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Learning to communicate in a virtual world: the case of a JFL classroom

Kasumi Yamazaki

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A Dissertation

entitled

Learning to Communicate in a Virtual World:
The Case of a JFL Classroom

by

Kasumi Yamazaki

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the
Doctor of Philosophy Degree in Curriculum and Instruction

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The proliferation of online simulation games across the globe in many different languages offers Computer Assisted Language Learning (CALL) researchers an opportunity to examine how language learning occurs in such virtual environments. While there has recently been an increase in the number of exploratory studies involving learning experiences of predominantly English as a Second or Foreign Language (ESL/EFL) participants in these environments, the context of a Japanese as a Foreign Language (JFL) classrooms has rarely been examined. To address this, this study investigates a Second Language Acquisition-theory driven instantiation of CALL within the context of a JFL classroom. Through a mixed-method case study approach, participants’ natural acquisition of Japanese in a 3D virtual environment was examined. Data detailing participants’ communicative capacities in several modalities were collected, as were their attitudes toward participation in a massively multiplayer online (MMO)-based virtual world of Tokyo.

In the present study, eight sources of data from eleven university-level JFL students (n=11) were collected and analyzed to evaluate the learning outcomes from an integrative CALL framework (Warschauer, 2004; Yamazaki, 2014). Based on both
interpretative and statistical analyses of data, the major finding of the present study was that the participants, when immersed in the 3D virtual world of Tokyo, acquired contextualized communicative competence. More specifically, quantitative analyses revealed statistically significant improvement in the participants’ acquisition of incidentally encountered vocabulary, in particular, kanji pronunciation and vocabulary interpretation. Qualitative analyses revealed participants’ acquisition of various communicative competencies specific to the context, including persuasive talk, concept of audience, collaborative communication, and colloquial expressions. Data from a post-hoc reflection survey provided strong evidence that most students found the course to be effective, as it made them use Japanese more than in a regular class, and thereby developed more necessary communicative skills to function in Japan.
I dedicate this dissertation to my family in Japan: Yuichi Yamazaki, Misako Yamazaki, Shoko Ota, Atsushi Yamazaki, and their beloved ones. Without their continued support and sacrifices, I would not be here today.
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List of Abbreviations

3D  Three Dimensional
CALC  Computer-Assisted Learning of Communication
CALL  Computer-Assisted Language Learning
CLT  Communicative Language Teaching
EFL  English as a Foreign Language
ESL  English as a Second Language
FL  Foreign Language
FLA  Foreign Language Acquisition
JFL  Japanese as a Foreign Language
L1  First Language
L2  Second Language
LLD  Language Learning Device
MM  Meet-Me
MMO  Massively Multiplayer Online
MMORPG  Massively Multiplayer Online Role-Playing Game
SLA  Second Language Acquisition
TL  Target Language
TTG  Tokyo Tour Guide
VR  Virtual Reality
VW  Virtual World
WGL  Weekly Game Log
ZPD  Zone of Proximal Development
Chapter One

Introduction

When I was in sixth grade, there was a popular game called Super Picky Talk among my friends. Super Picky Talk was a game-based personal digital assistant (PDA) developed by Casio in the late 1990s. One could not only use it as an electronic organizer but also to build one’s own room or raise virtual animals. Given that it was coming out a couple of years after the Tamagotchi\(^1\) sensation in Japan, an ability to raise animals virtually as pets was one of the most appealing sales points for school children at that time. Because Super Picky Talk involved simulations of coordinating a room and taking care of virtual animals, children needed to log into the game often to make sure that they were fulfilling the duties and responsibilities associated with the game.

Soon after Super Picky Talk became a huge hit amongst school-age children, many schools banned children from bringing the game to school since it was said to be too distracting and unhealthy for school-age children. Although whether or not the game was good for children’s overall health deserves further debate, the point I want to address here was how engaging the game was and how addicting it was for children to play such a game.

While there were many games available at that time, I believe one of the critical reasons why Super Picky Talk garnered great popularity was because the simulation environment included additional communicative tools, such as the capability to communicate with other users through an infrared-ray connection and an additional

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\(^1\) Tamagotchi is a handheld digital game, which was first developed by Bandai in 1996. The word Tamago means “egg” in English, followed by “tchi” referring to the English word “watch” in combination. Consequently, Tamagotchi is an egg-watching simulation game for the purpose of raising animal-like monsters.
modem-based communication accessory that could be used to further facilitate interactions with other game users. With these tools, users were able to exchange messages or adopt a virtual pet from their friends and other players. This socio-communicative aspect of the simulation allowed gamers to get close to other players and construct what McGonigal (2011) has called “stronger social connectivity” (p. 82), where gamers would generate more engaged and collaborative attitudes to further confront challenging tasks that are otherwise difficult to resolve alone. In the instance of *Super Picky Talk*, users would often engage in trading goods, animal adoption, and breeding of virtual animals for a much bigger outcome: in this case, a network of communication and exchanges with others that transcended the limits of physical space.

**Statement of the Problem**

The example of *Super Picky Talk* illustrates how the integration of socio-communicative elements significantly impacted the way people interacted in games. As we have witnessed since the late 1990s, numerous simulation games and virtual realities (VRs) have developed and continue to be developed today. Due to ongoing advancement of technology, we now even have games which include three dimensional (3D) platforms and massively multiplayer online (known as MMO) formats through the Internet to further increase social connectivity and collaboration. We are experiencing a trend in which educational scholars and practitioners have gradually begun to recognize, and even adopt, the features of simulation gaming and VRs into educational contexts, and to examine how they can be best applied to better our current practices.

Technology certainly changed the climate of teaching, generating more opportunities for people to access information through various modes of communication.
Because of this, scholars and practitioners often treat technology integration as an inevitable phenomenon, promoting it as a transformative, revolutionary or ground-breaking approach to education. However during the process of utilizing new technology, we should be cautious about using terms like "digital education revolution" seen in recent literatures (e.g., Collins & Halverson, 2009; Thomas, Reinders, & Warschauer, 2014), since technology itself will not change the practice of education today, nor will it be the solution to particular issues observed in the classroom (Thomas et al., 2014). Upon utilizing technology, the problem arises particularly when people rationalize technology instrumentally, for instance, only for the sake of accessibility and convenience, while neglecting to consider how best to utilize the technology to actually teach for a better learning outcome.

What changes the practice of education resides in the rationale for implementing technology; it resides in our integrative understanding of what learning is and how we best promote it with technology, not merely the technology itself. Instructional approaches for using technology should therefore be functionally meaningful; in other words, the rationale behind its implementation has to be logically sound. In the context of Computer-Assisted Language Learning (CALL), the use of technology should directly mirror practitioners’ beliefs about how language learning occurs and how such learning can be best facilitated with a CALL environment. Also important is that we examine the various ways in which technology is utilized in the classrooms and how adequately it aligns with the instructors’ notions about learning and teaching. As Thomas et al. (2014) argue, what’s needed in education today is to find an appropriate “sociotechnical
infrastructure;” that is, understanding how to learn with technology, rather than merely via technology (Thomas et al., 2014, p. 2).

To extend this issue further to the field of contemporary CALL, we observe a similar trend. Among the various domains of contemporary CALL including telecollaboration, digital games, mobile assisted language learning, and virtual worlds (VWs) in the past three decades, there are two issues found across all domains: 1) continuing popularity of traditional CALL, and 2) contemporary CALL rationalized commonly for instrumental motivation. Because there is a generally consistent idea about how language is learned via technology, some scholars and practitioners still treat technology as the mainframe, exhibiting a structuralist approach to language teaching. Furthermore, even after the establishment of a contemporary CALL approach, many practitioners tend to focus on motivation as a primary benefit of CALL utilization across all disciplines, rather than attempting to examine the detailed processes of how and why CALL was successfully utilized in the classroom.

While affective aspects of learning process in CALL are certainly fundamental when looking at CALL within a spectrum of educational psychology, an examination of affective elements alone neglects a much more diversified, ecological view of how language is acquired from Second Language Acquisition (SLA) points of view. Since SLA theories come from a range of various disciplines, there needs to be a cross-theoretical cohesion or even conversation between theorists of CALL and SLA to explore how language learning is afforded with and within the CALL environment. Nonetheless, due to the apparent dissonance between SLA and CALL (Levy & Stockwell, 2006; Chapelle, 1997), contemporary CALL practices today tend to inadequately implement
SLA, often deserting the nature of language learning within an environment. Furthermore, this disconnection between CALL and SLA has resulted in the lack of research to examine the process in which language learning occurs during the implementation of CALL programs, and ultimately results in a lack of empirical evidence regarding how a particular CALL program can be successfully utilized in language learning classrooms.

Despite the issues discussed above, there are a few recent publications regarding the use of technology in the classroom that thoughtfully considered SLA theories. For instance, in the past decade of primary research on contemporary CALL, researchers claim that the use of simulation gaming and VRs can be beneficial since students were engaged and collaborated more in the gaming environment and thus such environments provided the potential to support the cognitive and linguistic development in the proposed CALL programs (Peterson, 2011; Peterson, 2012a; Peterson, 2012b; Peterson, 2012c; Zhao & Lai, 2009; Gutierrez, 2006). Although the numbers of publications are still quite low, these studies took an innovative approach to examine CALL by bridging between different sub-branches of SLA; in particular, the studies attempt to theorize CALL from the integration of sociocultural and cognitive/psycholinguistic models of language learning.

**Purpose of the Study**

In response to the issues of contemporary CALL research, the purpose of this study is to investigate an integrative SLA-theory driven instantiation of CALL within the context of Japanese as a Foreign Language (JFL) classroom. Based on the critical analysis of CALL and SLA literatures, the present study proposes a new instructional
approach: Computer Assisted Learning of Communication (CALC), derived from the integrating theories of SLA and CALL. In particular, the study aims to ascertain how JFL students engage in Japanese courses with a curriculum designed to take advantage of the CALC approach, investigating whether or not the CALC environment promotes successful JFL acquisition and how such acquisition might occur in the given CALC context.

**Significance of the Study**

The present study is significant for four reasons; the first three respond to the lack of research on three levels: 1) theoretical, 2) practical, and 3) empirical levels, and the fourth reason comes from the selection of the particular research setting in which the study will be conducted. First, due to the lack of research underlying how language learning is facilitated by a CALL environment (theoretical), this study critically examines current SLA theories with an attempt to find the common ground. Ultimately, this is what Levy and Stockwell (2006) called using an “overarching theory” of SLA in order to provide foundations for current CALL practices (Levy & Stockwell, 2006, p. 1). By reviewing the history of CALL and current SLA theories, the present study particularly looks at how CALL came to establish, and even to an extent, how CALL came to be diversified due to the different ontologies theoreticians hold in regard to what language is and how it should be taught.

Second, while there are increasing numbers of published articles regarding the use of the CALL approach in language learning classrooms, the detailed implications of how exactly the CALL approach can be utilized are seldom discussed (practical level). In particular, since the use of VRs or 3D virtual worlds (VWs) are relatively new to the field...
of CALL, and studies involving the successful implementation of VRs and VWs are one of the most needed areas of research in contemporary CALL. This was also mentioned by Sadler and Dooly (2014) in the most recent work of a CALL publication by Thomas et al. (2014): *Contemporary CALL*. In it, Sadler and Dooly stated that the current research on VWs has not yet accomplished a thick description of how exactly VWs should be used for language learning or language teaching (Sadler & Dooly, 2014). They further state, according to the review of research on language learning and VWs, current research appears to have two major trends: 1) research providing findings that VWs can reduce learners’ anxiety, and 2) research that is more ethnographic, attempting to find “what happens” when learners are immersed in the target language VWs. Therefore, in order to extend the research further to examine the practical ways in which VWs are utilized into language learning classrooms, the present study will develop a SLA-driven CALL curriculum using VWs with an attempt to describe how exactly the researcher utilized the contemporary CALL program to enhance student learning outcomes.

Thirdly, there needs to be empirical evidence to understand whether or not the proposed CALC curriculum is effective for learners’ overall language acquisition. Although the thick description of how VWs can be integrated into language classroom is much needed in the field of CALL today, the detailed analyses of how learning exactly occurred or facilitated, and the process by which learning was taking place in the controlled CALL environment, may be a great contribution to the field. By collecting multiple sources of students’ learning progress in the target language, this study may likely provide a much more sophisticated set of finding in regard to CALL implementation.
Finally but most importantly, this study must address the significance of selecting Japanese as a target language, since there are few publications focused on the use of virtual worlds in Japanese as a Foreign Language (JFL) classrooms. This relative dearth of work on Japanese language acquisition may be due to the nature of how CALL was established as a field. Since the origin of CALL as a discipline emerged from the field of Computer Assisted Instruction, it thereby took a quite different path from how SLA and Foreign Language (FL) fields have been established long ago. As a matter of fact, the vast majority of recent publications involving VWs are predominantly targeted for the English as a Second Language (ESL) or classical languages (e.g., Spanish, German, etc.) classrooms. Since the target language (TL) of the primary study is Japanese, it is unique in such a way that would contribute in providing additional varieties of language to the field of contemporary CALL.

Research Questions

Based on the issues, purposes, and significance of the study discussed above, the primary goal of this dissertation study is to consider the potential effectiveness of a CALC curriculum designed to take advantages of integrative CALL and SLA. The questions to be answered in the present study will be:

1) Does the CALC curriculum facilitate an acquisition of Japanese?

2) What evidence indicates JFL learners’ acquisition of Japanese in the CALC curriculum?

3) What are learners’ attitudes and perceptions toward participation in the CALC program (MMO-based 3D virtual world learning of Japanese)?
Limitations of the Study

The present study is subject to a number of limitations. First, the number of subjects was restricted due to the institutional constraints. Because of the small sample size, the results of the study may not generalizable to other JFL populations outside of this research environment. Since the objective of study is an in-depth case study of the implementation of a curriculum with a particular group, a large scale validation of CALC approach can be considered for future studies.

Second, while the proposed study analyzes a variety of data, some of the sources originate from participants’ self-report such as exit slips and survey instruments. While video and screen recordings of the participants’ performance were collected to provide more precision for in-depth analyses and validation, self-report data will always involve risks of reliability and trustworthiness. Nonetheless, the present study provides evidence regarding participants’ learning outcomes and its progress over time, addressing whether or not and how the proposed 3D virtual world-based CALC curriculum may have supported acquisition of communicative competence in the JFL classroom.

The third limitation of this study is the subject and research site selection in that the researcher could not select participants with particular background, experiences or attitudes toward simulation and gaming. While all the participants recruited for this study were the students of Japanese as a Foreign Language (JFL), they came from various backgrounds, both socially and academically. Although none of the participants had stayed in Japan more than two months in total at the time of this dissertation study, whether or not they had been to Japan or their length of stay in Japan could certainly have affected how they came to perceive language learning in general.
The fourth limitation of this study is that the researcher had limited information about the participants’ backgrounds. More specifically, although participants of this study had taken at least two years of Japanese, this did not mean that they were all of similar proficiency and the researcher did not have an access to the participants’ past academic records, including the participants’ overall performance in the previous elementary and intermediate-level Japanese courses. Since there was no institutional proficiency test or placement test to assess participants’ levels of language in various domains (e.g., speaking, listening, reading and writing proficiency), the researcher was unable to identify whether or not the participants were really advanced-level language learners who were capable of pursuing the course in its all-Japanese environment.

