.”

Taking all of these points into consideration, the research team asked if the participants would be interested in taking part in a game that could help them make new friends, bring them to the upper campus, and give them incentive to use their English skills. Each of the participants responded positively. One even asked the researchers the following: “Could we play that game right now?”

It is worth noting that the research team was aware of the small sample size involved in this preliminary needs analysis; as it was stated in Brown (1995): “Needs analyses are far from perfect. Any needs analysis is at best an attempt to make sense out of the complexity and confusion that makes up the field of language teaching” (78). However, the team still felt justified in proceeding forward in creating the game based on this key information.

Interviews with administrators & the primary researcher. In order to evaluate the expectations of the key stakeholders in the SLS MALL project, a series of interviews were conducted with all those that would be directly affected and inherently interested in the outcomes of the project. To that end, Graham Crookes, the Second Language Studies Department chair, and Joel Weaver, the Director of HELP, were interviewed to gain a deeper understanding of the administrative perspective. After that, an interview with Dongping Zheng was conducted because she was the primary researcher on this project.

Graham Crookes (Interviewed on April 15th 2015). As the Department Chair of SLS, Crookes has many research interests, but in particular for this project, he has an interest in motivation and the affordances of informal SLA. He believes that MALL is reflective of an “old becomes new” angle in SLA.

In his assessment, HELP is ideally designed as a space where research should be tried out, preferably by current students in the program. Initially, he believes that the SLS MALL project should be a module in a HELP classroom using a “conscious design,” that is being watched very carefully by a liaison between SLS and HELP. In the future, he believed that an SLS MALL project could be implemented as a HELP class and not just as a module, advancing the research data in the field of MALL.

He is aware of the demands that a student in a short-term HELP program has placed on them, and has concerns that interacting in the greater Honolulu environment may be discouraging for students. However, he said that: “The unstructured, ungraded interactional requirements of being in the supposed second language learning environment are much greater than were really ever contemplated by the proponents of informal second language acquisition” (Crookes, 2015).

Joel Weaver (Interviewed on April 9th 2015). As the Director of HELP, Weaver is always looking for more ways for HELP to integrate itself into the research mission statement of the Department of SLS. In other words, HELP is typically seen as a teaching space rather than a research space, and therefore, Weaver would like to encourage more student researchers to try

out some new things that they have been working on within their SLS classes. Weaver said: “I anticipate this not just being a pet-project that links to DSLS, but also being something that establishes a niche for HELP to be using mobile technology in support of our mission to bring our students to a level where they can succeed in an American college or university. The ‘gee-whiz’ factor is there too” (Weaver, 2015).

He said that he would be most interested in developing the project, at the outset, into a module that could be used a “couple of times” during the eight-week program for speaking/listening classes. He mentioned that it is important for him and his student teachers to be able to measure the language gains of the participants after the initial fun has worn off. If the assessment is positive, Weaver would happily consider a more advanced implementation of the game for future HELP courses.

Dongping Zheng (Interviewed on April 17th 2015). As the head researcher on this project, she sees it as a continuation of previous research in virtual worlds that she’s been developing throughout her career, so there are personal stakes in gathering data successfully and accurately. She is a strong proponent of “Design-based research,” which is not a typical strand of SLA. Zheng said: “It has the breadth and depth to be significant, but has the flexibility to change based on the needs of the local population” (Zheng, 2015).

She also feels that the needs of student language learners are often lost in translation when it comes to teachers who design activities without input or feedback from those who need a voice the most. She said: “We often hear from the opinions of professors, but we are out of touch with what students want. Even though, in class, we have some kind of connection. Many educational classes use only a traditional sense to meet different goals” (Zheng, 2015).

Though Zheng has a clear history of using technology to serve the purpose of creating language gains and exposing language use to new real-time challenges, she believes that technology only serves as a tool; not a means to end. It is not simply a matter of using technology just because it is available; rather, she prefers to build an environment where things can change dynamically. Considering that, she feels that there is not a sense of success or failure in a traditional way as long as HELP students are successfully brought out of the classroom. In agreeing just to take that journey, Zheng believes that the project can open the minds of language learners to understand language is more than just textbooks and in-class assignments.

Brief analysis of the interviews. For each stakeholder, the expectations are similar, but a bit different. For the administration, they are looking for a project that can be implemented rather quickly, which also measures language gains for assessment and presentation purposes. For Zheng, she saw the project as another stepping-stone to developing more advanced systems of real-world language acquisition using Design-based and ecological research methods; she does not necessarily need the student participants to produce language gains by way of traditional assessment, but would rather have those students open their minds to the affordances of learning language in unstructured settings.

Goals and Objectives

Taking into account the expectations of the administrators, the needs analysis done with the three HELP participants, and the desires of the research team themselves, three goals in designing and implementation of the game were developed: (a) the students were expected to be exposed to the affordances of learning (English) language using technology in real-life contexts; (b) the game was designed to expose the students to physical sites and important cultural areas of the university's upper campus, enhancing the students' understanding and value of the local area; (c) multiple types of language challenges were built into the gaming structure for the students to overcome, as well as the creation of opportunities for students to use language with "real people" in unscripted situations.

It may be important to note that, at this stage, the design of the game was the most important factor, so clear objectives were not outlined at this time. According to Brown (1995), "Objectives...are precise statements about what content or skills the students must master in order to attain a particular goal" (p. 21). In this case, the research team was most concerned about seeing if they could achieve their overall goals, before moving to specific objectives.

Materials

As for the materials that were developed for *Guardians of the Mo'o*, the game itself was considered the essential material. The research team developed a game that contained 10 quests, each of them containing various language challenges for the students to overcome to complete the game. During the gameplay, the students were asked to follow the storyline of aiding the sick *Mo'o* goddess and visit six culturally significant locations on the University of Hawai'i's upper

campus, including the Japanese Garden, Thai Pavilion, and Center for Korean Studies. In order to succeed in completing the game, the students were asked to work together to solve the challenges, leading to multiple endings within the game. The challenges included reading comprehension, elements of critical thinking, writing short answers to questions, and speaking to at least one librarian in the Hamilton library.

At this time, the materials were developed with the three goals mentioned above in mind. The storyline, the locations visited, and the key points of the story were constructed to fit the initial needs that were identified by both the students and administrators; the researchers were in the stage of “pre-use evaluation [which] involves making predictions about the potential value of materials for their users” (Tomlinson, 2003, p. 23).

Participants

The total number of participants were three male and four female college-aged students from the Hawai‘i English Language Program (HELP). Participants received no compensation or extra credit for their participation; however, they were given the opportunity to leave their regularly scheduled HELP courses early in order to participate with the researchers in the early afternoon. The recruitment process was carried out in one of two different ways: (a) participants had expressed interest in volunteering during the initial survey stage of the project or (b) they were asked to participate on the day of the scheduled gameplay sessions by their HELP instructors.

The ages of the students ranged from 19–24 with a median of 21.3. The nine students who played the game were allowed to choose their own partners or groups that they wanted to work with. As a result, two groups were formed as follows: Group #1 consisted of two male Korean students, one female Korean student, and one female Japanese student, and Group #2 consisted of one Korean male student and two Korean female students.

Procedure During the Gameplay Sessions

On April 28th and May 1st, the student groups were scheduled to play the game, which included time for pre-game orientation and post-game group interviews. Group #1 participated on April 28th while Groups #2 participated on May 1st. Each group took approximately two and a half hours to complete the game.

On the days of the gameplay, each of the student groups were accompanied on their gameplay sessions by two members of the research team at all times. After giving verbal and written consent during the orientation, each student group was recorded by one video camera and one digital audio recorder for the entire gameplay session, as well as the post-game group interview. In addition to this, each student group was given an iPad with the game app downloaded to the hub screen and the students were also given the freedom to download additional versions of the app to their iPhones as well during their orientations. However, each of the student groups independently decided to play the game using only the main iPad as a source of information.

For the students to progress through the game, they had to physically move from new location to new location around the upper campus area. At each new space, there was a new challenge or task that needed to be completed in order to advance to the next stage. It may be noteworthy to mention that UH Mānoa has an affiliation with the campus of the East-West Center, and the students freely moved around that space as well.

The stages (place-based) of *Guardians of the Mo'o* are as follows:

Stage 1. The students are given a map with a GPS tracker point, and the students must use their reading abilities to advance to the next area marked by another GPS point.

Stage 2. The students are given a full explanation of the game's plot, and they must use their reading abilities again to find the East-West Center's Japanese Garden.

Stage 3. When the students arrive in the Japanese Garden, the students are not given an explicit objective at first, and are asked to watch a movie about the Japanese Tea House. After that, the students must solve a riddle using their critical thinking and writing skills.

Stage 4. After walking to the East-West Center's Thai Pavilion, the students must use their reading abilities to find more information about the story and are given the true history of the pavilion as a cultural artifact.

Stage 5. The students are asked to walk to Paradise Palms, which is an on-campus food court, and they are given the option to take a break. Near the area, digital notes will appear on the iPad screen and the students must "pick" them up to advance to the library stage.

Stage 6. In the library, the students must use their speaking abilities to talk to a librarian in order to find out pertinent information about the Chinese exhibit that was occurring on the fourth floor of the library. After going to the fourth floor, students must find a sign that

matches their clues and scan a QR code to receive the next clue, in the form of a riddle. The students must discuss the meaning of the riddle in order to advance.

Stage 7. If students are able to successfully negotiate for action while attempting to solve the riddle, they should walk toward the mountains in the east and they will be able to trigger the next event when they arrive near the Korean Center on campus. Once the students discover two subsequent QR codes, they are instructed to watch a final video about the history of the local area. After the video finishes, they are asked to reflect on the story and write a reflection in order to finish the game

Because of the way this game was designed, students have a lot of freedom in utilizing various language skills to advance to the next stage. However, at key points during the game, students must be doing the following in order to advance the story: (a) read carefully, (b) think critically when writing (typing), and (c) interact with a librarian. Considering this, the game attempts to be comprehensive in challenging students to utilize language skills that they have been practicing in HELP classrooms and apply them to real-world/virtual world contexts.