**Summary of the Chapters**

While Computer-Assisted Language Learning (CALL) is the primary theoretical framework for this dissertation study, it should be mentioned that CALL is comprised of a wide range of disciplines, including the field of computer science, educational technology, and essentially, linguistics. Due to an increasing quantity of research on the use of technology in language learning classrooms, contemporary CALL also encompasses considering the contexts of online learning (distance CALL), virtual worlds, digital games and even smartphones to assist language learning (mobile-assisted language learning known as MALL). It is fascinating to see how much the field of CALL has developed over the past three decades; however, current trends in CALL tend to omit comprehensive understanding of how language learning is facilitated, supported, and evidenced by the given CALL environments. Scholars and practitioners are now looking into the proof of how exactly CALL approaches support student’s language acquisition.
To address these issues, Chapter Two of this dissertation is a review of the literature from both CALL and Second Language Acquisition (SLA) perspectives. The primary focus of Chapter Two is to build a conceptual bridge between CALL and SLA, thereby proposing a new instructional approach: Computer Assisted Learning of Communication (CALC), derived from the integrative theories of SLA and CALL.

Chapter Three has the details regarding the research design and methodology of the study. In particular, Chapter Three focuses on the practical inquiry of the specific CALC installation. The chapter addresses the students (participants), CALC environment (research setting), and instructional materials (task and procedures) so that practitioners may have a better understanding of the CALC curriculum design, providing the opportunities for them to even replicate the study in their own target language classrooms. Chapter Three also includes the sections regarding research methodology, the description of collected data and its analyses in order to provide a rationale regarding how the present study was designed to afford empirical evidence.

In Chapter Four, the results and findings of the analyses parallel to each research question are presented. Based on the qualitatively driven mixed-method case study analyses of collected data, the chapter addresses three major inquiries of the present study: 1) effectiveness of the CALC curriculum, 2) qualitative and quantitative evidence regarding the occurrence of successful Japanese acquisition, and 3) participants’ general favorability and satisfaction toward the CALC program.

Finally, Chapter Five is the discussion of findings and results from Chapter Four, providing an overall evaluation on the effectiveness of the CALC program and its practical application into the classroom. Chapter Five also includes sections regarding the
research limitations, future studies, and recommendations to further consider the prospect of how 3D virtual worlds can be most effectively utilized into language classroom for better learning outcomes.
Chapter Two

Literature Review

Computer Assisted Language Learning (CALL) is a relatively new discipline that emerged from the field of Computer Assisted Instruction (Warschauer & Healey, 1998). It wasn’t until recently that CALL established a more in-depth body of research in multidimensional settings, thereby introducing some of the new frameworks of language learning through an interdisciplinary approach. The first surge of publications began around the 1980s (Chambers, 2010), with much of the earlier works in CALL taking an exploratory approach by, for example, identifying gaming prototypes and how they are incorporated into the classroom (Peterson, 2010).

Amongst the various types of proposed computerized games, simulation gaming and virtual reality (VR) have received great attention, becoming the major trends in the field of CALL today (Ranalli, 2008; Coleman, 2002). While there are many types of published studies that claim the beneficial utilizations of games in the classrooms, many of them share the similar premise that: simulation gaming/VRs are beneficial primarily due to the motivational aspects of language learning. The argument generally follows that since simulation and gaming facilitates more communicative and learner-centered elements of learning, it is instructionally engaging for the learners and thus develops an instrumental motivation (Jones, 1982, p.10).


3 The term “learning” is used in a general sense in considering the process, until the Krashen and Terrell (1983) and Krashen’s (1985) distinction between “learning” and “acquisition” is examined later in this paper, and when the convention seems to require the explicit distinction between them.
While motivation certainly plays a significant role in language learning, many theoreticians and practitioners fail to address the potentialities of simulation gaming outside the scope of motivation. This is perhaps because current simulation games are not designed specifically for the purpose of second language (L2) learning; thus, the potentialities of language learning have gone largely unrealized (Ranalli, 2008). Since there is an apparent lack of an anticipated relationship between contemporary CALL and second language acquisition (SLA) theories, researchers often focus on a particular segment of SLA theory to explain potential utilization of CALL practices (Chapelle, 2009). Because of this, the field of CALL experiences what Chambers (2010) calls the “quest for identity” (p. 113), further proposing the need to establish principles and evaluation supported by ecological views of language learning.

With this in mind, the purpose of this literature review is to address the trends and issues proposed by various domains of CALL, considering why current approaches focus on a particular segment of SLA theory, for instance, motivation as the most often enlisted theory to support the use of simulations and gaming. While extensive research on CALL design, development, and evaluation have been proposed, this chapter argues that a modern CALL orientation can be re-conceptualized when considering the evidence derived from current SLA theories. First, this chapter will review the historical dimensions of CALL, highlighting the origins of two fundamental CALL frameworks: the traditional and the contemporary CALL approaches. After reviewing these two frameworks, the chapter will then focus particularly on the contemporary CALL framework to analyze some of the potential issues related to this orientation. In order to consider CALL beyond the scope of motivation, the chapter additionally considers a new
approach with an attempt to make sense of contemporary CALL from a multidimensional viewpoint.

**History of CALL: Traditional vs. Contemporary**

Over the four decades in the history of CALL research, the field has progressed through developmental stages, from traditional to contemporary, in utilizing technology into the language learning classrooms. These stages were greatly influenced by not only the technology specifically available across these decades, but also by how languages were viewed and taught.

Table 1

*The Three Stages of CALL, Adopted from Warschauer (2004, p. 22)*

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Mainframe</td>
<td>PCs</td>
<td>Multimedia and Internet</td>
</tr>
<tr>
<td>English-Teaching Paradigm</td>
<td>Grammar-Translation &amp; Audio-Lingual</td>
<td>Communicate Language Teaching</td>
<td>Content-Based, ESP/EAP</td>
</tr>
<tr>
<td>View of Language</td>
<td>Structural (a formal structural system)</td>
<td>Cognitive (a mentally-constructed system)</td>
<td>Socio-cognitive (developed in social interaction)</td>
</tr>
<tr>
<td>Principal Use of Computers</td>
<td>Drill and Practice</td>
<td>Communicative Exercises</td>
<td>Authentic Discourse</td>
</tr>
<tr>
<td>Principal Objective</td>
<td>Accuracy</td>
<td>Fluency</td>
<td>Agency</td>
</tr>
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According to Warschauer (2004), the developmental stages of CALL as a field of study can be categorized into three distinct phases: Structural CALL, Communicative CALL, and Integrative CALL (Warschauer, 2004), depending on the prototype of the

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proposed language learning activities (see Table 1). While Warschauer (2004) distinguishes Structured and Communicative CALL, in this chapter, they will be combined and referred to as “traditional CALL,” since the principal use of computers during these phases shared similar premises: the computer was used in an “ad hoc” and a marginal fashion, rather than considering it as a central element of language learning (Warschauer & Healey, 1998, p. 57).

Many studies conducted during the Structural CALL period treated the computer as a tutor, providing students with instrumental practice though tutorials, drills, and modeled dialogues (Warschauer & Healey, 1998; Kern & Warschauer, 2000). This approach was frequently utilized in the earlier development of CALL research, proposing computer and technology as alternative materials/resources for students to digitally work on the question-answer exercises. Structural CALL was originally termed as “Behavioristic CALL,” modified from the original work of Warschauer’s CALL introduction, advocating the stimulus-response orientation of language learning through computerized instruction (Warschauer, 1996).

Meanwhile, Communicative CALL originated through the conjugation of CALL and Communicative Language Teaching (CLT), where learners could collaborate and interact using the target languages. In this framework, scholars believed that language learning was facilitated through learners becoming members of a community of practice, emphasizing the value of authentic communication rather than drills and exercises. The practices often included text-based online communication, using emails and chatting systems to mediate conversations between the learners (Warschauer, 1997). Although Communicative CALL involved students’ choice, control, and interactions, many
researchers and developers of programs viewed computers as an additional mediating tool or teaching aid, which was instrumental to language learning classrooms.

With an advancement of technology including VRs and three-dimensional (3D) multi-player games, Integrative CALL (also known as contemporary CALL) focuses on the environment in which interaction takes place. In this framework, researchers often draw upon sociocultural theories of learning, mainly named as Kolb’s (1984) experiential learning and Lave and Wenger’s (1991) situated learning, which emphasize that learning occurs in a communicative context through concrete and direct experiences. Learning in this approach is generally exploratory, thus learners’ autonomy, engagement, and most importantly, motivation are often found to be the most critical elements of contemporary CALL research (cf. Rahimi & Yadollahi, 2011; Ushioda, 2000; Schwienhorst, 2002; Mohammadi, Ghorbani, & Hamidi, 2011; AbuSeileek, 2012).

It is essential to note that the three stages of CALL did not occur in a “rigid sequence” (Warschauer, 2004, p. 21) nor were the periods of time outlined above indicative of complete shifts in methods from one period to the next (Warschauer, 1996). Both traditional and contemporary CALL frameworks have been accompanied by extensive research that contributes to our understanding of how computer and technology can be used in alliance with language learning. Current CALL research focuses more on how additional languages are learned and how such learning might be supported by technology, rather than focusing on the use of technology in language classrooms (Egbert, Hanson-Smith, & Chao, 2007).

Furthermore, it is vital to see that the trends and issues in CALL research relate to the evolution of scholars’ notions about how language is acquired, including multiple
domains of linguistic theories and language teaching. Ever since the socio-constructivist approach was introduced and favored among the scholars and field practitioners in the late 1990’s, there is a tendency to view language learning as a social construct, rather than looking at discrete elements of language and how to teach them better (e.g., how best to teach grammar, reading, writing, speaking and listening, etc.). With the socio-constructivist’s beliefs, scholars concentrated on socially imbedded nature of language and how to increase learners’ opportunities to communicate in an authentic context. This resulted in more studies that look at the importance of providing immersive environment that the community of learning resides. While more diversified, ecological views of how language is acquired contributed in the field to develop new approaches and pedagogies of language teaching, there seems to be a lack of a consistent set of principles that would guide our current CALL practices. Levy and Stockwell (2006) in their published book CALL Dimensions state a similar premise, highlighting the four areas of contemporary CALL research:

The richness and diversity of CALL, when viewed in its entirety, is a result of many factors. These include the number and range of technological tools available with the potential use in CALL applications; an increasingly sophisticated understanding of how languages are learned (although lacking a single, overarching theory to rely on as a guide); environmental factors that lead to a variety of priorities, resources, and objectives for different learners in different settings; and particular challenges that arise as a result of the attributes or qualities of the target language. (p. 1-2)

**Issues in CALL: Continuing Popularity of Traditional CALL**

While the history of CALL has developed in such a way that mirrors the theoretical discussion of SLA as well as the advancement of technology, there are two fundamental issues in contemporary CALL practices. The first one is the lack of research in contemporary CALL, with many researchers and practitioners still heavily relying on
the traditional CALL model. For instance, in the review of current CALL literatures, Stockwell (2007) found that CALL research, published between 2001 to 2005, tended to focus on the use of technology to mainly teach the following areas of language skills in order: 1) grammar, 2) vocabulary, and 3) pronunciation (Stockwell, 2007). Out of 206 published studies Stockwell examined through major CALL journals, grammar was found to be the most commonly investigated language skill (more than 40% of the share), which indicates that there is a tendency to focus on grammar as a primary language learning objective.

In addition, while there are more studies that use Integrative CALL features including multimedia and online communication tools, some of them still use the traditional model as the main approach, focusing on grammatical and language accuracy as the main learning objectives. For instance, Li and Topolewski (2002) developed an English as a Second Language (ESL) computer simulation program called ZIP & TERRY with a combination of an automatic speech recognition technology. The primary purpose of this integration was to: 1) motivate learners to participate, and 2) improve learners’ pronunciation accuracy. Since Li and Topolewski were concerned about their ESL students’ pronunciation that was different from native speakers, they hoped that this simulation with new speech recognition technology would help eliminate students’ accents and bad pronunciation (Li & Topolewski, 2002). While the program like ZIP & TERRY has many features of contemporary CALL design that could emphasize real-world communication; the researchers still heavily relied on the focus of traditional CALL method: language accuracy.
It is quite noteworthy that, although a contemporary CALL approach is available and has been shown to be beneficial in the published literatures today, many practitioners still rely on technology as a tool to provide drills and exercises, or use it to manage their courses rather than for the purpose of communication and immersion. For instance, the large-scale study (n = 847) examining English for Speakers of Other Languages (ESOL) teachers’ uses and preferences of technology in ESOL classrooms, Meskill, Anthony, Hilliker-Vanstrander, Tseng, and You (2006) found that there was no significant parallel increase in the use of multimedia and Computer Assisted Instruction (CAI) between 1997 to 2003. Furthermore, in contemporary CALL specific tools, such as computer simulation, was ranked as the 16th most use out of 21 tools listed, which equates to being used with only 18.4% of total participants. In contrast, the top four tools reported to be most often used in 2003 were: 1) word processing (80.75%), 2) audio tape/CD (75.22%), 3) CD-ROM (74.12%), and 4) video VCR/DVD (73.67%). In another words, K-12 ESOL teachers are not implementing contemporary CALL features such as simulations and gaming that are gaining prominence in popular literatures in the field. Despite the potentialities addressed in the field, Meskill et al. (2006) did not go in-depth to argue some of the possible reasons why the ESOL teachers do not seem to integrate contemporary CALL features besides the lack of available training as a potential factor. However, it can be conjectured that ESOL teachers are not only 1) unprepared for contemporary CALL approach due to the lack of training, but also 2) focusing on the traditional model of language teaching rather than the contemporary one; in another words, ESOL teachers may not find a contemporary CALL approach pedagogically appealing.
Issues in CALL: Distorted Focus on Contemporary CALL Research

The second issue in contemporary CALL is that, amongst the few published studies in the area of contemporary CALL, the researchers tend to disregard contemporary SLA theories to support their CALL practices. Often times, theoreticians use a set of constructs related to motivation, autonomy, degree of being engaged in CALL activities as primary benefits in utilizing technology, neglecting the fundamental analyses on how CALL can facilitate the nature of language learning. For instance, in a study of learners’ attitudes toward CALL, Rahimi and Yadollahi (2011) argued that the current body of research focuses on how the use of CALL influences learners’ autonomy, motivation, and attitudes to sustain language (Rahimi & Yadollahi, 2011). In another example, Ushioda (2000) claimed that her tandem e-mailing program was motivating to the students, fostering affective learning and learners’ autonomy, based on the qualitative analysis of learners’ perceptions toward her CALL curriculum (Ushioda, 2000). Likewise, many other theorists showed a similar premise: the rationale of utilizing CALL is primarily on motivation, learners’ autonomy, and engagement (Schwienhorst, 2002; Mohammadi et al., 2011; AbuSeileek, 2012).

This distorted focus on contemporary CALL research may be due to the lack of studies that focus on language learning outcomes with empirical evidence. To illustrate this point, in the most recent CALL meta-analysis involving many primary studies across major CALL journals, Grgurovic, Chapelle, and Sheeley (2013) identified 37 studies from more than 200 CALL studies as having statistical evidence regarding language learning outcomes. Since the purpose of Grgurovic et al.’s study was to examine the effect of CALL and its language learning outcomes, it required a specific criteria to only
include studies (data) which had descriptive or inferential statistics. To select studies for their meta-analysis, they used keyword search, the use of database, and manual search of the major CALL journals including: *Computer Assisted Language Learning (CALL)*, *System, CALICO Journal, ReCALL, Language Learning and Technology (LL&T) and TESOL Quarterly*. Out of more than 200 recently published articles about CALL, only 37 (18.5%) included descriptive and/or inferential statistics regarding language learning outcomes. The other 115 or more did not have such data, and the remaining 48 were either: 1) focused on factors outside of language learning outcomes (e.g., attitudes, motivation, study skills, participation), 2) gave test results during the treatment rather than at the end, and/or 3) omitted to provide statistics that were not sufficient for their studies (Grgurovic, Chapelle, & Sheeley, 2013, p. 170). It is apparent that empirical devices are particularly lacking in contemporary CALL research, as only 18.5% of the collected studies measured learners’ language learning outcomes with relevant research designs (e.g., experimental, quasi-experimental design, employment of pre-and post-tests, etc.), and statistical evidence.

To summarize, two major issues in contemporary CALL are: 1) there is still a great popularity on the traditional approach for implementing technology, 2) the vast majority of research focuses on external elements, such as facilitating learners’ motivation and engagement in teaching languages, rather than rationalizing it for the sake of language learning potentials. While motivation in principle is significant, as scholars have discussed substantial evidence of what motivation is and how it is linked to an

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5 The aim of Grgurovic et al.’s study (2013) was to investigate whether or not SL or FL instruction supported by CALL is effective, compared to the instruction not supported by CALL. Based on the meta-analysis by calculating effect size listed in the collected studies, they found that the overall results favored the technology-supported pedagogy, claiming that CALL instruction outperformed non-CALL instruction.
overall L2 attainment (Gass, Behney, & Plonsky, 2013; Gardner, 2007; Ushioda & Dörnyei, 2012; Dörnyei, 1994; 2007; 2009), the current mainstream CALL research has focused more on the instructional element of motivation, not instrumental and integrative motivation (cf. Gardner, 2001; 2007). For instance, when researchers and practitioners say that the use of games and simulations makes learning fun and engaging, they use games and simulations to motivate students extrinsically to perform a task that is considered difficult, time-consuming, and uninteresting otherwise. In this case, instructors focus on motivation in such a way that provides convenience to language instruction, replacing the value of language learning with material incentives (e.g., reward, coins, medals, etc.).

In reality, language learning motivation should come from the realistic desire to communicate in target languages seen in “situated antecedents” (MacIntyre, Clément, Dörnyei, & Noels, 1998) or from an integrative orientation such as learning the language to interact with members of the target language community, (cf. Gardner 2001; 2007; Dörnyei, 1994). If instructors label language learning as if it is some type of hard work students obtain through drills, exercises and rote-memorization, it lacks the ontological nature of why students should obtain a second or foreign language. Even though an electronic device of essentially flashcards and memory games can be more engaging than the traditional paper versions, this use of technology misses the opportunities to use contemporary CALL in more authentic and communicative ways that are intrinsically motivating to learners.
Lack of Theoretical Nexus between CALL and SLA

Other than the two issues discussed above, a far larger issue in CALL is the lack of “sophisticated understanding of how languages are learned” (Levy & Stockwell, 2006, p.1). Chapelle (1997) similarly states that there is a “dissonance between even the most technically sophisticated work in CALL and SLA research” (p. 20). As was seen in the previous discussion, contemporary CALL focuses mostly on the rationalist tradition, considering why computer/technology is beneficial to language teaching, neglecting pragmatic thoughts of how computer/technology is beneficial to language learning. This could be due to the complexity of linguistics itself, since the theories of how people learn language can be defined differently by multiple sub-branches of the field (Bailin, 1988; Liddel, 1994; Chapelle, 1997; 2009; Levy & Stockwell, 2006).

In fact, the current trends of CALL research particularly fall into this category. Since CALL practice involves cross-disciplinary work, researchers and designers “find themselves at the crossroad among disciplines that appear to offer insights for work in CALL” (Chapelle, 1997, p. 19). Because of this, there is a tendency to theorize contemporary CALL in a vague, but limited manner; indeed CALL advocates themselves have often failed to acknowledge other theoretical perspectives outside of their traditions.

These issues were also discussed in the work of Levy and Stockwell’s (2006) CALL Dimension. In this book, the authors argued that there are three issues confronting modern CALL theories and proposed the need to reconsider the current practices and theory applications. The first issue is on the “theory-practice nexus” (p. 140); in particular, Levy and Stockwell (2006) note that the current theory-practice relationship is underdeveloped, and thus leads to rather narrow-minded, oversimplified applications of
theories. In fact, the field of CALL research itself is diverse, deriving from multiple domains of inquiries, namely the theory of learning (e.g., sociocultural theory, constructivist approach), theory of SLA (e.g., interactionism, structuralism), theory of teaching and pedagogy (e.g., task-based language learning, activity theory, communicative language teaching), and theories of curriculum and design (e.g., rationalism, pragmatism). While many theories, traditions, and approaches are available in the field, it is less likely to find research that contains an interdisciplinary nature of theoretical accounts.

Levy and Stockwell (2006) further argued that, when the two studies follow the two distinct theoretical traditions such as interactionist versus socio-cultural theorist, their descriptions and interpretation will be much different from one another, since researchers in these studies utilize different units of analysis, evidence, and key terminologies to explain their outcomes, even though the two studies share a similar purpose, data set, participants, and even similar results (Levy & Stockwell, 2006). The problem may then arise; according to Levy and Stockwell (2006), for those who are not experts in the field, especially the language teachers and CALL designers, may not be aware of the shortcomings of the theory. This may eventually lead to the partial implementation or misuse of the theory that is warranted (Levy & Stockwell, 2006). Perhaps practitioners and designers may also fail to see the theory-practice relationships in a much deeper sense, since the different theoretical traditions do not tend to interconnect with each other to deliver outcomes of their studies.

Meanwhile, it has to be stressed that the rich diversity of CALL research and its establishment is a positive phenomenon. Diversity in the contemporary CALL research
may potentially offer a variety of pedagogical choices and range of instructional methods. Because of this diversity, there is a shared notion that language learning is a complex process (or a set of phenomenon) thus multiple theories are needed to explain the different parts of the process. However, according to Levy and Stockwell (2006), the issue is on the CALL designers and language teachers’ perspectives on theory application. As indicated previously, due to the diverse nature of CALL research, it is challenging for practitioners to choose a theory(s) for their practical implementation. Levy and Stockwell (2006) in particular show concerns about the CALL design and its development, noting that some designers may possibly take one or two easily-applicable theories for a marketing platform in order to rationalize their already existing programs/products. Chapelle (2009) and Garrett (1991) also exhibited a similar concern even among CALL researchers today, arguing that they “draw on whatever perspectives might help them to grapple with the many new possibilities presented by technology” (Chapelle, 2009, p. 742). This can be particularly problematic, since the CALL researchers and practitioners may fail to see more in-depth understanding of the modern CALL framework before its implementation, relying solely on the rather narrow-minded approach to CALL programs.

With reference to the two issues above, the issues of the theory-practice relationship may have already been present in the current trends of CALL research, where practitioners tend to focus more on the motivational aspects of learning/teaching for utilizing CALL, rather than focusing on the impact on language learning as a whole. To consider the potential benefits of CALL outside the scope of motivation, further investigation is necessary; in particular, examination of the theory of SLA with reference
to the two main paradigms: cognitive and socio-cultural SLA traditions, is needed. This is also related to the need to explain CALL research with a pragmatic goal; the emphasis is to find out how technology or a computer-assisted environment can be beneficial for creating language learning opportunities and to examine how SLA is successfully demonstrated. Having said that, there needs to be a guiding, interdisciplinary framework, or what Levy and Stockwell (2006) called an “overarching theory” of SLA to support contemporary CALL research design, application, and evaluations (Levy & Stockwell, 2006, p. 1). To establish this, the following section reviews SLA theories with an attempt to address its relationship to CALL, showing how SLA and CALL are interconnected.

**The Relationship between CALL and SLA**

According to Egbert et al. (2007), a theory of CALL is a theory of language acquisition, and CALL theories will not exist independently from SLA, regardless of the changes in technology. It is important to note that the use of technology, such as emailing and course management software, does not simply constitute CALL environment; rather, “the full integration of technology into language learning” conditions CALL environment (Garrett, 2009, p. 719). While there is a need to investigate the relationship between SLA and CALL, or how SLA may be facilitated in the CALL environment (Peterson, 2010), contemporary CALL research generally lacks the evidence supported by SLA theories (Levy & Stockwell, 2006), since the SLA field itself does not agree on the basic premise of how language is learned (Chapelle, 1997; Truscott & Smith, 2011).

This diverse view of language learning in the field significantly affects not only views about how language should be taught in the classroom, but also how CALL is rationalized for its potential benefits. In order to “help make sense of the intensively
interactive and linguistically rich environments afforded by technology” (Chapelle, 2009, p. 741), contemporary CALL should be re-conceptualized and evaluated from the integrative theories of SLA. As a matter of fact, although the numbers of publications are still quite low, there are a few studies that establish the relationship between SLA and CALL (cf. Chapelle, 1997; 2009; Doughty & Long, 2003; Warschauer, 2004), providing a work-in-progress conceptual framework to evaluate current CALL practices. With an attempt to bridge CALL and SLA, Chapelle (2009) provided a case-by-case analysis between SLA theories and CALL implications, providing the instances of how each SLA theory can provide example implications for contemporary CALL practices.

Upon examining SLA theories from the diverse field of linguistics, two main approaches to language acquisition emerged: natural SLA and instructed SLA. As an example of this, according to the historical review of SLA by Kramsch and Whiteside (2007), the original purpose of SLA research was defined as “to help improve language instruction and to better control the variables that went into instructed SLA” (p. 908). In this definition, both theoreticians and practitioners are interested in how language is learned and how such learning can be facilitated through instructional materials and resources. However, this definition of SLA is not always agreed upon by different groups of linguists due to the fact that there are two beliefs in SLA: 1) SLA as a natural process, and 2) SLA as something needing instruction. The distinction between natural SLA and instructed SLA can also relate to the famous work of Krashen and Terrell’s (1983) acquisition-learning hypothesis, which distinguishes between acquisition and learning, offering the ways in which two distinct competences: acquisition (e.g., implicit knowledge of a language) and learning (explicit knowledge about a language), can be
incorporated jointly in the classroom for different tasks and objectives (Krashen & Terrell, 1983).

Within the branch of natural SLA, there are generative linguists who focus on how language is learned rather than how language should be instructed to promote language acquisition. However, generative linguists, including the original work of Chomsky (1957; 1964; 2008) and his associates Carroll (2001), claim that innate mental structures are primarily responsible for language learning. Because of this notion, the focus of generativists is on the innate process of learners, such as examining “prewired linguistic capacities of learners” (Chapelle, 2009, p. 742), rather than taking the environment into consideration; that is, the context in which learning is nurtured. According to Chapelle (2009), generativists’ theory is rather limited when applying it to CALL, due to their emphasis on learners’ mental capacities rather than materials or tasks themselves (p. 742). Furthermore, even if we were to accept generative linguists’ claims about language learning, the approaches to CALL would look much like Structural CALL models (Warschauer, 2004), emphasizing drills and exercises or the translations of target languages.

In examining the relationship between SLA theory and CALL, Chapelle (2009) further reviews work within the fields of cognitive linguistics, psycholinguistics, human learning (e.g., skill acquisition theory), and sociocultural linguistic theories. For the case of cognitive linguistic perspectives, Chapelle (2009) cites Chomsky’s Universal Grammar (UG), autonomous induction theory, and the concept-oriented approach to provide an example implication for CALL, arguing that the emphasis on the natural sequences and development in instruction might be able to “speed up the process of
acquisition” (Chapelle, 2009, p. 743). A similar argument can be seen in Krashen and Terrell’s (1983) “Natural Order Hypothesis,” which states that grammatical structures are acquired in a predictable order (Krashen & Terrell, 1983, p. 28). By considering the prototypical approach in acquiring language, Krashen and Terrell (1983) further argue that both second language acquisition and first language acquisition take similar developmental sequences, regardless of the learners’ age. To exemplify such claims into CALL practice, Chapelle (2009) adds:

…exercises based on students’ use of corpora for investigating grammatical patterns provide rich activities for individual hypothesis testing. These cognitively based theories suggest some orders of acquisition of grammatical forms, providing concrete suggestions about sequencing that could be exploited in grammatically based curriculum (p. 743).

Chapelle (2009) further undergoes a thoughtful discussion between CALL and SLA, providing a detailed analysis of how different theoretical approaches to SLA can be exemplified in CALL practices. While this attempt is innovative for creating a nested relationship between SLA theories and CALL practices, Chapelle’s review on SLA theories, in particular, the example implications of generative and cognitive linguistic theories may only be applicable to grammar-based curriculum, known as traditional CALL. A similar argument was also addressed in Warschauer (2004) and Thomas, Reinders, and Warschauer (2014), where CALL typically reflects extant belief about SLA upon utilizing technology. Chapelle (2009) notices that this is a limitation derived from SLA theories, arguing that “each theory focuses on a set of phenomena, whereas CALL activities can span a broad range of learning opportunities” (Chapelle, 2009, p. 747). As a result, Chapelle (2009) claims that there needs to be an integrated set of SLA theories to evaluate CALL, thus proposing six characteristics of materials as theoretical
implications derived from four areas of SLA theories: 1) language learning potential, 2) meaning focus, 3) learner fit, 4) authenticity, 5) positive impact, and 6) practicality (Chapelle, 2001; 2009).

**Concepts of SLA**

The preceding discussion suggests that current CALL research should use an integrative set of SLA theories to conceptualize CALL practices. This is because the intersubjective nature of SLA theories is needed to explain the diversity of CALL applications today. In order to consider the potential benefits of contemporary CALL with a full integration of SLA theories, this section will first look at the concept of language input. As Krashen (1985) proposed, the concept of input serves as one of the most important mechanisms of SLA. The discussion of input reveals what language is, how language acquisition is processed, and conceptually, how perceived input is organized neurologically. After reviewing the multiple definitions of input, this section then introduces the types of knowledge, which are also essential for rationalizing the integrative SLA-theory driven instantiation of CALL.

**Input in SLA.** The definition of input in language learning may vary among different theorists. Many theorists believe that input is a language or the object of language that learners are exposed to, both in spoken or written format (Gass et al., 2013); or to an extent, input is linguistic data such as morphemes or grammatical structures (cf. Saussure, 1959). Furthermore, according to Khatib, Alemi, and Daftarifard (2010), input today can be classified into two major frameworks: psychological and sociocultural paradigms. Linguists with psychological background in general believe in a dyadic approach, claiming that the input has a sense of triggering the development of
innate system by altering language. Meanwhile, linguists who believe in sociocultural tradition take on the triadic approach, claiming that the input resides in communicative interaction. In the latter tradition, theoreticians claim that the sociocultural account of SLA, including negotiation of meaning, recasting, or comprehension check, plays a significant role in accelerating learners’ comprehension (Khatib, Alemi, & Daftarifard, 2010).

While the definition of input differs significantly depending on the ways in which theoreticians view language, the initial definitions of input: input is a language or the object of language, is deeply rooted in the assumption created by Noam Chomsky, one of most influential linguists in the field. According to Chomsky (1964), input is defined as “the primary linguistic data,” meaning well-formed sentences in the language are to be learned (Chomsky, 1964). As argued earlier regarding generativists’ perspectives on language acquisition, Chomsky (1964) claims all humans are born with an innate language learning device (LLD), thus language acquisition occurs when learners perceive input, or the primary linguistic data, in order to construct generative grammar by processing language through LLD.

Meanwhile, Khatib et al. (2010) claim that Chomsky’s view on input is rather limited, arguing that “language learning is not a process of representing linguistic objects in the brain on the basis of input received” (Khatib et al., 2010, p. 65). Since Chomsky’s view on input is contingent, Khatib et al. (2010) instead advocate the ecological view of input that addresses relational aspects of input rather than materials/product, as also seen in Van Lier’s definitions of input as affordance (cf. Van Lier, 2000; 2004). According to Van Lier (2000; 2004), affordance refers to what is available to the person to do
something, as well as what the environment offers to the person. When advocating the hypothesis of input as an affordance, Van Lier (2000) uses a metaphor of a leaf to explain input in language acquisition (see Figure 1).