Due to the fact that students were observed during gameplay, there is a significant amount of data to show that the HELP students had positive experiences with the game in regard to the three goals that were outlined above. However, in addition to the data collected during the gameplay sessions themselves, the research team also conducted post-game group interviews, which will go into greater detail about the aforementioned results.

While the interview data will be presented and explored in depth in the **ANALYSIS AND FINDINGS** section of this paper, it is important to explain that each of the student groups expressed a variety of positive comments about the game and were able to understand what the researchers were trying to accomplish in regard to language learning in new spaces/places.

Mo'o 1.0 Evaluation

Due to the fact that *Guardians of the Mo'o* was assessed positively by students during both the in-game sessions and the post-game interview sessions, it seemed that the proposed benefits of the project that had been outlined, based on initial student needs analysis at the outset of the project, were validated. Because the students were provided with multiple opportunities for interaction throughout the game in a semi-structured, open-world setting, they were able to

engage in dynamic interaction to solve the challenges they faced, as well as decide if they wanted to speak to strangers in order to receive extra help.

As a result, the research team believed that they were able to achieve positive outcomes from the initial design goal since the students were able to confirm their theories about the three proposed goals. A report was made to both the administrators in HELP and the SLS department in early May 2015 and both administrations were happy with the initial results, but felt that *Guardians of the Mo'o* in its current form was far too long to be a module. The key point of criticism being that administrators in both SLS and HELP would be willing to continue to support the project as long as it was significantly modified to be suitable for the needs of the typical HELP curriculum.

MO'O 1S: “COMMUNICATION PRACTICE” COURSE PROPOSAL

Based on the positive feedback received, the research team spent one year doing an analysis of all the data that was collected in order to better understand how the game could be implemented in a typical HELP curriculum.

Originally, both the administrators in the SLS program and HELP had expressed interest in the *Guardians of the Mo'o* game becoming a module in a more typical class in the HELP curriculum with a guided teacher's manual for HELP instructors. The game itself was not meant to be the focus of the class, but rather something extra that could be built in to supplement student learning. It did not necessarily have to fit perfectly into the curriculum of the course's textbook, but it had to make sense to the instructor and the students, and include some element of assessment after the gameplay had ended.

Initial Plan for Mo'o 1S: HELP 311LS

In January 2016, the research team began rethinking the *Guardians of the Mo'o* and how it could become a series of modules, rather than a stand-alone game. Since the game itself was essentially segmented into six different places with various tasks to complete at each stage, it was only natural to adapt the game to become more episodic and related to “place” on the upper campus.

With this point in mind, the research team's initial idea was to maintain the game's original

storyline and break it up into six main quests, each of them set in a new location. The idea was that the game could be played once a week, for six consecutive weeks, and thus making it more accessible for both students and teachers alike.

The target course to adapt the game into a module was initially going to be HELP 311LS (an intermediate level listening & speaking course) during the Summer Session 1 of the HELP academic calendar. That course was scheduled to start in mid-May, and last six weeks. The research team believed that the game could be played every Friday, and scheduled the class to be the last class of the day since it may have run a bit overtime with the students having to walk to the upper campus as part of the class. In terms of assessment, the students would be asked to write reflective essays or journals about their experiences each week and how it affected their listening and speaking. They would be encouraged to discuss whatever aspect of the game influenced them the most.

Needs Analysis for Mo'o IS

After outlining their plan and feeling confident about the newly discussed modules, the research team scheduled a meeting with HELP administrators to discuss it, which was conducted on March 9th, 2016.

The research team explained their vision for the LS311 course, but they were surprised to learn that the HELP administrators did not share the same vision for the course. During that meeting, HELP Assistant Director Christine Guro expressed the point that HELP teachers typically have “a lot of freedom in setting their own curriculum” and students “have certain expectations about their courses when they sign up” (Guro, 2016). As Brown (1995) stated with reference to needs analysis, “Learners are, in a sense, clients and their needs should be served” (p. 20). Therefore, it was decided that devoting a large amount of time to a new game would be risky in the regular curriculum.

As an initial test of the new game design, the HELP administration would only be willing to allow one to two classes to spend on the game and even then, that would be contingent on teacher support. At this stage, the research team recognized that their needs analysis may have been perhaps too narrow, as they spent a large amount of time focusing on what they felt the students needed, and had not considered what HELP administration or HELP teachers may have wanted.

Despite this, the research team decided that they would still like to proceed with their game by modifying the original game to just two modules for the LS311 curriculum and fit it into the existing curriculum logically. The team's intention was to meet with the HELP instructors scheduled to teach the course and then confer once again with HELP administrators.

HELP's 364LS "Communication Practice" Course

However, during a follow-up meeting with HELP administrators conducted on April 29th, 2016, the situation with regard to the game's implementation had changed rather suddenly. According to the administration, they were willing to take a chance on an "experimental curriculum" during their Summer Session II program (Weaver, 2016). This was due to the fact that during the Summer Session II's scheduled courses, there was going to be a large influx of students from South Korea that would only be staying in the program for a month. Since these students would not be obligated to take classes in the regular curriculum in the immediate future, there was "more room for innovation" (Weaver, 2016).

As a result, two members of the research team were selected to become instructors of the new 364LS Communication Practice course which was currently scheduled as the last class of the day for HELP students during Summer Session II. The course ran from July 5th to July 29th (Monday through Friday) from 12:55pm – 2pm. Two sections of the course were opened at the 300 level (intermediate level) so that both instructors of the research team could teach the class at the same time to different groups of students. The intermediate level was chosen for this course because of the English level of the story and the tasks were originally designed with intermediate level of student in mind.

With regard to the goals and objectives of the course, they were initially more flexible. However, it was decided that the new course must have an overall theme, cultural diversity, to tie the curriculum together, and HELP administrators would collaborate with the researchers to develop appropriate SLOs.

In this case, the game itself was not be the only component of the class, but rather, the need for the gaming aspect of the course needed to be clear logically. As previously mentioned, it was important to the administration that the students be evaluated on what they have learned in some form, whether that take the form of essays, tests, or final presentations on the experience.

Though the objectives of the program and the content remained open according to each

instructor, the research team had already prepared a preliminary outline of what the learning outcomes would be for the first 3 weeks of the course below.

Table 2

Outline of the “Communication Practice” Course

<u>Week</u>	<u>Topic</u>	<u>Reading/Videos</u>	<u>Assignments</u>
1	Cultural Diversity	Individual Freedom and Self-Reliance	Learning Journal
2	The Importance of History	University of Hawai’i Education	Mid-term Presentation
3	Integration of local culture	Hawaiian culture and home culture	Final Presentation

Based on this outline, it is clear that the focus from the original game design shifted toward a more holistic look at understanding cultural diversity and improving intercultural communication skills. This became the main goal of the program with more specific objectives constructed through a negotiation between the research team, and HELP administrators. As explained in Brown (1995), “When [objectives] are a result of faculty cooperation and consensus building, objectives stand a much better chance of success. Without goals and objectives, a program may have no clear purpose and direction” (p. 105).

Materials Design for Mo’o IS

As the course shifted into a focus on diversity and intercultural communication, the research team took care in keeping the following points outlined in Nelson (1995) in mind:

Examples of effective intercultural communication skills include (1) describing, not evaluating, behavior; (2) being open to new ideas; (3) accurately perceiving differences and similarities between other cultures and one’s own; and (4) being empathic toward people from other cultures...ESL/EFL textbook writers can also develop materials that teach students the skill of culture learning by creating activities that teach student strategies for learning about other cultures. (p. 29)

The course focused on presenting students with ideas about diversity as an abstract concept before giving more concrete and local examples, and then finally asking the students to recognize their own experiences of dealing with diversity through playing the game.

The original game was modified into three shorter gameplay sessions (two recycled from the original and one new) during the first three weeks of the course. The storyline of the *Mo'o* was modified in favor of shorter quests with very specific tasks. The three tasks were outlined as follows:

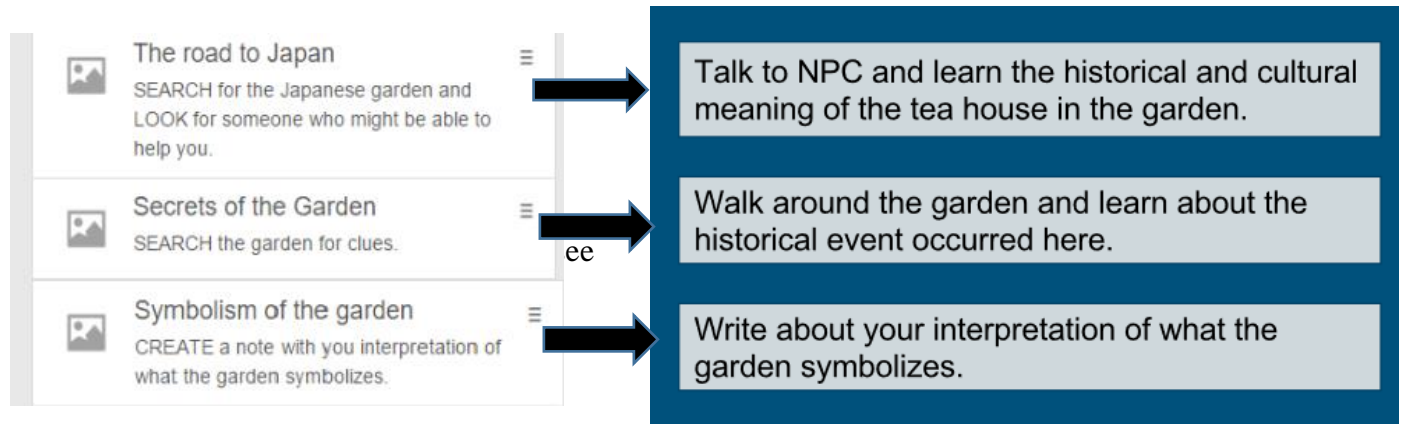
Week #1 – Discovering Cultural Diversity on The University's Campus. The students used the class time to physically walk to the Japanese Garden on the upper campus with the game downloaded on their iPad or iPhone. The students had the following three tasks to complete in the garden: (a) talk to a virtual character and learn the historical and cultural meaning of the tea house in the garden; (b) walk around the garden and learn about the historical event that occurred here; (c) write their interpretation of what the garden symbolizes on their mobile device.