![Leaf metaphor](image)

**Figure 1.** Van Lier’s metaphor of input as affordance (Van Lier, 2000, p. 252)

Van Lier (2000) claims that a leaf can offer very different affordances to different organisms; it is the same leaf for all organisms but its different properties are perceived and acted upon by different organism. The same thing can be said for language, because language is relational and the word and expression do not mean the same thing twice. Van Lier denies Chomsky’s account that language learning is not a process of representing linguistic objects in the brain on the basis of input perceived. Instead, Van Lier claims that language will emerge when the learners are actively engaged in the environment by establishing the relationship “with and within the environment” (Khatib et al., 2010, p. 65; Van Lier, 2000; 2004).
Going back to Chomsky’s theory, if it was assumed accurate, learners would have Universal Grammar (UG) and would therefore be able to learn a language naturally by only listening to an instructor’s “well-formed” speech (since UG parameters will naturally be activated to process the given information). However, this is disproven in Klein’s Chinese Room thought experiment (1986), in which learners are supposedly “locked in the room and were continuously exposed to the sound of Chinese coming from a loudspeaker” (Klein, 1986, p. 44). All the learners might have been able to mimic the instructor’s speech, but they would not end up speaking Chinese. This indicates that learning requires more than one element of input; in this case, articulation of speech sounds is not enough. As Klein (1986) puts it, what makes learning possible is “the information received in parallel to the linguistic input in the narrower sense” (p. 44). The learners need to have a contextual understanding of a communication, such as with whom, when, and where they are speaking, and relational and responsive understanding of the listener, such as the body language and the listener’s reactions to the speaker (Klein, 1986).

Arguments on the nature of input were discussed more thoroughly when Krashen and Terrell (1983) advocated the Natural Approach theory, proposing five hypotheses in regards to language acquisition. While Krashen and Terrell (1983) developed such hypotheses by following Chomsky’s influential work in defining input as containing primary linguistic data, Krashen’s input hypothesis additionally inserts the importance of making the input comprehensible (Krashen, 1985; 2009; Krashen & Terrell, 1983). Along with this premise, Krashen (1985) also proposed the ideal model of the input as “i+1,” giving (i) input slightly beyond the learners’ level of comprehension (+1) so that the
learners may infer another level of “primary linguistic data” with comprehensible conditions (Krashen, 1985; 2009).

It is interesting to note that Krashen’s input hypothesis resembles the famous psychologist Vygotsky’s (1986) theories of the Zone of Proximal Development (ZPD) and scaffolding. Vygotsky’s (1986) ZPD refers to the difference between what learners can successfully perform with or without assistance from someone else who has mastered those functions (Vygotsky, 1986). Since Vygotsky believed that learning is a variety of internal processing that occurs as a result of social interaction with the environment rather than a purely individual phenomenon, the ZPD can be considered a gap which can be filled through peer scaffolding. Vygotsky’s theory, including the ZPD and the concept of internalization are similarly defined by Krashen’s input hypothesis and acquisition; although the terms are different, these two concepts originate from the similar premise that social interaction is a primary key to achieve targeted content that is slightly higher than the learner’s developmental state. When the learners are exposed to comprehensive input that is in i+1 level or ZPD with sociocultural scaffolding, learners eventually achieve independence by active internalization, which in turn, leads to acquiring proficiency in the context of input in SLA.

**Issues of Input in SLA.** While the “comprehensibility” and interactionist’s account of input would lead SLA to its next phase, theorists often fail to consider a fundamental issue: that is, whether or not the field of linguistics is an object of science. According to Yngve (1996), researchers in linguistics studies often fail to focus on what is real: in other words, the physical domain of inquiries to examine how people acquire language. It fundamentally questions about the existence of language; the argument
generally goes that the language does not exist in real world and thus, input cannot consist of language (cf. Yngve 1996; Coleman, 2005). When it comes to considering the question of what are physically observable in any given communicative event, they are the utterances (i.e., speech sounds), the object or person producing the utterances, the person hearing the utterances, and finally the person’s interpretation of what was heard. However on contrary, Chomsky and Krashen do not distinguish physical property of a communicative event from language (logical property), and ultimately creates what Yngve (1996) calls “domain confusions” (Yngve, 1996, p. 45; Coleman, 1991, p. 92). Chomsky and Krashen’s theories fall into this domain confusion, continuing to accept an assumption that input contains “language” and the “word” carries meaning.

The belief that input consists of language is widely accepted within many theoretical frameworks, ultimately impacting how language has been taught in the field. During the structuralist era (1970s to 1980s), grammar rules were excessively taught in language learning classrooms based on the assumption proposed by Chomsky. Likewise in the 1990s, language was often taught through translation with an explicit or implicit emphasis on grammar, after the importance of comprehensive input introduced by Krashen and Terrell (1983) and Krashen (1985). However, as many of us know, the translation approach does not always work since it is only limited to a solid interpretation of the given speech sound, neglecting the context in which the speech sound/written texts is perceived. Furthermore, the meaning of the word exists in the perception of people’s mind, which varies from one language to another.
To provide an example, consider the following example found at the University of Toledo (see Figure 2). The expression seen in the bottom right of Figure 2, いらっしゃいませ (irasshaimase) is in fact translated as “welcome” in Japanese. In communicative situation, there are two types of “welcome” in Japanese, and both of them are used interchangeably depending on the context: 1) ようこそ (yōkoso) for the general welcoming of a guest not limited in space or context, and 2) いらっしゃいませ (irasshaimase) in particular used for welcoming customers upon entering restaurants or stores. The origin of the word “irasshaimase” comes from the honorific conjugation of the verb iru (いる) “to be” and kuru (くる) “to come,” honoring the customer for coming to their stores. As seen in the example in Figure 2, the multilanguage board meant to welcome students from diverse background by showing “welcome” in different languages; however, the use of “welcome” is misleading in the case of Japanese: いらっしゃいませ (irasshaimase), since the advertisement used the commercial version of
“welcome” instead of welcoming students for their participation in school (unless the university believes that education resides in commercial milieu and thus students are consumers).

While comprehensibility is the key for input and language acquisition, the comprehensibility cannot be attained through translation as was the issue demonstrated in the example (Figure 2). The serious issue here is that SLA and CALL theorists tend to look at language as if it exists in the real world (physical world), claiming that words carry meaning. By holding onto this notion of language, researchers and practitioners are permanently tied to the logical domain. As Yngve (1996) argues, language is not physically real, and the words do not carry meaning. Rather, learners construct meaning of a particular speech sound or written text though various sensory experiences, or as Van Lier (2000) puts it, through the interaction with and within environment. The domain-confused notion of language led to the application of grammar instruction while focusing on language accuracy, which resulted in more traditional, structuralist approach of language teaching in CALL. As long as the SLA and CALL theorists believe in the existence of language, they will be permanently trapped with the monistic notion that language is a material product that we can pass on or translate into, while failing to acknowledge a more dynamic, pluralistic, and ecological view of language.

To consider language acquisition in a strictly physical domain, Yngve (1996) argues that language is not the object of science, therefore we must instead observe how people learn to communicate in the real world. In this framework, Yngve claims that the linguistic theory of communication can be explained by examining: linkage (communicative event as a whole) which consists of participants (speaker and listener),
channel (means of energy flow), prop (objects of communication), and the setting where the communication is taken place (Yngve, 1996). All of these items are physically real and observable, thus they can be tested, evaluated, and theorized. Since learning can be defined as “changes in the individual as a result of the structure of the individual and the individual’s interaction with the environment” (Coleman, 2005, p. 209), language acquisition can be re-conceptualized when we look at what is real (speech sound, written texts, etc.) with the participants’ reactions and behavioral change through the outcomes of linkage.

**Types of Knowledge in SLA.** The issues of domain confusion are not only limited to the nature of input, but also observed in the cognitive nature of learning and development in the field. While Krashen and Terrell (1983) initially proposed language-acquisition distinctions in 1983, such discussions did not emerge in the field until a decade later. The discussions included the distinction between language and communication, knowledge as representation and knowledge as action, language use and language action, as well as theory of mind versus theory of practice (Kramsch & Whiteside, 2007).

These distinctions recognize that there are two types of knowledge: knowledge about language and knowledge regarding how to communicate, yet SLA theorists and practitioners remain uncertain how to clearly distinguish the two. The differences between the two distinct concepts can be found in the current research in the field of psycholinguistics and neurolinguistics, especially in the work of Michel Paradis (2009). While the general property of memory and its functions has been discussed by earlier

According to Paradis (2009), there are two types of memory processing systems known as declarative knowledge and procedural knowledge, which govern the different types of information processing when learning a language or learning to communicate. Declarative knowledge refers to the knowledge about the language, such as grammar competence and language structures that are “learned” and stored in the brain as explicit and conscious memory. On the other hand, procedural knowledge refers to the knowledge-how-to, such as paralinguistic competence, “acquired” unconsciously and implicitly. Paradis (2009) claims that these two distinctive determinants co-exist, yet neither one can become the other. This is because they are “quantitatively different” and are “subserved by different neural substances” such as the cerebellum versus the hippocampal system (Paradis, 2009, p. 187).

**Issues Regarding the Types of Knowledge in SLA.** While more research is needed to explain the distinction between declarative and procedural knowledge, Paradis’s claim is significant in the current theory of SLA for two reasons: 1) it questions the nature of language instruction (or input), and 2) it provides more evidence that multi-sensory input along with interaction is vital in language acquisition. In a long history of language instruction, it has been often assumed that explicit knowledge about language, such as vocabulary meaning pairs and grammatical rules should be taught, and such knowledge eventually transforms into procedural knowledge and the ability to communicate unconsciously through practice and repetition. However, Paradis (2009) stressed that explicit or implicit knowledge does not become one another, providing the
example of vocabulary-lexicon distinction in his first chapter. For instance, Paradis (2009) argues that the children before school age use nouns, verbs, adjectives, and adverbs correctly, yet they do not have explicit knowledge about language until they are instructed those in school. On the other hand, while second language (L2) learners gain knowledge of a vocabulary and grammatical rules explicitly, L2 learners may still use inadequate words or structures when the morphosyntactic properties of a language vary from those of their native languages (e.g., few vs. many, and less vs. much in English) (cf. Paradis, 2009).

This may be possible, according to Paradis (2009), if the learner manages to learn metalinguistic knowledge in a speedy controlled manner. Paradis (2009) stressed that this is more than just a matter of purpose and appropriation of a SL; it is a theoretical question rather than a practical one. The distinction is on the automatic competence (implicit) versus speed-up metalinguistic knowledge (explicit); yet for L2 language learners, as long as they can speak successfully or get the message across, the methods of how they communicate would not matter in a practical sense. However, even though the learner manages to communicate fluently through explicit knowledge including extensive practice and speedy controlled metalinguistic knowledge, it is still an illusion of automaticity; it does not mean that the explicit knowledge becomes implicit; just as metalinguistic knowledge cannot be automatized. Thus, while learners may appear to “communicate” fluently as if they “acquired” language, what they are doing is retrieving declarative memory of “learned” language, not the procedural knowledge (Paradis, 2009).
Conversely, Ellis (2005) and Ellis and Larsen-Freeman (2006) argue the opposite premise, theorizing the potentiality of declarative and procedural memory associations. They claim that the use of metalinguistic knowledge functions as a monitor to check accuracy, and an increased usage of well-formed, structured language eventually results in implicit acquisition of relevant procedures (Ellis, 2005; Ellis & Larsen-Freeman, 2006). According to Ellis and Larsen-Freeman (2006), this is because the language form, or in other words, explicit knowledge about language, plays an important role in facilitating learners to notice features that are relevant in producing linguistic output. This idea of noticing, originally proposed by Schmidt’s Noticing Hypothesis (1990), is a necessary condition for learners to convert input into intake, and also acquire the procedural and performance-based element of knowledge. While Paradis (2009) accepts the notion that declarative knowledge may have an indirect effect on procedural knowledge, he criticizes Ellis (2005) and Ellis and Larsen-Freeman (2006), claiming that both scholars do not show how those two capacities are associated or “mutually dependent” (Paradis, 2009, p. 105).

**From Language to Communication: Issues Revisited.** The distinction between implicit versus explicit, competence versus knowledge, is in fact one of the vital elements in SLA theories and in contemporary approaches to language teaching. Paradis’s discussion included neurolinguistic evidence that explain how the ability to communicate automatically, or the “implicit linguistic competence” (Paradis, 2009, p. 2), does not derive from the knowledge about language, its grammatical rules, or word meanings. Rather, an ability to communicate is developed through a large set of associations
between speech sound, motor memory, tactile experience, and networks of perceptual memories.

Therefore, language should be taught by showing and doing, not explanations of grammar forms and mechanisms. After accepting this premise, the most appropriate way to teach a verb (e.g., stand up, sit down, turn right, turn left) is by action, as proposed in Asher’s Total Physical Response (cf. Richards & Rodgers, 2001). By doing so, the learners not only develop associations between speech sound and kinetic movement, they also acquire a functional reality of a verb: an action. To understand the object noun car, the most appropriate way is to show multiple examples of car so that the learners can construct both a conceptual and functional understanding of a speech sound /kær/. If the learners are taught by explanation (e.g., translation or the definition) or are exposed to single example of a speech sound /kær/, the learners will not be able to develop the breadth and limits of associations (Coleman, 2007), in other words, what does and does not account for the conceptual and functional meaning of /kær/.

Furthermore, it is often seen that the adult L2 students in traditional classrooms know so much about a language and grammatical structures, yet their knowledge about language does not always transfer into an ability to communicate with their peers successfully. To empirically support this claim, Truscott (1996; 1999) and Krashen (2009) argue that the grammatical knowledge, in particular, grammar correction in both written and oral format, does not contribute to successful performance of L2 writing or speaking. While Truscott carefully warns that he does not intend to reject the importance of grammar, he provided evidence that conscious focus on grammar forms did not make any contributions to the development of grammar speech or writing (Truscott, 1996;
This may explain why teaching knowledge about language explicitly has little effect on how learners learn to communicate in the real-world, which is ultimately the instructional purpose of SLA.

It should also be stressed that the argument presented thus far does not intend to reject the importance of grammar nor claim that it be eliminated. Rather, this chapter intended to address the reason of why a traditional and structuralist approach has been maintained through decades, examining the origin of such thoughts through the discussion of what is real and what is not (cf. Yngve, 1996; Coleman, 2011). In reality, the grammar rules and structures can simply be stated as a post-production description of an event by a third party observer, they are not something we represent in the brain nor do they govern speech. As was argued in the types of knowledge distinction made by Paradis (2009), such description does not get automatized into procedural memory, that is, an ability to communicate in a real world. Potentially, grammar instruction can be beneficial when working on the declarative specific tasks such as proof reading and editorials, something that is needing of a description rather than procedure. However, it should never be the primary objectives of input, since the focus of language learners is most often on the advancement of their functional communicative ability.

Moving beyond these theories, if instructors instead provide an environment where learners can be immersed in multisensory communicative settings, the learners would eventually be able to acquire communicative competence. In particular with SLA and Foreign Language Acquisition (FLA) context, with clear goals and rigid sets of tasks, learners would engage in meaningful procedural experiences while perceiving a combination of various sensory experiences. When learners are shown dozens of
alternative examples of target objects or communicative tasks, they will acquire multiple interpretations of particular utterance/texts, and ultimately construct a breadth of associations. Furthermore, instructors must incorporate varieties of examples, not only to help learners obtain fundamental patterns and functions of a particular communicative item, but also develop a contextualized understanding of a target word/expression.

Meanwhile, it is also essential to show some negative examples for learners so that they would be able to conceptualize what Coleman (2007) calls “limits of associations” (p. 121) within target language clearly, which may be functionally different from that of their native language.