Week #2 – History and the University of Hawai'i. The students used the class time to physically walk to the Varney Circle fountain on the upper campus with the game downloaded on their iPad or iPhone. The students had the following three tasks to complete there: (a) talk with a virtual character and learn about the history of Varney Circle; (b) discover and reflect on the meaning of a Hawaiian “tiki;” students will be asked to take a photo of the tiki as well; (c) HELP students should interview others students walking near Varney Circle about why this meaningful architecture on campus should be protected.

Week #3 – Using Local People to Enhance the Understanding of Place. The students used the class time to physically walk to Paradise Palms on the upper campus. A virtual character popped up explaining that there were nine additional places that were culturally significant on campus. Of the nine places, the students were only asked to visit five that they were interested in. The students had the following three tasks to complete in order to receive a small digital badge:

1. Students physically travelled to an area on their map, and learned about the history of that place;
2. The students recorded a short interview with someone around the area, asking if they know something about that particular place. If the person did not know anything, the students should have explained what they learned to that person to share knowledge;

3. After successfully recording, the students should pick up a digital badge. After receiving five badges, they were able to complete the game.



In addition to the materials that were being created, the research team was also assigned a textbook to be used as the main source of information for the students at the beginning of the course, which became relevant to the goals outlined in the initial syllabus. According to Brown (1995), “[I]f the needs analysts favor the communicative approach, the units of analysis will tend to be the speech acts, functions, interactional moves, and turns familiar to practitioners of discourse and text analysis.” (p. 141) Therefore, the course was designed to have significant readings in mind, as well as smaller group activities leading up the actual gameplay.

Goals and Objectives

Regarding the established goals and learning outcomes for the more traditional 364LS course, many of them fit within the context of having a modular MALL game context with minimal amending. In the overall sense, the course description explained that the goal of the course was for students to “[d]evelop [their] English speaking and listening skills as [they] learn about real people and real places, as well as learn and practice vocabulary in real conversations related to a theme about people or places in the world.”

Considering this, the research team first looked through the course’s standard textbook in order to pull out existing themes from particular units to use in preparation for the Friday gameplay sessions. Perhaps a bit surprisingly, many of the units in the textbook already corresponded with the themes that were initially brainstormed when considering new quests for

the course, and the following themes were chosen: Unit 10 (Mysteries), Unit 11 (Learning Styles), Unit 9 (Health and Safety), Unit 12 (The Future). In addition to the main textbook, a supplementary textbook was used with a specific chapter called “Orienteering and Hidden Treasures.”

After the lessons were outlined on a weekly basis with the MALL game essentially being the main activity/assessment for the first three weeks, the following objectives for the course were decided upon:

1. Demonstrate good use of strategies for recognizing main ideas and most supporting details in authentic aural materials.
2. Apply a range of language structures to interact effectively in interpersonal and academic situations.
3. Express opinions (including agreement and disagreement) with appropriate support.
4. Give oral presentations (up to 10 minutes) in front of the class in own words with minimal reading of notes.
5. Display academic values by taking responsibility for one’s own learning and by demonstrating basic competence with information technology.

Because the gameplay sessions themselves would not be suitable for achieving each of these objectives on their own, the work being done in the classroom was just as essential to scaffold and optimize learning. As a result, the instructors decided to include a mix of textbook activities, small group discussions, debate, orientation to technology, and two group presentations (one midterm and one final) as essential elements of the course.

Key Differences from Mo’o 1.0

#1. The gameplay was divided into modules and supplemented by a textbook. As explained in the previous section, one of the primary differences between the first and second versions of the MALL project was that gameplay sessions that the students experienced were interwoven with themes that were introduced in the textbook each week. For instance, during Week 1, the students would be asked to explore the theme of mysteries in the world using some key examples from the textbook. The students would then be asked to answer comprehension questions of reading and listening activities, regarding famous mysteries like the Easter Island moai statues and the underwater pyramid near the Ryukyu islands in Japan.

Later in the week, the instructors then asked the students to research and explain a famous mystery in their home town or home country to the rest of the class, incorporating vocabulary and grammar points from the book. Finally, the students were asked to solve a mystery within the local area of the upper campus using the MALL game on the Friday of Week 1, as well as reflect on the experience the following Monday.

Because the students were able to see the clear connection between the topics introduced in the text and the Mall game's quests, the rationale was that they would be properly orientated to the task, and therefore, more engaged.

#2. Students were asked to directly draw connections between textbook learning and MALL. As an extension of the point made above, the instructors were explicit about the incorporation of a MALL game into the classroom with their students. A brief introduction to MALL and its proposed benefits were shared in both classrooms during Week 1 of the term in order for the students to become comfortable with hybridized course of traditional and game-based learning.

Therefore, reflection on the gameplay elements and how physical investigation into some of the themes of the textbook became a regular element of the class on a bi-weekly basis. Students considered their own learning styles and discussed in small groups about what kinds of classroom techniques work best to facilitate learning.

During Week 2 and Week 4 of the term, the students were asked to give more formalized group presentations about what connections they were able to make from both the textbook and the gameplay sessions. The core idea being that the students would be able to take ownership of their learning by explaining to the class what was most meaningful to them during the course.

#3. The students were required to speak directly to more people "in the wild." One of the key elements of Mo'o 1.0 was that students had the option to speak to real people on campus in order to aid them in their quests, and in the case of the library quest in the first version, students were highly encouraged to speak to a librarian in order to progress to the next stage of the game.

Keeping these points in mind, the researchers designed mandatory sections into the MALL game during Week 2 and Week 3 where the students were required to conduct short interviews with real students, professors, and staff on the campus. In this case, the students were asked to use the recording function of the ARIS software to tape interviews with a set number of people addressing the key theme of that given week. For example, during Week 2 when the students

were required to learn about the history of the Varney fountain, they would then have to talk to people in the surrounding area to either learn more about that structure or share what they have learned themselves.

Because of these mandatory interview sections, the students would be required to interact with at least eight different people in total in order to complete the entire game, as opposed to the option of interacting with one librarian in the Mo'o 1.0.

Participants

The total number of participants was 18 students (mostly college-aged) from the Hawai'i English Language Program (HELP). Since the mobile game was integrated into the course itself, the participants were required to join in during the gameplay days to complete the course; however, they were given the option of whether or not they would like to participate in the research. It was made clear from the beginning of the course that participants would receive no compensation or extra credit for their participation.

The students ranged in age from 19-23 for the majority of the students; however, there were two additional students that were in the middle-aged range as well. Of the 18 participants, only one of the students was male, and in terms of ethnicity, 13 of students were Korean, five were Japanese, and one was Chinese.

Since there was a large number of students, the 364LS course was split into two sections of nine students each. These sections were taught in different classrooms by two members of the research team. The 18 students who played the game were placed into random groups of three at the outset of three gameplay sessions. The original intention was to have the same group of three students play together over the course of the three weeks; however, sudden absences and an unrelated injury to one student caused some groups to merge just before the gameplay sessions.

Data Collection

During the course itself, the research team received approval from HELP administrators and the students to do continued data collection during the classroom and gameplay portions of the class. The researchers used video cameras to do on-site observations. The researchers were originally primarily interested in collecting qualitative data from individual students since it "may turn out to be crucial to the actual decisions made in a program," but quantitative data

proved to be quite interesting as well for this version since the numbers of students playing the game was much higher than Mo'o 1.0. (Brown, 1995, p. 231).

More specifically, the majority of the data collection was done during the gameplay Friday sessions using the video cameras. In addition, the final presentations of each class were also recorded, and written feedback was taken from the students in regard to the MALL elements of the course. The final course evaluations for both instructors also proved to be useful in summarizing students' feelings about the course overall.

Mo'o 1S Evaluation

Before examining what was expressed regarding the game, it is pertinent to explain that, by overall standards, the classroom/MALL course was generally well-received by both administrators and students. Despite technical glitches on site and some unavoidable absences, all 18 of the students were able to adequately complete the course and participate in the gameplay sessions as intended by the researchers. In that sense, many of the initial research goals and objectives of the first version were achieved in the second version as well, including orienting students to the localized space, encouraging them to interact with people "in the wild," and providing ample time for more informal interactions between student groups in English as their L2. Key components of the collected data will be presented and explored in the following section.

DATA ANALYSIS AND FINDINGS

In both the first and second versions of the MALL games, the students were observed in-game by the research team and also asked direct questions about this style of learning in post-game interviews or as a component of the class. In order to better understand exactly how languaging was taking place and how these students were able to form their opinions on elements of the gameplay, both in-game data and post-game data/evaluations will be presented and analyzed.

In-Game Data

Excerpt #1 (from Guardians of the Mo'o). During one of the quests in Stage 3 of *Guardians of the Mo'o*, the students must explore a Japanese Garden on campus and investigate a small stream that is running through the center of it. The stream was designed to take the shape of the Chinese character for “heart”, but the same character for “heart” is also used in Japanese writing. The students of Group #3 (S6, S7, & S8) were unable to complete Stage 3 of the game because they became confused about the perceived difference between Chinese and Japanese characters when researching the issue in English. The group decided to talk to workers at the Japanese Tea House (T1 & T2) in order to gather more information about the area. One of the researchers (R2) also provides additional support.

- 1 S6: Excuse me? Uh:: may I ask (.) a question?
+GAZES AT T1
- 2 T1: +Yes.
+GAZES AT ALL STUDENTS AND RESEARCHERS
- 3 S6: Do you know (.) what is the symbol of the +river?
+ POINTS TO GARDEN
- 4 T1: No, +\$I don't\$ Uh:: it's supposed to make a kanji or
+SMILES
- 5 some kind of uh:: shape (.) but I don't remember what it
- 6 was supposed to make.
- 7 S7: Ah::↓
- 8 T1: +Yea
+GLANCES AT T2 TWICE
(1.7)
- 9 R2: Do you guys know what Kanji is?
+GAZES AT S6 & S7
- 10 S7: Kanji?
- 11 R2: +Do you know what Kanji is?
+GAZES AT T1
- 12 T1: +hhhh
+SHAKES HEAD
- 13 R2: >No no no<, I mean kanji in general
- 14 T2: Oh. It's Japanese for the symbols they use, [so-
- 15 T1: [yea, Chinese
symbols]
- 16 S7: [Yea, yea]
- 17 R2: +They are Chinese symbols.
+GAZES AT S6 & S7
- 18 S6: Oh::
- 19 S7: +Ah:::::
+S8 RAISING BOTH HANDS, PALMS UP
- 20 S7: +mwenci ala? ((in Korean))
Do you know what it is?

- +S7 GRABS S8's ARM
21 +Japanese language has +different (2.8)
 +POINT AT S8
 +HANDS MOVING UP AND DOWN
22 +to write (2.3) an::d kanji is Chinese letter. Chinese shape.
 +RIGHT HAND UP, MIMICKING WRITING
23 S6: +Katakana, Hiragana, and Kanji
 +S7 NODDING
24 S8: +Ah:::
 +S8 NODDING
25 S7: Ah, I see that. \$that's why Chinese character\$ ah, I get it
 now.
26 S8: hhh.

In this excerpt, the students of Group #3 decide to engage with people “in the wild” in order to solve their first major riddle of Stage 3, which was “What does the stream in the Japanese Garden represent?” S6 takes the lead by asking if T1 knows the answer to the riddle, but in lines 2 and 4-6, T1 expresses that he does not know the answer very well. In line 9, R2 decides to provide assistance by asking an indirect question that is meant to spark discussion among the student group, and in line 11, directly at T1. At this point, T2 joins the conversation by answering R2’s question, and T1 assists him by confirming that they are Chinese symbols. In line 17, R2 repeats T1’s answer directed toward the student group, and S6 and S7 show markers of understanding. However, S8 is still not able to understand that Chinese characters and Japanese characters called “kanji” are the same symbols, so S7 uses language and gestures to create a teachable moment in lines 20, 21, and 22. Even though S7 does use Korean for one line, she quickly switches back to English to explain her new understanding to her partner. In line 23, S6 supports S7 by saying the three major writing systems in the Japanese language while S7 nods. Finally, in line 24, S8 produces an utterance of understanding, and S7 expresses joy in figuring out a major hint in solving the overall riddle in line 25.

This excerpt also shows a clear instance of how one of the proposed benefits of the MALL game plays out in reality. The students were faced with a riddle challenge that they were not able to solve without support. They were allowed to use the internet in order to solve the riddle, but instead, they chose to ask a stranger in the target language for assistance. Even though T1 did not have the direct answer to the riddle, he was able to provide an important hint for the student group that was co-constructed along with T2 and R2. After the students were able to make sense

of their previous confusion, S7 and S8 expressed joy in having learned something new as well as happiness in having completed the interaction successfully.

Excerpt #2 (from HELP 364LS). Near the conclusion of the Week 2 gameplay session, Group #5 (S12, S14, & S15) learned about the history of the Varney Circle fountain on campus, and they understood that it's funding had been cut. In order to progress to the ending of the session, the students were asked to conduct interviews with people in the area about this topic. In this excerpt, the group approaches a college-aged student (M) on the sidewalk to complete their quest:

- 1 S14: Can I record you?
- 2 M: Oh sure.
- 3 S14: Thank you.
- 4 S12: Uh, do you know the fountain (0.4) over there (0.3) the
- 5 history? (0.3) Uh, do you know the history of the fountain?
- 6 M: No.
- 7 S12: You don't know? And uh, the fountain is now [broken
- 8 M: [Yeah.
- 9 S12: Uh, what do you think about that?
- 10 M: I think (0.2) I think it should be fixed.
- 11 S14 & S15: hhhh
- 12 S12: Fixed?
- 13 S14: Um, it is broken because government don't give money
- 14 (0.2) doesn't give money.
- 15 M: That happens all the time.
- 16 S14: hhhh (0.3) But +ask him. Ask him his opinion.
- +GAZES at S12
- 17 S12: What's your opinion?
- 18 (0.8)
- 19 M: That's UH for you. They don't know how to spend their money
- 20 wisely.
- 21 S14: hhhh
- 22 S12: Mm.
- 23 M: They just (0.2) I'm sure if they just did a little fixing
- 24 here and there, then I'm pretty sure they would have enough
- 25 money to fix the fountain. Make (0.3) make it the center of
- 26 campus and make it vibrant because this is probably the most
- 27 iconic spot in (0.3) of all the campus.
- 28 S15: Oh.
- 29 S12 & S14: Thank you very much.
- 30 M: Ok. No problem.
- 31 S15: Thank you.

From this excerpt, there are quite a few notable elements at work. First, in lines 1 and 2, it is clear that both the students and M are aware of this interaction as an interview frame because of the use of the recorder in the iPhone. In line 4, it is S12 that takes on the role of interviewer immediately as she asks M directly if he knows about the history of the fountain. Despite the fact that M gives a negative response in line 6, the interaction does not end abruptly as it might in the real world. Due to the gaming context and the interview framework, S12 does not give up her questioning and provides M with the key information that the fountain is broken in line 7 and asks him again to share his opinion in line 9. M does not hesitate in forming his own opinion on the issue and responds clearly to the question that it “should be fixed” in line 10.

In particular, what happens from line 13 to 17 is quite distinctive. In line 13, S14 also orients to the interviewer frame and feels that she can add additional information to the interaction to help M better understand the scenario, explaining that lack of funding has caused the fountain to be shut off. However, S14 also realizes that perhaps she is taking a turn away from S12 to speak to others “in the wild” and decides to give the turn back to S12, even though she could have continued the interview herself. In line 17, S12 immediately take back her turn by asking M directly about his opinion once again. From line 19 to line 27, the students listen to M as he shares his opinion. Interestingly, M refers to the fountain as the “most iconic spot” on campus starting from line 26, giving further evidence to the students that the certain local areas on the campus are noteworthy. In lines 29 and 31, the students thank M and close down the interviewer frame successfully.

This example of one of the interactions that the different student groups had on campus is useful in determining some of the unique elements of Mo’o 1S. First, the students seemed to be more at ease in approaching strangers because they were able to use the excuse of a short interview to frame the interaction. Because the students knew that they had to conduct three interviews in total, they worked out amongst themselves who would take the lead for each new interaction, which was S12 in this case. In addition, there is evidence to show that the in-group cohesion of the students themselves was positive as S14 and S12 were able to smoothly conduct an interview without confusion. Finally, because M was asked about his opinion directly, he was able to share an emotional connection to the physical place of the UH upper campus and explicitly tell the students the fountain should be considered “iconic.” His answer, in essence,

supplemented the information that the students were already given in text form that certain locations on campus should be considered special and worth researching.

Post-Game Data

Post-game interviews from Guardians of the Mo'ō. After each gameplay session during Mo'ō 1.0, post-game group interview sessions were conducted by the same research team using the same cameras and digital recorders. Each student group was interviewed by two researchers within the Korean Center, and the sessions lasted about 30 minutes in general. The interview sessions themselves were unstructured; however, the research team's goal in conducting the interviews was to elicit honest feedback from the student groups about their gameplay experiences during each session, so the questions were generally open-ended.

In regard to the goals of Mo'ō 1.0 itself, the interview excerpts will be divided accordingly:

#1. Student perceptions of the game and the language challenges. The post-game interviews revealed that the students enjoyed the specific language challenges and how the iPad incorporated into their social interactions. For example, Student 2 (S2) said, "We definitely were engaged with the instructions that we saw [on the iPad]. There were so many pictures that made us smile." This shows that S2 understood that the iPad was meant to be a tool used for instruction, but because he remembered how his group smiled during the gameplay session, he was also thinking about the group interaction as well. Also, when asked what was enjoyable about the game, Student 5 (S5) said "Maybe the story related to the quiz and the questions. It was interesting." So, it seems that S5 was able to make the connection that the storyline of the game was created in order to promote discussion when it came time to solve the riddles, promoting further opportunities for interaction.

#2. Student perceptions of place-based learning. When reviewing the post-game interview data, various students also looked upon place-based learning favorably. When asked about her favorite points in the game, Student 3 (S3) remarked "Actually, today, we could go around many historical buildings, and learn about Japanese, Korean, [and] Chinese culture... Actually, I'm Japanese, but I've never been to [the] Japanese Garden. It was beautiful." For S3, the Japanese Garden represented a site that not only allowed opportunities for interaction with her group, but there were also several plaques in the garden that served to mark historical points in the target language, and perhaps she may visit that space again in the future due to her positive experience.