**Concluding Remarks: Toward Computer-Assisted Learning of Communication**

SLA theorists and practitioners historically accept the notion of language by studying language as the object of inquiry. They believe that language learning is a human specific innate phenomenon, thus learning about language, such as rules and structures were greatly emphasized during the structural era. When the social dimension of SLA emerged in the late 1990s, many SLA theorists began to recognize the importance of acquiring communicative skills, rather than primarily learning about language rules and mechanics. After the distinction between learning and acquisition was proposed by Krashen and Terrell (1983), SLA theorists and practitioners gravitate toward natural language acquisition; thus, more communicative, meaning-focused, naturalistic approach to language teaching have become prominent in the field (e.g., Natural Approach, Direct Methods, Silent way, Total Physical Response).

However, as seen in both SLA and CALL practices, conscious knowledge about language such as grammatical structures and its functions are still emphasized either
implicitly or explicitly, due to the domain confusions about what is real and what is not.

In regards to the recent CALL practices, although the integrative model has been proposed, there is much CALL research that focus on the declarative, form-focused, and metalinguistic nature of language learning. However, as was discussed throughout this chapter, Paradis (2009) claims that such features do not constitute learners’ procedural knowledge; in other words, an ability to communicate in the real world. If the primary purpose of SLA and CALL is to acquire communicative competence to function in all-L2 environment, the fields of SLA and CALL need a major paradigm shift: from language to communication, from grammar to science (Yngve, 1996). Similar to the argument proposed by Paradis (2009) regarding the distinction between explicit knowledge (learning) and implicit knowledge (acquisition) with neurolinguistic evidence (cf. Paradis, 2009), language and communication exist in opposite domains: logical and physical respectively. The study of linguistics, including SLA, and CALL, should therefore consider the physical domain of inquiry (how people communicate), in order to focus on the objectives of science.

Despite the advancements in technology throughout history, CALL practices and rationales have historically been influenced by the practices of SLA, however, never was it thought of how CALL could, in turn, influence SLA. During the transition of Structural and Communicative CALL eras, researchers fell into domain confusion, claiming that language learning was the objective of CALL. This resulted in affecting how theorists and practitioners viewed, and subsequently, treated computers in the classroom, constraining the potentialities of CALL to the motivational elements.
While affective aspects of learning language in CALL are certainly fundamental to sociocultural theory of learning, an examination of affective elements alone neglects a much more diversified, ecological view of how language is learned from SLA points of view. Since SLA theories come from a range of various disciplines, there needs to be a counter-theoretical cohesion or even conversation between theorists of CALL and SLA to explore how language learning is afforded within the CALL environment. Nonetheless, due to the apparent dissonance between SLA and CALL discussed in this chapter, the contemporary CALL practices today tend to inadequately implement SLA, often deserting the nature of language learning within the environment. Furthermore, this disconnection between CALL and SLA has resulted in the lack of research to examine the process in which language learning occurs during the implementation of CALL programs, and ultimately triggered a lack of empirical evidence regarding how a particular CALL program can be successfully utilized in language learning classrooms.

Now that we reside in the era of Integrative CALL that views language as a social construct (Warschauer, 2004), contemporary CALL can now serve as an environment where communicative events and their functional reality can be served altogether. The following table is the conceptualization of the CALC program adopted by Warschauer’s Integrative CALL (2004) as well as some of the ideas discussed in Chapelle’s CALL Evaluation (2001; 2009) and Doughty & Long’s Language Teaching Methodological Principles for CALL (2003). Table 2 represents the theoretical framework for a new CALC approach proposed in the study, addressing the issues regarding the lack of overarching theory of SLA. In particular, this new approach attempts to provide a bridge between sociocultural and psychological paradigms with an attempt to investigate the
process of learners with and within the environment. Thus, rather than looking at language, which does not exist in the physical domain, contemporary CALL can now be re-conceptualized based on the real-world theory of how people learn to communicate, and ultimately be renamed as Computer Assisted Learning of Communication (CALC), instead of CALL.

Table 2

*Conceptualization of the CALC Program*

<table>
<thead>
<tr>
<th></th>
<th><strong>Computer-Assisted Learning of Communication (CALC)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Simulation &amp; Gaming, Virtual Reality, Virtual World</td>
</tr>
<tr>
<td>CALL Teaching Paradigm</td>
<td>Integrative, Immersive, Experiential, Situated, Content-based, Performance-based</td>
</tr>
<tr>
<td>View of Language</td>
<td>Socio-cognitive</td>
</tr>
<tr>
<td>Principal Use of Computers</td>
<td>Simulation environment that creates alternative reality and promotes authentic discourse</td>
</tr>
<tr>
<td>Principal Objective</td>
<td>Agency</td>
</tr>
<tr>
<td>Potential Learning Outcomes</td>
<td>Acquisition of contextualized communicative competence with functional reality</td>
</tr>
<tr>
<td>CALL Characteristics</td>
<td>Task-based learning, Activity-based learning, Problem-solving, Negotiation of meaning, Learners’ autonomy, Safe environment for trial and error, Authentic communication</td>
</tr>
<tr>
<td>Evaluation of CALL</td>
<td>Student communicative outcomes</td>
</tr>
<tr>
<td></td>
<td>Authenticity (reality of function)</td>
</tr>
<tr>
<td></td>
<td>Students’ general favorability and preference</td>
</tr>
</tbody>
</table>
Chapter Three

Research Design and Methodology

As noted in Chapter One, the purpose of this study is to investigate SLA-theory driven instantiation of CALL within the context of Japanese as a Foreign Language (JFL) classroom. Based on the critical analysis of CALL and SLA literatures reviewed in Chapter Two, the present study proposed a new instructional approach: Computer Assisted Learning of Communication (CALC), derived from integrative theories of SLA and CALL. In this chapter, the research design and methodology of the study will be discussed. First, this chapter briefly reviews the nature of qualitative driven mixed-method case study with an attempt to rationalize how and why the case study design was appropriate for the context of this dissertation. Second, related to the discussion of research design, this chapter further evaluates recent contemporary CALL research methods that are particularly important to understanding how language learning in virtual worlds can be empirically studied. The last section of this chapter focuses on the research design and procedure of the present study, detailing data types and collection methods utilized in the CALC curriculum.

Qualitatively Driven Mixed-Method Case Study Approach

The present study takes a qualitatively driven mixed-method case study approach to examine the participants’ natural acquisition of Japanese in a 3D virtual environment, conducting a semester-long study that documents participants’ learning progressions, outcomes, and attitudes toward participation in a massively multiplayer online (MMO)-based virtual world of Japanese.
In general, scholars and practitioners who undertake qualitative methods are aware of the various approaches to qualitative inquiries. Reflecting on the disciplines, theoretical traditions, personal interest, as well as the purpose of the study, researchers need to identify a specific approach that will promote the effective modes of data collection, analyses, and findings. To explore one of the qualitative research inquiries, according to Glesne (2011), ethnography, for example, uses *culture* as the theoretical framework to understanding and developing what Geertz (1973) called “thick description” of how a particular cultural group “construct[s] and share[s] meaning” (Glesne, 2011, p. 17). While ethnographic research is commonly known as the study of a culture-sharing group, it typically involves large-scale study with extended observations and interactions of the group over time. Since the intent of the ethnography is to discover, interpret, or construct realities shared in a cultural group, this approach is not always suitable, especially when the primary focus of the study is to develop an in-depth understanding of a single case.

When intensively examining a particular event, group, or an individual, the case study approach is often utilized. In a broader sense, case study research can be defined as:

...a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case), or multiple bounded systems (cases) over time, though detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports), and reports a case description and case themes. The unit of analysis in the case study might be multiple cases (a multisite study) or a single case (a within-site study) (Creswell, 2013, p. 97).

Whether the case study is a method (i.e., research strategy) or researcher’s personal choice is subject to debate amongst various qualitative researchers, most scholars agree that the value of the case study approach is the attempt of providing in-depth
understanding of the complexities and uniqueness of the case, and how such case is connected with and within social context.

**Contemporary CALL Research Methodology**

While the present study takes a qualitatively driven mixed-method case study approach, it should be mentioned that researchers in contemporary CALL, in particular those who study the use of computer games and simulations, utilize a variety of research methods to meet their objectives. Among the most recent published studies ranging from 2005 to 2015 regarding the use of computer simulations and virtual worlds, the present study attributes eight empirical studies that are particularly relevant and shares similar research agendas (see Appendix A).

Out of eight empirical studies referenced in Appendix A, contemporary CALL research appears to have two approaches: 1) cognitive CALL aspects of language learning, and 2) sociocultural CALL or Integrative CALL (Warschauer, 2004) aspects of language learning, depending on the ways in which researchers view learning in the given CALL environment. These researchers who are interested in examining the effectiveness of the contemporary CALL and its instruction from cognitive perspectives tend to exploit experimental or semi-experimental design by providing a statistical evidence of students’ language learning outcomes and/or learning progression (e.g., Miller & Hegelheimer, 2006; Ranalli, 2008). For instance, Miller and Hegelheimer’s study (2006) and its replicate study by Ranalli (2008), focus on the students’ language learning outcomes in regards to the increased acquisition of grammar and vocabulary.

On the other hand, CALL researchers who promote an interactionist account of language acquisition tend to utilize qualitative method of analyses, providing a
descriptive evidence of significant events in a contemporary CALL collaborative environment (e.g., Peterson 2011; 2012a; 2012b; 2012c; 2013). In this approach, researchers are more interested in determining some of the characteristics of interactions between the participant and interlocutors in detail, examining how participants learn to communicate in the given virtual environment. As seen in Peterson’s study (2011, 2012a, 2012b, 2012c, 2013), qualitative modes of data collection such as interview and post-study survey are utilized to elicit participants’ learning experiences and perceptions toward game play. Within the spectrum of qualitative study, researchers also use a case study method to collect varieties of evidence to evaluate the effectiveness of the CALL program and its learning outcomes as seen in the deHaan’s study (2005). Using the case study method, researchers engaged in-depth analyses of how the features of simulation games help learners attain language based on multiple sources of data.

Due to the nature of environment, case study is commonly employed in the studies of CALL, in particular, the context of computer games and language learning. For instance, Peterson (2013) argues that the case study approach allows researchers to incorporate a variety of data sources into the research design, thereby facilitating triangulation and the collection of a richer set of data sources (Peterson, 2013). Because of this unique approach for qualitative inquiry, Peterson makes it possible to collect both in and out-of game interactions of individual learners and small groups, allowing him to examine further the “micro and macro level perspectives to learner behavior” (Peterson, 2013, p. 102).

Since the present study also concerns student learning outcomes at the individual level (micro level perspective) and the group level (macro level perspective), a
qualitatively driven mixed-method case study approach is most appropriate to elicit comprehensive outlook on the inquiry: how participants learn to communicate in the proposed CALC program. By focusing on the process of both individual and group learning, the case study will likely capture the in-depth process of learning from the participants’ perspectives. This is because the case study “entails immersion in the setting,” examining what “rests on both the researcher’s and the participants’ worldviews” (Marshall & Rossman, 2011, p. 93).

**Present Study**

Since the primary purpose of this research is to examine the SLA-theory driven instantiation of CALL within the context of Japanese language teaching, the present study takes a case study approach in order to illustrate how students learn to communicate in a contemporary CALL environment. Given the critical analysis of the related literatures in SLA and CALL, CALC approach is proposed with an attempt to best support students’ communicative acquisition. In order to apply theory into practice, the study developed a CALC curriculum for JFL students who are enrolled in a midwestern university (see Appendix B for the course syllabus). Upon utilizing the CALC model in one particular JFL classroom, the present study examines the processes JFL learners follow when learning to communicate in a CALC environment. Since a hallmark of this study is to provide an in-depth understanding of the case, the researcher collected data from multiple sources (triangulation). After the data collection, the present study engaged in both statistical and thematic content analyses in order to identify how particular communicative events are accomplished in the given CALC environment.
Participants. The subjects of this study were students who were enrolled in the Japanese advanced conversation course. At the time of this study, there were eleven students (n=11) registered in the course. All of these students finished four semesters of the prerequisite elementary and intermediate Japanese courses, and some of them have finished, or were jointly taking, third- and fourth-year courses in Japanese (3000 levels or above). Of the eleven participants, six had been to Japan for a three-week study abroad summer program prior to the study. Among these six students, one student (Student B) had been to Japan two times (a total of two months) while the other five (Student A, Student C, Student D, Student J and Student K) went once for three weeks. Although most participants were regular users of computer games outside the classroom, none of them had any prior experience playing a virtual world in Japanese, such as Meet-Me used in the present study.

CALC Environment. Amongst several virtual worlds available in Japanese, Meet-Me (http://www.meet-me.jp/) is a Japanese online reality simulation computer game developed by Transcosmos Incorporation. The present study utilized this environment for three reasons: 1) Meet-Me is one of the only games that supports three dimensional (3D) renderings of real-world locations in an all-Japanese environment thereby facilitating parallel sensory input of Japanese, 2) Meet-Me restricts offensive activities and language, thus, it is appropriate for players of all ages, and 3) Meet-Me mostly contains a realistic virtual environment which offers an authentic landscape of Tokyo with some of the major tourist attractions (see Figure 3 for an example of authentic landscape: JR Shibuya Station).
Aside from a fictional environment often seen in other massively multiplayer online role-playing games (MMORPGs) and virtual worlds available online (e.g., RPG-like environment for World of Warcraft, fictional environment for Cloud Party), the environment of Meet-Me has been designed to be realistic, relevant, and relatable to players’ lives. With carefully designed supplemental materials along with parallel sensory input to be received in Meet-Me, the CALC program is designed to provide what Jones (1982) called “the reality of function,” where participants “step inside the function mentally and behaviorally, and do the best they can to carry out their duties and responsibilities in the situation in which they find themselves” (p. 4).

Since a CALC curriculum is designed to facilitate an acquisition of communication rather than teaching about language (e.g., word meanings and grammar), the course and related assignments involve task-based activities afforded by the reality of function of the environment. Once students successfully complete the initial installation
and training phase of *Meet-Me*, the class transforms into a virtual study abroad program where students explore different parts of Tokyo. Because the course rather takes an approach of experiential and task-based learning, students have a specific task or agenda to fulfill on site (e.g., see Figure 4 for the lesson of learning to find Wafuku store in Shinjuku, trying out and purchasing different types of traditional Japanese attire). During the exploration phase, students undergo different thematic lessons for the purpose of acquiring contextualized, themed, and narrow-focused communicative items which are difficult to develop otherwise, for instance, when students are set free to explore the city on their own.

![Figure 4. Group picture taken in front of Wafuku store in Shinjuku, Tokyo](image)

Playing the game requires a great deal of communicative skill and concentration, mainly reading and type-based communication. Due to the non-quest based gaming nature of *Meet-Me*, the students’ autonomy, preferences in navigating the game, and
choice of leveling-up in the game are greatly respected. If students choose to, they can participate in embedded game-like activities such as fishing or insect-catching individually or collaboratively to receive rewards, and they can sell what they catch for an exchange of currency (virtual money). The more players work, the more choices they gain to improve the standard of living in their virtual world. Thus, unlike quests and background stories often found as a default setting in typical digital games, the Meet-Me environment acts as an open learning environment, promoting an intrinsic motivation for students to continuously play the game.