Student 1 echoed S3's thoughts by pointing out that by going to the Japanese Garden and the Korean Center, "we can enjoy different cultures." Finally, when Student 4 (S4) was asked about her favorite part of the game, she said, "It was the first time for me to go to the places I've never been to, even if I study at UH. So, it was a pleasure to go there with the quest for me." Because the students were able to have new experiences through interaction and learn something new about local spaces, it seems that their thoughts on the place-based element of the MALL game were positive.

#3. Student perceptions of interacting with people "in the wild." What is particularly noteworthy in this case is that it is more than likely that this interaction would not have occurred without the context of the MALL game. When asked about this interaction specifically during post-game group interview session, S4 revealed that "I probably would not talk to anyone in that situation. I would just use my iPhone," and his rationale was that "it's just more convenient." However, when the researcher pressed for further details, they found that the students felt like they had had positive experiences when interacting with strangers during this game because "they were so kind," and also, S3 said that "it didn't matter if they didn't have answers. They just wanted to help." This information is really useful because it shows that the MALL game seems to place students out of their comfort zones of using mobile technology for convenience and allows them to have more opportunities for social interaction; even when the interactions did not result in direct answers, they were still deemed as positive experiences.

Excerpt from a final presentation of the HELP 364LS course. At the end of the course, the students had to give their final presentations about the aspects of the game that were meaningful to them, combining elements from the textbook, the gameplay, and their own research. Group #1 consisted of S1, S3, and S4, and they decided to give a presentation about the Center for Korean Studies and the John F. Kennedy theater on the upper campus. The following is an excerpt from S4's section of the presentation, after S1 and S3 had finished speaking:

32 S4: So, umm, through this game, we could, we could visit many
33 Place, such as Korean Center, or Japanese Garden, or John F.
34 Kennedy Theater. So, actually, before I play this game, I
35 didn't know any information. So, I wondered why Korean Center
36 is in campus, or why this theater is called John F. Kennedy.
37 So, I guessed a long time ago, John F. Kennedy may have
38 visited this theater. So, after we visited this place, and we
39 interviewed some people, and asking some information or

40 researching some information, we could learn many
41 information, such as, how the theater was designed by I.M
42 Pei. He's a world famous designer. Also, the Korean center
43 has so many history. But, actually, this information could be
44 learned through this textbook, but if we just read this
45 information in textbook, maybe we will forget soon. We
46 learned by doing something, asking, interviewing, visiting,
47 researching, or something like going. We will learn more
48 information. We will memorize more information. This theme
49 that we learned in the textbook is called kinesthetic.

From this excerpt, there are several elements that show how S4 was making sense of the class as whole during this final presentation. As mentioned earlier, Mo'o 1S attempted to create a connection for the students between text-based learning/researching and physically investigating. Starting on line 35, S4 explains that he had wondered in the past about the reasoning for having a Korean Center on campus and why the theater was named after a famous American President, but he had not done any investigation on his own. He expresses some of the things that he learned from line 41 to line 43, and explains that he recognizes that the group possibly could have learned these things from the textbook. However, in line 45, he expresses that, if they just learned through reading, "maybe [they] will forget [it] soon." Then from line 46 to 48, he explains that the combination of both text-based learning and investigation resulted in the group learning more and perhaps retaining more information as well. Finally, it is particularly interesting that he summarizes the overall point by using the vocabulary word "kinesthetic" in line 49, as that was one of the key vocabulary and discussion points from the main textbook during Week 2.

In essence, the excerpt from the final presentation shows that this group was able to grasp why MALL games used alongside traditional learning do have merit. S4 was able to express that he had previously been inquisitive about certain local places in the past, but did not have the motivation to research those sites on his own. While we cannot make a strong claim about the retention of information in regard to text-based learning vs. a more hybridized course, it is quite clear that these students felt a closer connection to those sites through the process of mental and physical investigation. S4's inclusion of key vocabulary from the textbook and his reference to the supplementary reading about some of the sites on campus also show that he was able to make the intended connections between the classroom learning and the MALL game as well, providing further evidence that another element of Mo'o 1S was being perceived as beneficial.

Student/administrative evaluation of the HELP 364LS course. The researchers were interested, in particular, to know how the materials affected the course and what may need to be revised for future iterations of the course. Post-game evaluations were particularly important for the longevity of the course in the way that Tomlinson (2003) describes, “[they] can measure the short-term effect as regards motivation, impact, achievability, instant learning, etc., and it can measure the long-term effect as regards durable learning and application” (p. 25). As this course will be the first time that a MALL game has been implemented into the HELP program in a meaningful way, course evaluations were essential to understanding how students truly felt about these experiences.

There were two rounds of evaluation: the first being a formal essay reflection on the MALL aspect of the course during Week 3, and the second being the traditional anonymous course evaluation on the last day of class. In both cases, the general opinions towards the game and the hybridized course were largely very positive.

From the formalized essays, the students expressed some of the key elements of the course. For example, S1 wrote in regard to learning language in a new way that “it was very interesting to play a game using GPS, and [we] did the mission step by step. At first, it was confusing, but the next time got better.” S4 expressed his enjoyment of the collaborative aspects of the gameplay within the group when he said, “I like this game because we can help each other use English.” S7 explained how the hybridized course may have provided new motivation for the students as she explained, “I think it makes students feel excited and have more interests during the class than just looking at only book.” Finally, S8 related the theme of kinesthetic learning from the textbook back to the gameplay in the same way that S4 did in his final presentation: “Since I think I am a kinesthetic learner, I really like the way we learn language through activities, talking with the classmates and games.” Interestingly, each student was able to highlight different aspects of the gameplay that were meaningful to them.

Continuing with the course evaluations, the majority of the students strongly agreed that the course content was helpful and the goals were clear. Only one student expressed “no opinion” in regard to the homework of the course. In addition, there was a short answer section in which the students had to express “The part of the course that helped me most was _____.” Similar to the varied feedback of the formalized essays, the students had diverse answers including the

following: “Sharing our opinions freely with others help[ed] my communication skills,” “improve[d] my oral English skills,” “I could become confident to talk to a foreign person,” “discussion [during] almost every class.” and “game learning outside was interesting and fun.”

While the evaluations indicate that the course was very positively received, the variations in what was positive about the course indicate that a hybridized course has the potential to cater to various types of learners and learning styles. While one student may not have enjoyed the physicality of walking around, the same student may have found enjoyment in speaking to new people in their group or in the wild. Because the course merged traditional learning with gameplay elements, it became fluid enough that each of the students could find enjoyment in one or two of their favorites aspects with the understanding that all of the activities were meant to inform each other.

Finally, it is worth noting that HELP administrators were also satisfied with the course evaluations and the student reactions to the new style of learning. While there were areas that could have been implemented more smoothly, the administrators were clear that they would be willing to support a new iteration of the game in the near future.

DISCUSSION

RQ #1: How did the student communicative activity types change between Mo’o 1.0 and Mo’o 1S?

When considering the in-game examples of data between the students who talked with the tea house worker in Mo’o 1.0 compared to the students who spoke with another student about Varney Circle in Mo’o 1S, there is a distinction to be made about the types of communication activities that are occurring.

In the tea house example and several others within Mo’o 1.0, the students were unsure of what to do to progress in the game and therefore were unsure of what to ask the people that they encountered. They were taking a greater risk in beginning the communication because they had to consider what they were trying to accomplish, what they wanted to say, and also how the other person would react to an unusual inquiry. Since the students were never told explicitly by the game itself to talk to people in the area, the students may also have feared that they were wasting time by initiating this action.

On the other hand, the Mo'o 1S design was much more explicit in its goals, which were drawn from the data gathered in Mo'o 1.0. In Mo'o 1S, the students were required to initiate conversations in order to actually complete the game, and they were given a tutorial in operating the recording features of the ARIS software. Because of this, students in the hybrid course had many more interactions with people on the campus, and they became more comfortable in doing so because they were able to frame these interactions as student-to-student interviews. The students in the 364LS course were already provided with the appropriate information they needed to initiate communication, and they only had to ask basic questions to the interviewees; therefore, the risk they were taking was reduced, but the number of interactions that directly served the gameplay increased significantly.

For the purposes of instruction of a listening and speaking course with a set class time, the communicative activity types that occurred during the 364LS course would most likely be more favorable since the instructor and the students were able to see clear progression in-game by initiating conversations. However, there is inherent flexibility built into the design, so that future instructors of the hybrid 364LS course can consider what kind of communicative activity types they favor when sending their students out for gameplay.

RQ #2: How do mobile language learning games broadly cater to students with different learning styles? How do student values contribute to their experiences with gameplay?

From the various evaluations of both versions, there is considerable evidence that supports the fact that multiple students from different groups of players had a positive assessment of the MALL game and the subsequent course. However, only focusing on having positive assessment in a general sense does not necessarily ensure that a new iteration of the 364LS course at HELP should be created.

It is the fact that multiple students from different backgrounds assessed the game positively in different areas that is important. As seen in the data provide above, students from both Mo'o 1.0 and Mo'o 1S were able to see merit in MALL games in various ways including place-based aspects, the interesting storyline, the physicality of questing, the push towards speaking to strangers in the target language, and how frustration/confusion can lead to more excitement when overcoming challenges.

The key element to consider when thinking about the direct student feedback is not that they were satisfied with the game, but the fact that the game satisfied a variety of different students with different learning styles that is the most important. In other words, MALL games used within classrooms may have more merit than traditional learning methods in the sense that they will be able to cater to or be tailored to meet the needs of a diverse population of learners in a variety of contexts.

RQ #3: How can the mobile game-based curriculum create a community of practice within educational institutions?