**CALC Tasks and Procedures.** The present study was influenced by contemporary CALL literatures on computer games and simulations, such as research on the sociocultural and psycholinguistic accounts of game integration (Peterson, 2011; 2012a; 2012b; 2012c; 2013; deHaan, 2005; Coleman, 2002; Reinders, 2009; 2012; Zhao and Lai, 2009) and the meta-analysis of contemporary CALL evaluation (Peterson, 2010). Most tasks and assignments in the CALC program are designed in such a way that facilitate the use of meaningful and context specific communication among learners. As suggested in Peterson’s recent study on the use of the virtual worlds such as *Allods Online* (Peterson, 2011), *Second Life* (Peterson, 2012a), *NineRift* (Peterson, 2012b), and *Wonderland* (Peterson, 2012c; 2013), the present study also includes an orientation phase during the course to help participants become familiar with the game, showing the use of basic features, navigation, and commands.

In all classes of the CALC curriculum, the medium of instruction is done entirely in Japanese, including the orientation phase. This is done by setting up a “No English Policy” in the syllabus to maintain an all-Japanese environment throughout the semester.
If students have any questions about the game and navigation, they have to ask questions also in Japanese. All lessons maintain a typical format of a simulation-based lesson, followed by: 1) briefing, 2) action, and 2) debriefing. During the briefing session, the instructor-researcher gives a demonstration in action, depending on the themes of the lesson planned for the week. For instance, when the lesson is about learning to purchase a car, the instructor-researcher virtually shows how to purchase a car and its associated activities such as viewing interiors or exteriors, examining the capacity of the vehicle, and finally, asking for a test drive. After students are introduced with new contextualized communicative competence associated with purchasing a car, students then take part in the action stage where they visit an auto mall to purchase a car that is within their budget. At the end of the lesson, students participated in the debriefing session to reflect on what they learned through various interactive activities like show-and-tell, questions and responses, and writing a reflection.

Since the purpose of the CALC curriculum is to promote an acquisition of communication rather than acquiring knowledge about language, the instructor-researcher focuses on facilitating conversation as well as evoking students’ willingness to communicate as a priority objective of the course. In this instructional approach, the instructor-researcher pays particular attention to feedback, restraining any sort of correction in the students’ written and oral outputs that would deviate their focus from communication. This attempt is supported by the findings from Truscott’s study (1996; 1999) regarding the effect of grammar correction in L2 writing and speaking. In addition, all lessons solely focus on task-based learning of a particular behavior or event; thus, there are no grammatical lessons, translations, or isolated vocabulary lessons involved in
the CALC curriculum. During the course of the present study, this approach was maintained throughout the 16-week academic semester.

Additionally, in each lesson, students receive highly visualized in-class handouts that are designed to scaffold their understanding of the lesson objectives as well as support gaming and activity performance associated in the lesson themes. The handouts often follow the interactive worksheet format to espouse class participation, and they are structured in such a way that can be used as gaming user manuals (see Figure 5).

Figure 5. Sample of in-class handout utilized in the CALC program

This attempt was meditated based on the ongoing suggestions proposed from recent CALL literatures regarding the use of simulation, gaming, and virtual worlds. For instance, based on the meta-analysis of recent CALL literatures on digital gaming, Peterson (2013) observed consistent learning outcomes when simulation games were combined with carefully designed supplementary materials (Peterson, 2013). Thus, the
present study utilized the supplemental handouts to maximize participants’ learning experiences.

As the participants become accustomed to the gaming environment, the CALC program introduces more advanced tasks and activities to encourage participants’ target language (TL) output (see Table 3). Throughout the CALC program, there are two types of assignments associated with the game: Weekly Game Log and Tokyo Tour Guide (see Appendix C for assignment instruction). The Weekly Game Log (WGL) assignment was designed to maintain participants’ gaming habits as well as to review some of the newly learned communicative actions in class. For instance, the first WGL asks learners to explore Cocoiko Park (i.e., a residential neighborhood) on their own, after learning about some of the major attractions and geography in Cocoiko Park during class. In this assignment, learners take two screenshots of what they discovered and write a log in a travel journal about what they did, found, and felt. After the orientation phase, students take part in an exploration phase where they become a professional tour guide to lead the rest of the class. This assignment is known as the Tokyo Tour Guide (TTG) assignment. The TTG assignment was designed for the purpose of facilitating students’ narrative skills, such as describing, navigating, recommending, and convincing peers to visit selected places as a tour guide. Once the participants become accustomed to exploring and navigating Tokyo, the CALC program moves on to the activity phase, where the participants engage in different task-based communicative activities collaboratively with their classmates and other Japanese game users online. The following table further provides some of the tasks and assignments used in the CALC program (see Table 3).
Table 3

*Overview of the CALC-JFL Course*

<table>
<thead>
<tr>
<th>Week</th>
<th>Phase</th>
<th>Topics &amp; Contents</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6</td>
<td>Orientation</td>
<td>Task-based learning of basic features in <em>Meet-Me</em>: Setting up your avatar, Using chat, cellphone, and letter, Arranging room, Exploring <em>Cocoiko Park</em> (residential neighborhood), Using public transportation (train, bus, etc.), Fishing, Catching insects, Shopping at the store. Participants receive instruction on how to navigate such actions listed above in Japanese by show-don’t-tell approach.</td>
<td>WGL 1-3</td>
</tr>
<tr>
<td>7</td>
<td>Exploration</td>
<td>Virtual study abroad tour begins; Each student signs up to lead the class by being a Tokyo Tour Guide where the student prepares the tourist flyer in advance to show and tell some of the tourist attractions on an assigned location: <em>Harajuku &amp; Shinjuku</em>.</td>
<td>WGL 4 &amp; TTG</td>
</tr>
<tr>
<td>9</td>
<td>Exploration</td>
<td>Virtual study abroad tour continues; Tokyo Tour Guide assigned location: <em>Akihabara &amp; Asakusa</em>.</td>
<td>WGL 5 &amp; TTG</td>
</tr>
<tr>
<td>10</td>
<td>Exploration</td>
<td>Virtual study abroad tour continues; Tokyo Tour Guide assigned location: <em>Odaiba &amp; Roppongi</em>.</td>
<td>WGL 6 &amp; TTG</td>
</tr>
<tr>
<td>11</td>
<td>Activity</td>
<td>Task-based learning of advanced features in <em>Meet-Me</em>: Finding <em>Ginza</em>.</td>
<td>WGL 7</td>
</tr>
<tr>
<td>12</td>
<td>Activity</td>
<td>Task-based learning of advanced features in <em>Meet-Me</em>: Buying a car at <em>Toyota Auto Mall</em>, Driving on the <em>Shuto-kōsoku</em> highway.</td>
<td>WGL 8</td>
</tr>
<tr>
<td>13</td>
<td>Activity</td>
<td>Task-based learning of advanced features in <em>Meet-Me</em>: Playing soccer, Catching insects at the <em>Mushitori Park</em>.</td>
<td>WGL 9</td>
</tr>
</tbody>
</table>

*Data Collection*

Based on the structure of the designed CALC curriculum, the present study follows standard data collection procedures for qualitative research. During the course of study, the data compiled consisted of the following: 1) screen capture recordings of all sessions (transcribed), 2) video recordings of all sessions in class (transcribed), 3)
collections of specific Target Language (TL) outputs from the students such as Weekly Game Log (WGL), Tokyo Tour Guide (TTG) assignments, and in-class handouts, 4) small-scale vocabulary pre- and post-tests, 5) field notes of significant events while facilitating sessions, 6) the collections of exit slips across the semester inquiring about the students’ participation in Meet-Me.

Since the purpose of the present study is to investigate an integrative SLA-theory driven instantiation of CALL (i.e., CALC) within the context of JFL classroom, it is important to examine the process in which language learning occurs in a natural communicative setting. The study would have been compromised if the students were aware of the study and adopted behaviors in the classroom to try and meet the objectives of the study, rather than focusing on their learning. Thus, the study was exempt from the consent requirement for collecting data from 1) through 6) of the participants. Out of the six types of data collected during the course of exempt study, three items: 3) collections of specific TL outputs from WGL, TTG, In-class handouts, 4) vocabulary pre-and post-tests, and 7) The collection of exit slips were integral to coursework requirements for an advanced conversation course. In order to ensure the confidentiality of the participants, the researcher assigned a pseudonym to each student once data was transcribed for analyses and after final grades were posted.

Once the participants completed all the coursework and the final grades were posted at the end of the semester, the participants were then recruited for more in-depth, post hoc reflections on their virtual world Japanese learning experiences upon consent. At the end of the semester, the non-instructor-researcher of the study came into the class and explained the study purpose and procedures, asking the students whether or not they were
interested in participating in the study. This was done to promote an ethical requirement of the participants given the primary instructor-researcher’s absence at the time of the requirement.

Those students who consented to participate in the study received 7) the reflective 20-item survey modified from Ranalli’s survey questionnaires (2008) as well as Peterson’s survey instruments (2011; 2012a; 2012b; 2012c), and later took part in 8) a semi-structured interview in order to examine learners’ perceptions and attitudes toward participation in the CALC program. Students who declined to give informed consent to participate were not included in the data collected, nor analyzed as part of the results. The survey took approximately 20 minutes for participants to complete. After the class had officially ended and final grades were posted, eleven surveys and ten interviews were collected for analyses. The following table provides further relevant information about the procedures of data collection and analyses per research questions (see Table 4).

Table 4

Data Sources and Analyses Matrix

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1</td>
<td>Findings retrieved from the results of RQ2 and RQ3 Analyses</td>
</tr>
</tbody>
</table>
| **RQ2** | 1) Screen captures of *Meet-Me* interactions  
2) Video recordings of all sessions  
3) Collections of TL outputs from WGL, TTG, In-class handouts  
4) Vocabulary pre- and post-tests  
5) Field notes of significant events  
6) 20-items post-study survey  
7) The collection of exit slips  
8) Semi-structured interview | Thematic Content & Discourse Analysis coupled with Statistical Analysis |
| **RQ3** | 6) 20-item post-study survey  
7) The collection of exit slips  
8) Semi-structured interview | Thematic Content Analysis coupled with Statistical Analysis |
Research Questions (RQs):
1) Does the CALC curriculum facilitate an acquisition of Japanese?
2) What evidence indicates JFL learners’ acquisition of Japanese in the CALC curriculum?
3) What are learners’ attitudes and perceptions toward participation in the CALC program (MMO-based 3D virtual world learning of Japanese)?

The Description of Collected Data and its Analyses

All data were obtained throughout the semester, followed by the analyses after final grades were submitted in December, 2014. Since the present dissertation study follows a qualitatively driven mixed-method case study approach to examine the participants’ natural acquisition of Japanese in a 3D virtual environment, the study engages the combination of thematic content analysis and statistical analyses based on the eight sources of data compiled throughout the semester (Data 1 to 8). This method was utilized in order to solicit a triangulation or even an “octagonation” of data to provide corresponding evidence and validity to the research findings (Creswell, 2013; Glesne, 2011; Marshall & Rossman, 2011). In order to provide answers to the three research questions previously mentioned, the present study utilized the following data types and analysis methods.

Data 1: Screen Captures of Meet-Me Interactions. In the present study, the instructor-researcher designed a CALC curriculum to fit the 16 week semester-long academic schedule of the recruited research institution. The participants met twice per week on Monday and Wednesday, and each lesson consisted of a 75 minute duration taught entirely in Japanese. As shown in Table 3, the first six weeks of classes were devoted to an orientation phase, where participants learned the basic features and navigation of Meet-Me. Since Week 1 mainly consisted of introduction to the course and assignments, the study began recording the in-class screen captures from Week 2 through
Week 16, and the virtual tour of Meet-Me officially began during Week 2. Out of 25 total lesson-worth of collected data, there were two screen captures missing: Lesson 6 in Week 4 and Lesson 21 in Week 12, due to a technical issue that occurred during the study. Once the semester officially ended, screen capture recordings of the instructor’s interactions with students in the virtual world for all sessions were selectively transcribed for a thematic content analysis of the significant events occurred during the lessons. These data do not include the students’ actual faces, but they do include their avatars.

**Data 2: Video Recordings of All Sessions.** Similarly to the screen capture recordings of student in-game experiences, the present study collected video recordings of all class sessions from Week 2 through Week 16. As opposed to type-based communicative events solicited from the screen capture recording, the video recording assisted in collecting participants’ TL outputs, oral interactions, and in-class behaviors between the instructor-researcher and participants when conducting the lessons. In fact, recordings of class performance and virtual participation were a part of the assessment processes for student’s oral language production. For instance, the researcher accessed video recordings throughout the semester to provide adequate feedback regarding students’ performance in class. After the final grades were posted at the end of the semester, video recordings of all sessions were selectively transcribed for a thematic content and discourse analysis.

**Data 3: Collections of TL Outputs from WGL, TTG, In-class Handouts.** In addition to in-class participation within Meet-Me based lessons, the participants engaged in multiple task-based assignments as a course requirement. The first assignment was called Weekly Game Log (WGL), where students logged into the game regularly to take
part in various quests and tasks that matched with the weekly theme of the lesson. The purpose of the assignment was to encourage students to play *Meet-Me* continuously outside of class, while at the same time it was used for students to review some of the newly learned communicative actions in class. To provide two examples, during Week 11, students spent time in class learning about how to find a particular location using public transportation (see a lesson: Finding *Ginza* in Table 3). After completing the module, students were then asked to complete WGL 7 which required students to: 1) find an unknown place on their own, 2) provide directions from their residence, 3) take two screen shots, and 4) write about what they found in the location. Throughout the semester, there were a total of ten WGLs, and each WGL utilized unique tasks and problem solving quests to maximize students’ learning and retention. In all WGLs, students were asked to write at least one page in length for their WGL report.

While WGL was designed to elicit students’ written-based communication, the CALC curriculum also included an assignment called Tokyo Tour Guide (TTG) in order to evoke students’ speech-based communication. In this assignment, the participants worked as a tour guide to virtually lead the rest of the class to some of the main tourist attractions in Tokyo. To prepare for this, the participants engaged in various real-world communicative tasks, such as planning a trip, creating a visually attractive tour flyer, and preparing for an appealing presentation. Since this assignment was introduced during the middle of the semester (Week 7), it functioned as a midterm assessment of the communicative skills students had acquired from the previous weeks (Week 1 through 6).

Each student signed up for one location for the TTG assignment, and was required to give a 10-15 minute virtual tour guide in Japanese on an assigned date. Since the
instructor-researcher had performed similar tasks regularly during the orientation phase, students became familiar with leading people. Before starting the first TTG presentation, students took part in a briefing session where the instructor-researcher demonstrated an example tour guide presentation of a particular place (i.e., Shibuya). Through the instructor-researcher acting as a tangible model, the students had a better understanding of how to conduct TTG, such as leading tourists (i.e., classmates), describing sites and attractions, and eventually came to replicate them in class. Each student completed his/her TTG assignment between Weeks 7 to 10 of the academic semester.

In addition to major assignments, such as WGL and TTG, the present study also collected participants’ in-class handouts of all sessions. In each lesson, the instructor-researcher provided two to four page handouts to supplement students’ acquisition of communicative competence. All handouts were heavily supported by images taken from *Meet-Me* (see Figure 5). The handouts included a series of task-based activities for students to follow; occasionally, the handouts were used as a gaming manual for students to retain communicative procedures taught in class. At the end of the lesson, all students took part in a five-minute speed writing activity that was included in the last page of all handouts. Here they reflected and wrote about their experiences to conclude each lesson.

Overall, the collections of specific outputs from the assignments, including: Weekly Game Log (WGL), Tokyo Tour Guide (TTG), and in-class handouts were regularly obtained throughout the semester. All data were collected, copied, assessed, and returned to students throughout the semester; however, the data obtained were analyzed for research purposes after the semester had officially ended and final grades were posted. In particular for the TTG assignments, the presentations (i.e., participants’ oral
TL output) were recorded through screen capture (Data 1) and video recordings (Data 2), and later transcribed for discourse analyses. All copies of participants’ materials were labeled with instructor-chosen pseudonyms and identifying information redacted prior to analysis.