When considering the scale and time commitment of starting and completing a MALL project through more than one version, it would be extraordinarily difficult for a single teacher to accomplish this kind of work on their own. Generally speaking, it takes a team of motivated designers and instructors working together just to get the project started. Because completing and implementing such a project in a classroom requires the additional effort of willing administrators and instructors in the specific context, actually completing these projects becomes even more complex.

Therefore, it is quite important to explicitly direct attention to how MALL projects could potentially be seen as forces for creating greater ties between students, researchers, instructors, and administrators in current and future educational settings. The process that was described from Mo'o 1.0 to Mo'o 1S took the effort of a number of people who were motivated to explore this style of language learning. Because the researchers were open to feedback at every stage of the process, this second version of the game became more manageable to the administrators at HELP, and the research team was able to upgrade one or two modules into month-long course with two different sections.

Due to the research team's positive experience in considering the needs of everyone involved in the process of making the 364LS hybrid course a reality, MALL games have the potential to bridge the gap from student to teacher to administration, as each of those agents is allowed to have a relevant voice in the ongoing process.

Limitations

Despite the fact that the course was determined to be a positive experience for both students and administrators overall, some of the limitations of the project need to be addressed in order to provide a more complete overview of the study.

Firstly, the data collection of Mo'o 1S may have been effected by the presence of the instructors acting as researchers. During the *Guardians of the Mo'o*, the researchers met with the students on the same day that the gameplay was taking place, and thus, the researchers and students did not have an immediate rapport. If the students were facing a difficult challenge during the gameplay, the researchers did not have any obligation to help them or provide clues.

The researcher as a fly on the wall was not a reality when trying to collect data for Mo'o 1S precisely because the camera operators were also the instructors. When comparing the video data between *Guardians of the Mo'o* and the various groups being filmed for the 364LS course, there is a significant increase in students talking to the instructor rather than talking with other group members. Because the instructors were present during the entire gameplay session, students were often tempted to talk with the teacher directly in order to find out how to progress through the game more smoothly. Likewise, the instructors may have been more willing to give hints as the gameplay sessions could have only been maximum of one hour, according to the time scheduled for the regular course.

While it is true that the rapport from student to instructor during gameplay could be considered part of the aforementioned community of practice, there is still an issue when a person who is acting as observer is often asked to become directly involved in the game. If the hybrid course is implemented in the regular HELP curriculum, it is recommended that the instructors of the course not also be the ones who will be filming the students for future data collection.

In addition to this issue, another potential point of contention among future instructors would be the actual connection of the textbook to the MALL game. For Mo'o 1S itself, the research team and the HELP administrators decided that it could be based on themes presented in the textbook rather than specific grammar and vocabulary from the chosen chapters. While it is certainly possible to measure language gains and check student comprehension by creating a clear rubric for the mid-term and final presentations, the gameplay sessions themselves are not necessarily used in the same way as traditional assessment. Therefore, some teachers may have a

difficult time justifying the use of gameplay when they are unable to see the immediate benefits of devoting class time to its incorporation. For future iterations of the game, input from HELP teachers directly will be vital in determining the longevity of this hybridized course in this context.

Finally, while Mo'o 1S was play tested before each Friday session, unavoidable technical issues still occurred. The biggest issue that occurred for three of the six groups during Week 1 of the gameplay was that the GPS within the game was not registering their location well; this issue seems to stem from some international versions of the iPhone not running the ARIS software as smoothly as an updated American version. Also, during Week 3, small digital stamps that the students were supposed to retrieve from certain physical locations did not register as expected, causing some confusion for half of the groups.

Considering these unexpected errors, it is important for the instructors of hybridized courses in the future to spend a significant amount of time orienting the students to the ARIS software, and become educated on how to troubleshoot these devices to pass the information along to students. In addition, it would be advantageous for the research team to have one short orientation quest on the first day of class for the students to get used to the overall system and provide a hands-on example of this new style of language learning.

CONCLUSION

Based upon course feedback by students and the researchers' own evaluations based on data, HELP administrators and the research team will have to assess the overall effectiveness, efficiency, and the attitudes of the students toward the program and its future iterations. Since the research team was able to develop a program about the importance of local place that supports the existence of augmented reality as an enhancement to learning and satisfies the intended learning outcomes, there is enough evidence to support that this program may very well be a successful, new addition to the regular HELP curriculum in the future.

Through the process of game creation in Mo'o 1.0 to the revision of Mo'o 1S, the research team has come to understand the importance of collaboration in not only assessing the needs of the students, but also the needs of the administration and target teachers as well. In developing this new curriculum, it has become clear that researchers and administrators must make their

expectations clear when working together in order to create a solid partnership that is advantageous to both parties.

Though, it is true that there is still a lot of work to be done in developing more refined versions of the course, the researchers have seen the importance of being able to make modifications to their existing game in order to orient students to this new style of learning. In fact, the initial perceived constraints of the HELP curriculum became an asset for the researchers in their ongoing re-design, and their close ties with the current HELP administration will most likely continue to result in fruitful feedback until the game itself becomes a viable course option for future HELP students.

In conclusion, the process of program development can be a lengthy process that requires continuous feedback from all of the stakeholders involved in the project. Researchers cannot and should not attempt to create a curriculum that only serves their own analytic needs, but must consider what is appropriate for the students, teacher, and administrators within their current context. However, because of the connections and observations that the MALL research team have made over from the initial game design to its implementation as an experimental course, there is a strong indication that the team has taken the steps necessary to continue to develop this course organically and successfully in the near future.

REFERENCES

- Bahrani, T., Sim, T. S., & Nekoueizadeh, M. (2014). Second language acquisition in informal setting. *Theory and Practice in Language Studies*, 4 (8), 1714-1723.
- Brown, J. D. (1995). *The elements of language curriculum: A systematic approach to program development*. Boston: Heinle & Heinle.
- Burch, A. R. (2014), Pursuing information: A conversation analytic perspective on communication strategies. *Language Learning*, 64, 651–684. doi: 10.1111/lang.12064
- Chiu, Y. H. (2013), Computer-assisted second language vocabulary instruction: A meta-analysis. *British Journal of Educational Technology*, 44(2), E52–E56
- Cornillie, F., Thorne, S.L., & Desmet, P. (2012). Digital games for language learning: Challenges and opportunities. *ReCALL*, 24, 243-256.
- Crookes, G. personal communication, April 15, 2015.
- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford, U.K: Oxford University Press.
- Gallego, M., & Hollingsworth, S. (1992). Multiple literacies: Teachers' evolving perceptions. *Language Arts*, 69(3), 206 – 213.
- Gee, J. P. (2007). *What video games have to teach us about learning and literacy* (2nd ed.). New York: Palgrave Macmillan.
- Guro, C. personal communication, March 9, 2016.
- Guth, S., & Helm, F. (2010) Introduction. In S. Guth & F. Helm (Eds.) *Telecollaboration 2.0: Language, literacy and intercultural learning in the 21st century* (pp. 13-38). Bern, Switzerland: Peter Lang.
- Halliday, M. A. K. (1978). *Language as social semiotic: The social interpretation of language and meaning*. London: Edward Arnold.
- Holden, C. L., & Sykes, J. M. (2011). Leveraging mobile games for place-based language learning. *International Journal of Game-Based Learning*, 1(2), 1-18.
- Huang, C. & Sun, P. (2010). Using mobile technologies to support mobile multimedia English listening exercises in daily life. *The International Conference on Computer and Network Technologies in Education* (CNTE 2010), Retrieved from <http://cnte2010.cs.nhcue.edu.tw//>
- Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: MIT Press.

- Jefferson, G. (2004). Glossary of transcript symbols with an introduction. In G. H. Lerner (Ed.), *Conversation analysis: Studies from the first generation* (pp. 13-31). Amsterdam/Philadelphia: John Benjamins.
- Kingsley T. L., & Grabner-Hagen M. M. (2015). Gamification: Questing to integrate content knowledge, literacy, and 21st-century learning. *Journal of Adolescent & Adult Literacy*, 59(1), 51-61. doi: 10.1002/jaal.426
- Kukulka-Hulme, A., & Shield, L. (2008). *An overview of mobile assisted language learning: can mobile devices support collaborative practice in speaking and listening?* Retrieved from <http://portal.acm.org/citation.cfm?id=1520087>
- Leu, J., Jr., Kinzer, C.K., Coiro, J., & Cammack, D. (2004). Toward a theory of new literacies emerging from the Internet and other information and communication technologies. In R. B. Ruddell & N. J. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed.) (pp. 1570 – 1613). Newark, DE: International Reading Association.
- Lightbown, P. M., & N. Spada, (2001). *How languages are learned*. Oxford: Oxford University Press.
- Nelson, G. (1995). Considering culture: Guidelines for ESL/EFL textbook writers. In P. Byrd (Ed.), *Material writer's guide* (pp. 23-42). Boston: Heinle & Heinle.
- Squire, K. & Dikkers, S. (2012). Amplifications of learning: Use of mobile media devices among youth. *Convergence: The International Journal of Research into New Media Technologies*, 18(4), 445-464.
- Squire, K. D. (2009). Mobile media learning: Multiplicities of place. *Horizon*, 17(1), 70-80.
- Steel, H., & Levy, M. (2013). Language students and their technologies: Charting the evolution 2006-2011. *ReCALL*, 25(3), 306-320.
- Steinkhler, C. & Squire, K. (2014). Video games and learning. In Keith Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences*, (2nd ed.) (pp. 377-396). New York: Cambridge University Press.
- Sykes, J. & Reinhardt, J. (2012). *Language at play: Digital games in second and foreign language teaching and learning*. Upper Saddle River, NJ: Pearson-Prentice Hall.
- Taylor, A. (2014). Glossing frequency and L2 reading comprehension: The Influence of CALL glossing. *CALICO Journal*, 31(3), 374-389.