**Data 4: Vocabulary Pre- and Post-tests.** Vocabulary pre- and posts-tests were administered weekly as part of the course requirements. Each vocabulary test consisted of ten vocabulary items, and was designed to assess students’ learning outcomes before and after instruction. Out of ten vocabulary items in a test, the first five items (item 1 to 5) assessed participants’ understanding of kanji pronunciation, asking participants to choose the correct pronunciation of kanji out of four choices. The other five items (item 6 to 10) assessed participants’ understanding regarding vocabulary interpretation, asking participants to provide a description or perceived meaning of five common words or expressions in English. All ten vocabulary items were selected from the list of kanji vocabularies and expressions that most frequently appeared in the weekly lessons, in-game commands in *Meet-Me*, as well as in supplemental handouts. The vocabulary pre-tests were administered at the very beginning of each week before the first lesson began, while post-tests were administered at the very end of the lesson for the week. Each pre- and post-test pair had identical content, and each test took approximately five minutes for all participants to complete.

The present study compiled twelve pre- and post-test pairs of eleven participants throughout the semester. Due to the participants’ occasional absences and tardiness, a total of 244 out of 264 tests were collected for scoring and further analyses, which yielded a 92.42% collection rate. All the vocabulary tests were maintained after the
course was over using pseudonyms only. Once final grades were posted, the instructor-researcher scored all the multiple choice kanji pronunciation items (item 1 to 5) in the pre- and post-tests from Weeks 1 through 15. Regarding the vocabulary interpretation items (item 6 to 10) of all pre- and post-tests, two raters (i.e., the instructor-researcher and non-instructor-researcher) participated in a scoring session, due to the nature of the test output and assessment.

Each rater individually scored all items (from 6 to 10) of the pre- and post-tests, using a grading rubric that was established in advance. The grading rubric included three levels of a scoring system for vocabulary interpretation: 1) 1 point for an accurate answer, 2) 0.5 points for an answer that was close, related, but not accurate; in other words, the answer was within the breadth of association of a word and expression, and 3) 0 points for a completely off, inaccurate answer or no answer. Below is a table showing the example scoring of vocabulary interpretation, using the real samples of participants’ outputs on item 10 of Week 13 pre- and post-test:

**Table 5**

*Example Scoring of Vocabulary Interpretation Item: バスに乗り換える (Week 13 Pre- and Post-Test, Item 10)*

<table>
<thead>
<tr>
<th>Score</th>
<th>Definition</th>
<th>Student Example(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 point</td>
<td>Accurate answer</td>
<td>Change buses</td>
</tr>
<tr>
<td>0.5 points</td>
<td>An answer that was close, related, but not accurate (within the breadth of association)</td>
<td>Return to ride the bus, Return by riding the bus, Ride the bus back, Take the bus home</td>
</tr>
<tr>
<td>0 points</td>
<td>A completely off, inaccurate answer or No answer</td>
<td>Return</td>
</tr>
</tbody>
</table>

Before the individual scoring session began, the participants’ names on the tests as well as the test types (i.e., whether the test was pre-test or post-test) were all concealed
in order to maintain the nature of blind review. Moreover, all tests were shuffled before scoring so that the two raters were unaware of the test order and sequences to avoid possible biases. After each rater individually scored items of all tests, the two raters then debriefed their evaluations to identify any possible discrepancies. Once the disagreed scoring occurred, the two raters discussed their scoring rationales to meet a consensus amongst the two. Out of 244 tests scored individually by the two raters, inter-rater reliability was averaged at 98.69% across all tests, with the highest at 100% and the lowest at 97% per week (see Table 6 in Chapter Four for detailed information regarding the scoring of the weekly vocabulary pre- and post-tests). Upon completion of the test scoring, the test results were coded into SPSS for statistical analyses.

Data 5: Field Notes of Significant Events. Since the present study takes a qualitative driven mixed-method case study approach, the instructor-researcher maintained field notes of significant events throughout the semester. Field notes mainly consisted of jotted notes and the descriptions of events that occurred in the lessons, annotating student learning progress for possible instructional reflection and modification. The field notes were often written right after lessons had ended; they were directly typed into the computer and saved chronologically. Similarly to other data, all typed field notes were retrieved for a thematic content analyses after final grades were posted at the end of the semester.

Data 6: 20-item Post Study Survey. In order to examine the effect of CALC curriculum and its learning outcomes from participants’ perspectives, the present study conducted a post study survey modified from Ranalli’s survey questionnaires (2008) as well as Peterson’s survey instruments (2011; 2012a; 2012b; 2012c) during the last week.
of class. At the end of the semester, a non-instructor-researcher came into class, explained the study purpose and procedures, and asked the students whether or not they were interested in participating in the study. The instructor-researcher left the room entirely while this took place. The survey included 20 Likert scale statements. In this survey, the participants were requested to choose one response from the following: 1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree (see Appendix D). Overall, all students consented to be the participants of the survey, and it took approximately 20 minutes for them to complete. Once the survey was administered, data were coded into SPSS for statistical analyses.

Data 7: The Collection of Exit Slips. In addition to post-study survey, exit slips were collected in order to elicit participants’ quick reflections regarding their experiences in the CALC program. The exit slips were administered twice during the semester; once during Week 8 as a midterm assessment, and another one as a final assessment at the end of the semester. Both exit slips consisted of four identical questions: 1) What is your overall impression about this course (the curriculum fully based in 3D virtual world of Tokyo)? What have your experiences with Meet-Me been like? 2) In your view, what are the most helpful things you learned so far in this course? 3) Did you encounter any problems? What could have been more helpful to your learning? 4) Do you think playing Meet-Me overall improved any of your Japanese skills? Please explain/specific. Upon completion of the exit slip collection, data were analyzed for a thematic analysis as well as content analysis for any possible changes regarding participants’ attitudes and perceptions toward the CALC program during the course of study.
**Data 8: Semi-structured Interview.** At the end of the semester, ten students were recruited to participate in a follow-up semi-structured interview upon consent. Once students agreed to participate, they were individually contacted by the instructor-researcher and made an appointment to conduct a one-on-one interview in a room that allowed for confidentiality. Out of eleven total participants, ten agreed to participate in the follow-up interview and met with the instructor-researcher individually on a different date. The semi-structured interview consisted of seven main questions, modified from the questionnaires used in Ranalli’s study (2008) as well as Peterson’s (2011; 2012a; 2012b; 2012c) survey instruments and interview protocol (see Appendix E). Each interview took approximately 30 to 60 minutes, depending on the participant. All interviews were digitally recorded upon the participant’s consent. Later, the interview data were transcribed for a thematic content analysis in order to evaluate the effectiveness of CALC curriculum from participants’ perspectives.
Chapter Four

Results and Findings

To evaluate the instantiation of the CALC program, this chapter provides the results and findings of the primary study. In order to present the results more systematically, this chapter presents findings parallel to the three research questions:

1) Does the CALC curriculum facilitate an acquisition of Japanese?

2) What evidence indicates JFL learners’ acquisition of Japanese in the CALC curriculum?

3) What are learners’ attitudes and perceptions toward participation in the CALC program (MMO-based 3D virtual world learning of Japanese)?

Since the purpose of the study was to evaluate the overall effectiveness of the CALC curriculum within the context of the JFL classroom, the present study conceptualized the process of evaluation based on four categories: 1) manifestations of student communicative growth, 2) student feedback, 3) curriculum design, and 4) instructional evaluation (see Figure 6).

Figure 6. Conceptualizing how to evaluate effectiveness of the CALC program
All four components are essential constituents of successful curriculum evaluation, considering the curriculum effectiveness in harmony with multiple perspectives, ranging among student, teacher, and curriculum designer. However, as mentioned in Chapter One, despite the growing popularity of CALL, empirical assessments of student learning outcomes have been identified as one of the most understudied elements in the field of CALL. Research questions one and two of this dissertation thus address this shortcoming, presenting both quantitative and qualitative evidence of observed outcomes within the study. Based on the mixed-method cross-analyses of all data, this chapter first provides various evidence of students’ learning outcomes observed in the CALC program during the research period.

In addition to the analyses of learning outcomes, research question three was solicited to reveal student attitudes and perceptions toward the CALC program. Since CALL is still a relatively new discipline, research areas involving sociocultural accounts of learning and learner attitudes toward gameplay require further investigation (Peterson, 2012a; 2012c). From a curriculum assessment standpoint, examining students’ inner voice allows for individual stories to be told, and such stories provide broader perspectives of the curriculum effectiveness from multidimensional point of views (Chiarelott, 2006). Based on this background, this chapter further provides findings from collected post-study surveys, exit slips, and interview transcripts regarding their participation in a 3D virtual world based CALC program.

Does the CALC curriculum facilitate an acquisition of Japanese?

In this dissertation study, participants learning outcomes were observed using a variety of methods. As was discussed in the conceptualization of CALC in Chapter Two,
the underlying theory of CALC was an integration of psycholinguistic and sociolinguistic theories of SLA. Based on this theoretical background, the present study collected evidence from both sociocultural and cognitive aspects of learning and development. Considering the research question one, an acquisition of Japanese was fully facilitated, supported, and evidenced from the rich environment afforded by CALC. The results of data analyses indicate that the participants, when immersed in the 3D virtual world based curriculum, significantly improved their Japanese proficiency, acquiring contextualized communicative skills to function in Japan. To provide evidence for such a claim, the following chapter will first highlight some of the major findings of the study in a chronological order (i.e., orientation, exploration, activity phase), examining the process in which participants learned to communicate in the CALC program.

While participants’ target language outputs were transcribed and represented as qualitative evidence throughout this chapter, it should be noted that the present study exhibited excerpts without editing errors, fillers, or JFL specific language markers. This was done in order to show the JFL students’ true process of target language development in the most authentic manner, recognizing a variety of JFL learners’ communicative traits observed from raw data. Annotations of some of the evidence found in the qualitative analyses of significant events are provided and in addition, statistical evidence regarding participants’ learning outcomes in the given CALC program are also examined. At the end of this chapter, the results of data analyses regarding research question three: learners’ attitudes and perceptions toward participation in the CALC curriculum were examined in order to consider learning outcomes from the participants’ perspectives.
Evidence from the Orientation Phase (Pre-Production). Based on the content analysis of screen captures of in-game experiences (Data 1), the video recordings of all sessions (Data 2), and the collection of TL outputs (Data 3) coupled with analysis of instructor-researcher’s field notes of significant events (Data 5), participants have gradually acquired wide ranges of task oriented actions in Japanese. During the first orientation phase (Week 1 through 6 of the CALC course), participants have learned to set-up their avatars and follow basic commands of: setting up a room in their apartment, recognizing the landscape of the neighborhood, using transportation (e.g., train and buses), fishing at the nearby pond, catching insects at the nearby forest, and shopping for clothes and home goods at the nearby stores and market.

Task Completion. During Week 3, the main focus of the lesson was about learning to use transportation. At the briefing session of this lesson, the instructor-researcher showed how to use public transportation using in-game train and bus systems. Since teaching how to take a train requires a wide range of skills, participants were projected with a step by step, contextualized instruction of how to take trains, ranging from buying a ticket, choosing the right kind of train, going through kaisatsu (automatic ticket examination stand), getting off at the targeted station, and choosing the right kind of exit that is closer to the target destination.

Figure 7. Sample task commands in the lesson
During the action stage, the instructor-researcher was able to assess participants’ behavioral outcomes when asking them to conduct an assigned task individually (see Figure 7\textsuperscript{6}). While there was an individual time difference in arriving at the destination, all participants were able to go through the process of getting on the train to get to the destination, Hachiko in front of JR Shibuya Station (see Figure 8). This indicates a direct evidence of participants’ successful task and command comprehension, at least at the recognition level.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure8.jpg}
\caption{Participants find Hachiko in front of JR Shibuya Station}
\end{figure}

The task commands involving following directions were reinforced in everyday lessons during the orientation phase. The essential skills that were focused during this

\begin{itemize}
\item Go to Cocoiko Park Shijyo-mae Station
\item Take a train to JR Shibuya Station, get off at the Hachiko-guchi exit
\item Find “Hachiko” (i.e., the famous dog statue)
\end{itemize}

\textsuperscript{6} Translation of the commands in Figure 7
phase were listening comprehension (e.g., following direction) and word recognition (e.g., identifying the correct station names and exits from the image), providing multi-sensory input to facilitate students acquisition of communicative behaviors. In addition to a constant assessment of student behavioral outcomes per lesson (e.g., whether or not students were able to complete tasks), the instructor-researcher frequently asked questions to check for student comprehension.

**Maintenance of Intersubjectivity.** During the orientation phase, the present study observed evidence regarding socio-cultural accounts of Japanese learning: maintenance of intersubjectivity when completing various communicative tasks in class. Indicative of this would be participants taking part in the lesson: learning to catch insects during Week 4. The instructor-researcher showed how to catch insects at different locations during the briefing session. Similarly to the transportation lesson, learning to catch insects requires students to have a contextualized understanding of a communicative behavior, such as finding an appropriate place to catch insects (e.g., forests, public, and national parks etc.), using a bug net, approaching the target bug quietly, catching the bug, counting bugs, looking up bugs in an insect reference book, and the list continues. Participants were shown these processes of insect catching in action, parallel to the instructor’s oral commands as well as directions written in the accompanying handout. During the action stage, participants were not only assessed on whether or not they were able to complete all the performance based tasks involved in the lesson, but also asked how many insects they were able to collect from the action stage. The following excerpt is an example of an instructor-student interaction in game, providing evidence to support student task completion and comprehension:

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As the excerpt shows, all students were able to assess their own behavioral outcomes by answering the instructor’s question in line one: how many bugs were you able to catch? Asking questions was one of the significant instructional strategies utilized in the CALC program, since it operated as immediate feedback for the instructor to assess the status of student comprehension in the given task-oriented lesson. According to Peterson (2012a), this type of collaborative interaction indicates the creation and maintenance of “intersubjectivity” (p. 32), and such collaborative acts among participants are essential to facilitating task understanding and completion collectively. As seen in the excerpt above, the instructor question in the opening line worked as a “continuer” (Peterson, 2012a, p. 30; Peterson, 2012c, p. 373) to elicit target language (TL) utterances, asking students a
task specific question to check the status of their performance based outcomes. The student responses, while utterances vary intermittently, confirm the evidence of intersubjectivity, which is consistent with the results of Peterson’s study (2012a; 2012c).

Evidence from the Exploration Phase. Once the exploration phase began in Week 7, the focus of the CALC program shifted from recognition to production stage, where students were encouraged to give directions and provide an oral tour to their fellow classmates, known as the Tokyo Tour Guide (TTG) assignment. Since the exploration phase followed a virtual study abroad format, all students were given opportunities to guide assigned districts, describing some of the highlights of tourist attractions. Based on the discourse analysis of data retrieved from the tour flyers and transcriptions of all TTG presentations, the present study found some significant features of participants’ communicative outcomes.