- Thorn, S. L., Black, R. W., & Sykes, J. (2009). Second Language use, socialization, and learning in Internet interest communities and online games. *Modern Language Journal*, 93, 802-821.
- Tomlinson, B. (2003). *Developing materials for language teaching*. London/New York: Continuum.
- Warschauer, M. (2007). The paradoxical future of digital learning. *Learning Inquiry*, 1, 41-49.
- Weaver, J., personal communication. April 9th, 2015.
- Weaver, J., personal communication. April 29th, 2016.
- Wu, Q. (2015). Pulling mobile assisted language learning (MALL) into the mainstream: MALL in Broad practice. *PLoS ONE*, 10(5): e0128762.doi:10.1371/journal.pone.0128762
- Zheng, D., personal communication. April 17th, 2015.
- Zheng, D., Liu, Y., Tomei, J., Holden, D., & Lu, A. (2017). *Language learning as first-order experiencing and community-forming with place and mobile technologies*. Manuscript in preparation.
- Zheng, D., Bischoff, M. & Gilliland, B. (2015). Vocabulary learning in massively multiplayer online games: Context and action before words. *Educational Technology Research and Development*, 63(5), 771-790.
- Zheng, D., & Newgarden, K. (2012). Rethinking language learning: Virtual world as a catalyst for change. *International Journal of Learning and Media*, 3(2), 13-36.
- Zheng, D., Young, M., Wagner, M., & Brewer, R. (2009). Negotiation for action: English language learning in game-based virtual worlds. *Modern Language Journal*, 93(4), 489-511.

APPENDIX 1:
CONVERSATION ANALYSIS TRANSCRIPTION CONVENTIONS

Regular CA Conventions (Jefferson, 2004)

,	continuing intonation
.	final intonation
?	rising intonation
↑	word abruptly rising intonation
↓	word abruptly falling intonation
wo:rd	lengthening of the previous sound
<u>word</u>	emphasized segment
wor-	a cut-off sound
\$word\$	smiley voice
[overlap
0.7	pause timed in tenths of seconds
(.)	micropause, shorter than 0.2 seconds
°word°	speech which is quieter than the surrounding talk
hhh	laughter
(())	transcriber's description

Special Conventions (Burch, 2014)

- + place where action begins, description of action
- + place where action begins in relation to talk

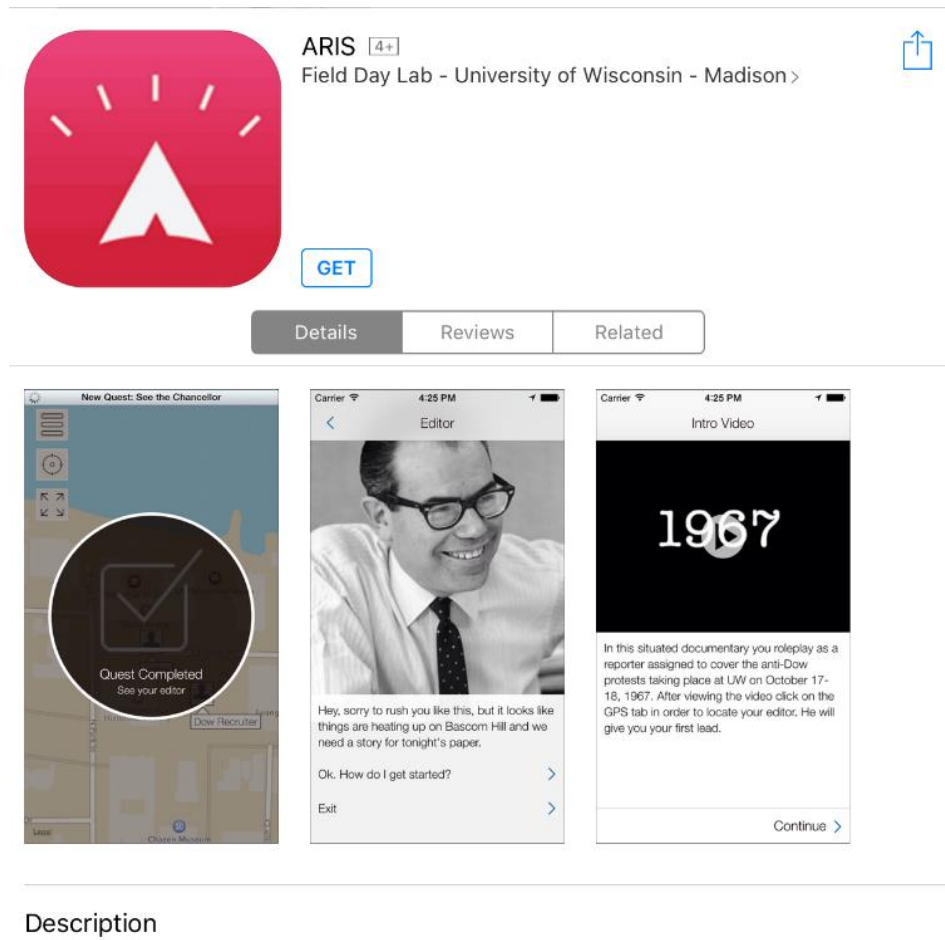
APPENDIX 2:

TEACHER’S MANUAL FOR HELP’S 364LS COURSE

In this course, you are going to adopt both text materials and mobile technological materials to aid your teaching practices. This manual aims to give some basic guidance and instructions regarding the mobile technological materials and gameplay elements.

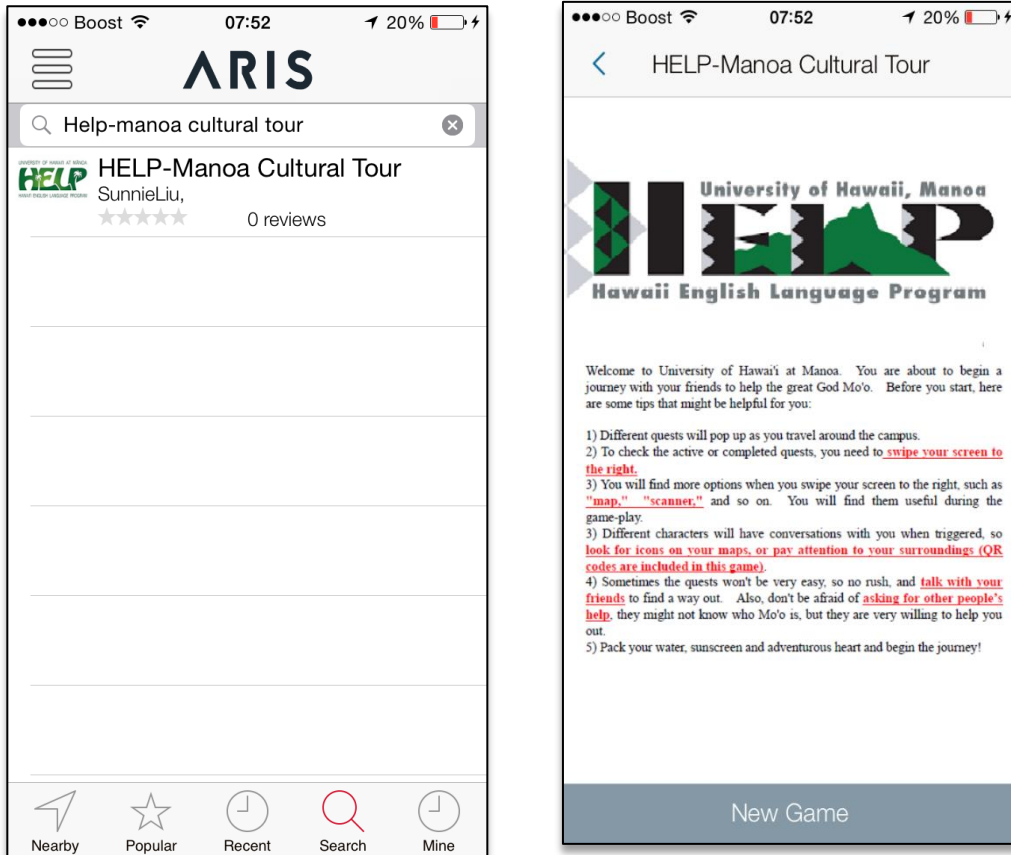
Getting started

Divide the class into small groups of two or three, and make sure each group has an 4G iPad or iPhone. It is recommended that one group only uses one device, because group collaboration is one of the key elements in this course. HELP provides two 4G iPads for this course, however, students’ personal iPhones can be also used in this course. In the later situation where one group should use a personal iPhone, they need to download the application ‘ARIS’ from App Store. (see the figure below)



Description

In regard to HELP’s iPads, ARIS is already pre-installed. Once every group has ARIS on their devices, they need to locate our game: HELP-Mānoa Cultural Tour. Within ARIS, use the search function at the bottom, and type HELP-Mānoa Cultural Tour to access the game (see figures below).



As you can see from the figure, the game itself consists of images and text that students will be able to interact with. The “New Game” button should be touched to begin the game. After that, the students will be asked to follow the directions on the screen.

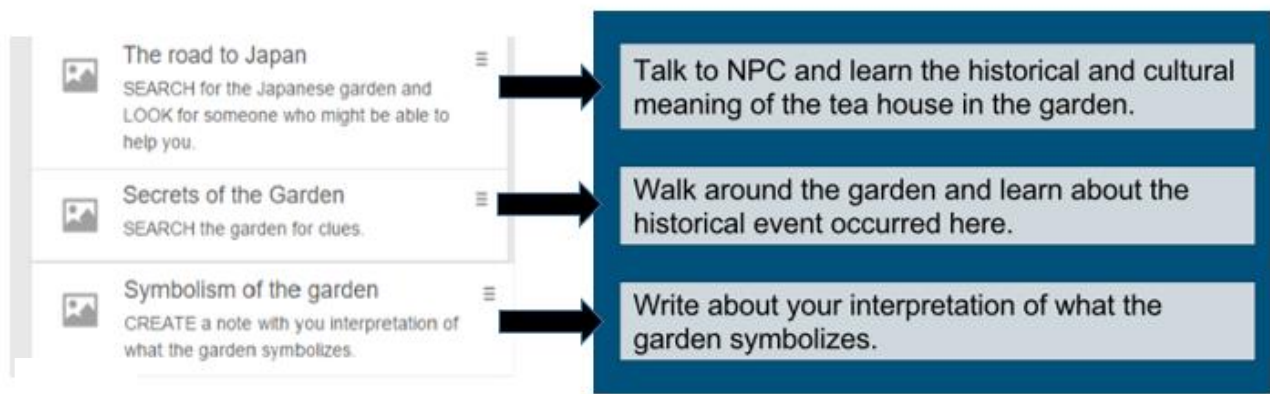
Weekly Gameplay Schedule and Instructions

At this stage, the students will be asked to complete the following tasks for each week. The instructor should physically follow the different groups of students during their quests, but should only provide support for technical troubleshooting rather than quest-based trouble shooting. The instructor should remember that minor frustration and in-group negotiation is considered to be a key element of the gameplay.

Week #1 – Discovering Cultural Diversity on the University’s Campus

The students will use the class time to physically walk to the Japanese Garden on the upper campus with the game downloaded on their iPad or iPhone. The students will have the following three tasks to complete in the garden: 1.) Talk to a virtual character and learn the historical and cultural meaning of the tea house in the garden; 2.) Walk around the garden and learn about the historical event that occurred here; 3.) Write their interpretation of what the garden symbolizes on your mobile device.

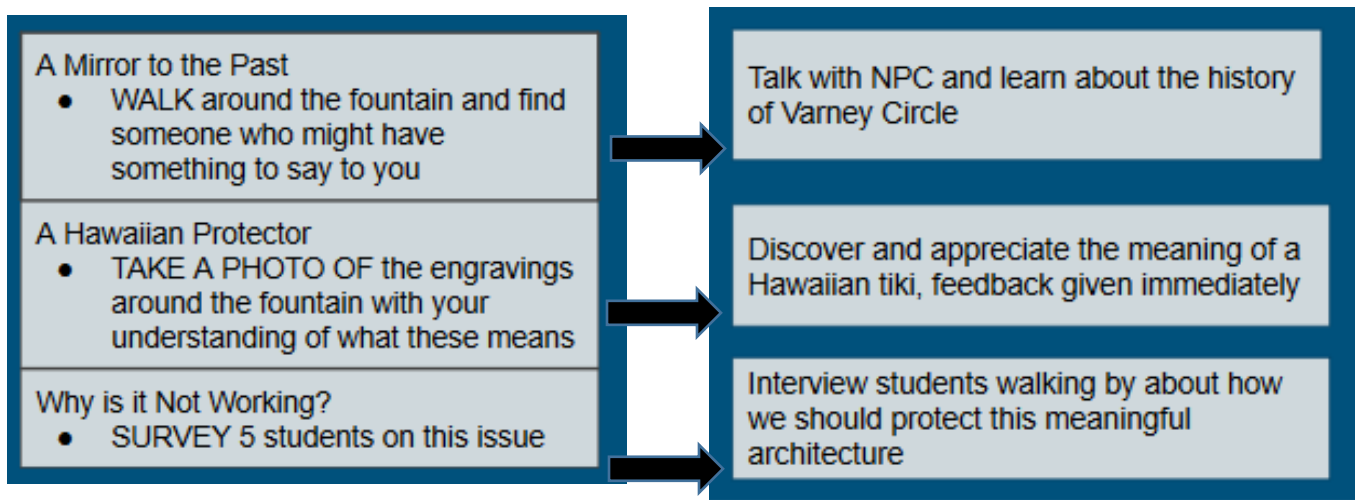
Essentially, the end goal of this quest will be for the students to learn about garden from information on signs and from the iPad, and they will be tasked with interpreting the meaning of the garden in the form of a written response on the iPad itself.



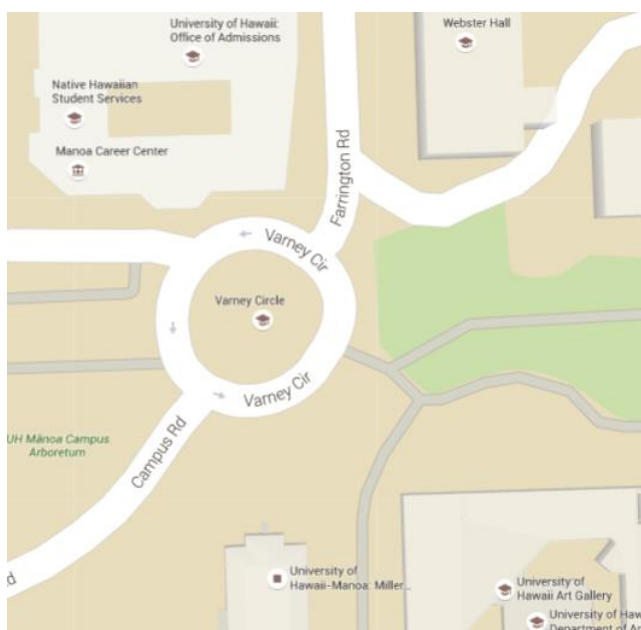
The instructor should facilitate the activity around the Japanese Garden of the East-West Center campus. The instructor should only be there as a guide, not offering any answer or giving clues about the quest itself.

The students will use the class time to physically walk to the Varney Circle fountain on the upper campus with game downloaded on their iPad or iPhone. The students will have the following three tasks to complete there: 1.) Talk with a virtual character and learn about the history of Varney Circle; 2.) Discover and reflect on the meaning of a Hawaiian “tiki”; students will be asked to take a photo of the tiki as well; 3.) HELP students should interview others students walking near Varney Circle about why this meaningful architecture on campus should be protected.

The end goal of this quest will be for the students to not only understand how history can affect the present and critically think on this issue, but also for the students to interact with others on campus. They should inform the “real students” about the issue and record their reactions to it.



Example of what students may see on their iPad or iPhone for Week #2



The instructor should facilitate the activity around the Varney Circle on the UH Mānoa campus. The instructor should only be there as a guide, not offering any answer or giving clues about the quest itself. Also, the instructor should monitor the kinds of people that their students talking to, and intervene if there are any issues.

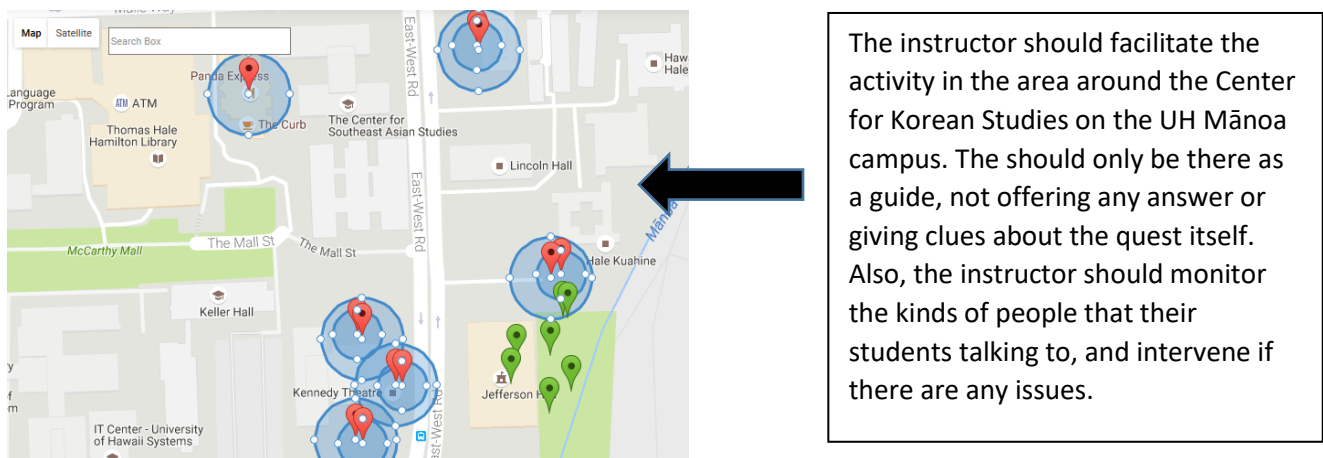
Week #3 – Using Local Cultural Knowledge to Communicate with Local People

The students will use the class time to physically walk to Paradise Palms on the upper campus with game downloaded on their iPad or iPhone. The students speak to Professor Wong again and he will mark 9 locations on the upper campus their GPS map. The students will have the following long task to complete: 1.) Students must decide as a group 5 out of the 9 locations to visit and physically walk there to gather more information about the site, 2.) Students must conduct two interviews with two people at the location to either gain more information about the site or inform that person about what they have just learned. 3.) The students must digitally pick up small badge at the site once the interviews were complete, signifying that they have completed 1/5th of the quest.

The end goal of this quest will be for the students gain more practical knowledge about various culturally significant locations on the upper campus, and interact with people with a specific communicative goal in mind.



Example of what students may see on their iPad or iPhone for Week #3



The instructor should facilitate the activity in the area around the Center for Korean Studies on the UH Mānoa campus. The should only be there as a guide, not offering any answer or giving clues about the quest itself. Also, the instructor should monitor the kinds of people that their students talking to, and intervene if there are any issues.