Persuasive Talk. While examining the transcription of participants’ speech output during TTG assignments, data showed evidence supporting participants’ acquisition of various discourse patterns specific to persuasive navigation, such as guiding, elaborating, and entertaining. Since each participant was required to plan a trip, prepare a tour flyer, and virtually take all students to the locations advertised in the flyer (see sample participants’ TTG flyers in Figure 9), it became apparent that tour conductors were expected to engage fellow participants to provide improved tour experiences. Furthermore, each tour conductor received a peer-evaluation from the participants, being assessed on the realistic communicative items such as whether or not the participants felt convinced to visit such places, or whether they felt engaged during the tour sessions.
Among the TTG presentation data of all participants, the study indicates an emerging theme that many tour conductors utilized a variety of persuasive techniques to provoke participants’ interest and curiosity. In particular, participants who received higher peer evaluations tended to use these techniques more frequently than those who received lower peer evaluations. For instance, consider the following excerpt from the Student J’s TTG presentation:

(2)8
1. Student J: ここはハロウィンカフェです。たくさん、ハロウィーンデコレーションがありますね。二階も見て下さい。
   [Participants going upstairs]
2. Student K: 先生、ケーキがあります！
3. Instructor: みなさんこのカフェには何がありますか？
4. Student E: かぼちゃ？
   [Participants exploring the building]
5. Student J: 外に出て下さい。

8 Translation (2):
1. Student J: This is Halloween café. There are many Halloween decorations, aren’t they? Please look at Upstairs as well.
2. Student K: Sensei, there is a cake!
3. Instructor: Everyone, what do you see in this café?
4. Student E: Pumpkin?
5. Student J: Please go outside.

9 Since Student J conducted the tour guide in late October, there were many Halloween themed activities available in Meet-Me.
As a tour conductor, Student J took participants to one of the first tour attractions, introducing the location to describe the characteristics of the place from the participant’s point of view. This was done by using the expression of ～がありませんね in line one, where speaker (Student J) establishes a common ground between the speaker and interlocutor to maintain interactive involvement. Student J continues:

(3) 1. Student J: じゃあここから、宝物を探しましょう。わかりますか？宝物は treasure ですね。そう、宝物がしは treasure hunting です。
2. All: おぉ～ [participants showing an expression of being impressed]
3. Student J: じゃあ、行きましょう。
4. Student C: お金がありますか？
5. Student J: ん？
6. Instructor: お金をかりますか？フリーですか？
7. Student J: 無料です。
   [Participants moving forward with their avatars]
   [Arriving at the next destination]
8. Student J: 宝物はここですよ。カフェの中に、宝物を探しましょう。
   [Participants entering the building]
9. Instructor: みなさんこのレストランには何がありますか？どんな食べ物がある？
10. Student A: トースト!
11. Student E: ハンバーガー。
   [Participants explore the house. Participants start getting treasures.]

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10 Translation (3)
2. All: Ohh!
3. Student J: Well, shall we go?
4. Student C: Is there money?
5. Student J: Huh?
6. Instructor: Does it cost anything? Is it free?
7. Student J: It is free.
8. Student J: Treasures are here. Let’s look for treasures in this café!
9. Instructor: Everyone, what do we have in the restaurant? What kind of food do they have?
10. Student A: Toast!
11. Student E: Hamburger.
12. Student J: Did you find some [treasures]? Who found some?
13. Student J: Did you find?
14. Student J: Here it is!
15. All: What?!
16. Student J: Did you find it now?
12. Student J: 見つけましたか？誰か見つけましたか？
   [Student K found a treasure]
13. Student J: 見つけましたか？
   [Student J start to show some of the hidden trick]
14. Student J: ここですよ！
15. All: え！？[Participants showing an expression of being surprised]
   [Student J, Student F, Student A, Student C, gradually arrives in a hidden room. Eventually everyone arrives.]
16. Student J: 今見つけましたか？

As shown in line one and three, Student J additionally used the polite volitional expression of ～しましょう, which is an English equivalent of “let’s do” or “shall we do” expression to elaborate attendants’ participation. This was by far one of the most frequently observed expressions across all TTG presentations; amongst eleven, eight participants used this expression at least one time during their tour guide presentations.

Furthermore in line one of excerpt three, Student J also asked a question to check the participants’ status of comprehension, clarifying what Student J intended to do in the following activity. While line two indicates the general reaction of participants, Student C asked a question in line four to clarify whether or not the activity “treasure hunt” would cost any fee to participate. Initially, Student J did not understand the Student C’s question given the form of question being inexact in the context; however, the instructor-researcher intervened and rephrased the question to support the conversation between Student J and C. In line seven, Student J answered Student C’s question, saying that “it is free.” Student J then encouraged all participants to do treasure hunting, constantly monitoring the status of their task completion by asking 見つけましたか？ (Did you find it?) in line 12, 13, and 16, while maintaining intersubjectivity among participants.

In addition to elaborative accounts of speech patterns, some participants also utilized more descriptive elements of guide speech to elicit participants’ interest and
curiosity. The description in the context of TTG simulation refers to the participants’ ability to elaborate more items specific to the tourist location, offering more detailed information about the location through a show-don’t-tell approach. An instance of this can be shown when Student E provided a tour guide in Roppongi, taking all participants to an accessory store from the train station:

(4) 1. Student E: えっと、あ～、これで、アクセサリーの店に行く。
   [Running down the street]
2. Student E: 宝石。
   [Entering the store]
3. Student E: たくさん、高い物いるよ[あるよ]。腕時計とか、イヤリングとか、指輪もいる[ある]。あと、一番高いのは、えっと、かんむり。一番ほしいのは、この四つ葉のネックレス。

In each item description, Student E walked around the store and individually showed participants the items described in line three, such as a watch, earing, ring, crown, and clover necklace that Student E expressed having the most affection for. Student E also clicked on each item so that Student E could show the larger image of the accessories and its associated price accordingly during the tour presentation.

Another example can be shown when Student H provided a TTG presentation in Odaiba. After visiting the first tourist attraction in Odaiba, Student H decided to take a group down to a sports shop so that they could visit お台場海浜公園 (Odaiba Seaside Park):

(5) 1. Student H: スポーツクラブに言っています。

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11 Translation of (4)
1. Student E: Um, ah, we will go to an accessory store from now.
2. Student E: Jewelry.
3. Student E: There are many expensive things [in this store]. Watch, earrings, and rings. Also, the most expensive thing [in the store] is, well, the crown. The thing I want the most [in this store] is this clover necklace.

12 Translation of (5)
1. Student H: We are going to a sports club.
2. Student H: [Pointing at Student J] Student Jむらさき！[Laughs]  
3. Student H: 行きましょう。  
   [Student H and fellow classmates run down to the next destination]  
   [Student H and fellow classmates arrive in the sports shop]  
4. Student H: サッカーボールとバスケットボールと、うります。でも…  
   あー、水着、水泳パンツ、水泳パンツを売ります。水着と  
   水泳パンツを買います。ビーチにいきますか？  
   [Looking at the instructor]  
5. Instructor: ビーチはあとから先生といきましょう。  
6. Student H: そうそう。はい。

As seen in the excerpt five above, Student H made a plan to take participants to the sports shop by the beach. Although the expression Student H utilized was not an exact way of asking and encouraging participants to go to the sports shop (in line one), the ways in which Student H articulated made the task comprehensible to the participants (that they were asked to go to a sports shop). In line 2, Student H made a humorous comment to a Student J for being purple from the previous activity Student H had planned (visiting a haunted mansion), and then quickly asked participants again to get to the destination.

Once Student H and fellow classmates arrived and entered into the sports shop, Student H began describing major items participants could buy to go out to the beach (in line four).

Similar to the case of Student E in excerpt four, Student H was also able to guide all the participants to show each item described in line four.

**Concept of Audience.** Not only did the TTG assignment condition all tour conductors to make their tour performance persuasive and engaging, but TTG also accustomed conductors to take a leadership and be responsible for navigating their fellow

2. Student H: Student J, purple!  
3. Student H: Let’s go.  
4. Student H: [In this sports club.] they sell soccer ball, basketball. But…ah, they sell swimsuit, swim pants, swim pants. We can buy swimsuits and swim pants. Do you want to go to the beach?  
5. Instructor: Let’s go to the beach with Sensei later.  
6. Student: Oh yes, yes.
participants in the virtual world of Tokyo. Since the TTG assignment was a simulation-based activity that dealt explicitly with the “concept of audience” similar to Coleman’s study (2002), the Meet-Me 3D simulation environment allowed participants to provide simulated action in a “truly communicative sense” (Coleman, 2002, p. 219). Because TTG was a simulation of a tour guide, it was particularly important for tour conductors to smoothly navigate their participants as a group; otherwise, conductors would face a serious communicative problem, such as participants being lost physically in the middle of the tour. Ultimately, this TTG arrangement created the reality of function: the opportunity for participants to focus on their performance (i.e., communicative behavior) rather than language accuracy.

To examine this further, it should be noted that the TTG performance allowed students to be aware of the concept of audience, and such awareness promoted a reciprocal learning opportunity in the given communicative environment. While the previous section included some of the instances of how the TTG task environment encouraged tour conductors to speak persuasively by utilizing a variety of discourse patterns, the rationales for such outcomes originate from the pragmatic desire to communicate: that is, being a reliable tour guide to successfully guide the fellow participants through virtual Tokyo. Having understood the concept of audience, tour conductors were more attentive in improving their performance to meet the needs of participants during the TTG performance. This is because tour conductors constantly received an immediate feedback from the participants as a result of their communicative actions. Based on the feedback being received, conductors needed to constantly accommodate their performance, while at the same time monitoring participants’ status of
comprehension and their behavioral outcomes especially after commands were given to the participants. If the participants’ behavioral outcomes did not meet the expectation of the tour conductor, the conductor immediately would need to modify his/her communicative act, commands, and a delivery of speech.

To provide an instance of this, the following excerpt contains the example of communicative problem occurred during Student B’s TTG performance, due to the lack of clarity in regards to which train to take in order to get to the target destination. Notice the role of Student K’s negative feedback in line five, which led to the modification of Student B’s communicative behavior immediately after:

(6)

1. Student B: あの、ココイコパーク駅、行きましょう。あの、あー浅草駅、あー「出口4」、うん。
2. Instructor: 浅草はJR？
3. Student B: あーない。プライベート…私鉄？
4. Instructor: [speaking to the rest of class] 私鉄の浅草ね？
   [A couple of participants were unable to follow Student B]
5. Student K: ちょっと待って～ [Seeking help]
6. Instructor: [Calling the name of Student B] もう一度見せてあげて？
   [Student B shows the process again]
7. Student B: 大丈夫？
8. Student B: いち、に、さん、し、ご、ろく、しち…
   [Counting the number of available students]
   [Student B confirms that all participants are there]
9. Student B: 行きましょう。

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13 Translation of (6)
1. Student B: Well, let’s go to Cocoiko Park Station. Um, ah, Asakusa Station, ah, “exit 4” yes.
2. Instructor: Is Asakusa JR?
3. Student B: Oh there isn’t [Asakusa station in JR]. Private…Shitetsu?
4. Instructor: You mean, Asakusa is Shitetsu?
5. Student K: Hold on, wait for me!
6. Instructor: Can you show [Student K] one more time?
7. Student B: [Are you all] Alright?
8. Student B: One, two, three, four, five, six, seven…
9. Student B: Shall we go?
In line one, Student B began a tour of Asakusa by asking the participants to get to the nearby train station called Cocoiko Park Station by their residence. Once the participants walked up to the station, Student B then asked participants to get off at Asakusa Station, Exit 4. This was when the confusion started to occur, as Student B did not specify the type of train needed to take for Asakusa; yet the participants were trying their best to find the station by individually examining five different trains available in the game. As shown in the excerpt six, Student B did not seem to notice this incident until the instructor-researcher intervened and asked “Is Asakusa JR?” in line two. Student B responded in line three: “Oh that’s not it. Private…Shitetsu?” in line three. After instructor-researcher assured that the participants needed to take Shitetsu train for them to get to Asakusa Station by recasting what Student B had said in line 4, one of the participants, Student K, looked confused and said: “wait for me!” in line five, indicating the status of Student K being lost from the group. Instructor-researcher then suggested Student B to show which train to take again in line six. After going through the process of getting on the right train by clarifying the type of train, Student B then asked the participants “大丈夫？” in line seven to check their comprehension, monitoring whether or not participants were successfully able to get on the target train. Once all participants arrived in the Exit 4 of Asakusa Station, Student B counted the number of participants to make sure no one was left behind in line eight. Once Student B confirmed that all participants arrived in Asakusa Station, Student B moved on to say “shall we go?” in line nine.

As indicated in the excerpt six, the CALC program creates an environment where tour conductors acquire the concept of audience through constant reflection. Since the
TTG assignment conditions tour conductors to receive an immediate feedback from the participants, conductors monitor and modify their communicative behaviors, especially when they receive negative feedbacks from the participants. The negative feedback in this case is not about the static notion of feedback that focuses on the correction of the conductor’s linguistic output containing language markers or grammatical errors; rather, the negative feedback operates as a behavioral reaction that signifies miscommunication, prompting speakers (i.e., conductors) to take an immediate action to resolve the miscommunication through negotiation of meaning. Since Student B saw the reaction of Student K as a negative outcome deriving from the Student B’s own communicative action (i.e., the lack of providing detail information upon taking a train), Student B addressed the issue by reciting the process with clarification in order to get to the Asakusa Station. Immediately after, Student B was more aware of the audience, checking to make sure if Student B did not leave anyone behind the second time Student B reiterated (e.g., by counting the number of participants in line eight). Thus, the CALC environment provided an opportunity for all participants to be aware of the audience, reflecting themselves to be a successful communicator in the given speech community.

**Evidence from the Activity Phase.** During the shifting process of an exploration to activity phase, the focus of CALC program shifted from production to application stage, where the program encouraged students to apply what they know to complete tasks in a variety of new situations. Since the exploration phase provided an opportunity to reinforce previously acquired communicative actions, participants during an activity phase were given more opportunities to go beyond the classroom to complete tasks while interacting with Japanese game users online. The theoretical justification for this attempt
was to apply sociocultural theory of SLA into practice, in particular, with an intention of developing participants’ communicative competence through collaborative interactions. While this attempt was evidenced from the consistent findings from Peterson’s study (2011; 2012a; 2012b; 2012c), it should be mentioned that the process in which participants learned to interact in the CALC program took a different developmental path, compared to that of MMORPG-based language learning environment.

Based on the discourse analysis of data retrieved from Weekly Game Logs (WGLs) and in-class handouts coupled with an analysis of classroom observation (Data 1, Data 2, and Data 5), this section first provides the significant event occurred in class that had led to the modification of assignments, in order to support richer collaborative interactions among the participants. In addition to presenting some of the findings regarding participants’ communicative outcomes during the activity phase, this section proposes that the instructor’s scaffolding along with carefully designed task activities increased opportunities for more collaborative communication between students and Japanese users online.

Effect of Purposeful Interaction. During Week 7 of the CALC curriculum, participants were assigned Weekly Game Logs (WGL) that involved them to interact with other Japanese users online. In this assignment, participants were asked to complete two tasks: 1) find a friend or befriend Meet-Me (MM) users outside of CALC class, and 2) talk to the users about Shinjuku or Harajuku, asking them about their thoughts and preferences between the two places, including some of the fun activities to do in Shinjuku and Harajuku. Prior to conducting Tokyo Tour Guide (TTG) during the exploration phase, participants had already learned how to request/add friends as well as using some
of the communicative in-game features like cellphone previously during Week 2 and 3 of the CALC curriculum. In addition, participants were also trained with basic navigation in the game, having had acquired different tasks such as fishing, shopping, or using a variety of transportation services to visit different parts of Tokyo continuously throughout the orientation and exploration phases. Based on this scaffolded background as well as the TTG assignment being introduced toward the middle to end of the exploration phase, the instructor-researcher speculated that the participants would be ready to have a conversation with other MM users about Harajuku and Shinjuku they had just visited in class, hoping that the participants would go on to do more extracurricular activities together with the newly befriended Japanese game users.

Soon after the first conversation assignment was introduced in Week 7, the instructor-researcher noticed that the participants struggled to complete the assignment, resulting in the significant decrease of the assignment submission rate. Immediately after the submission deadline, the instructor-researcher noted:

(7) Today was the due day for WGL4. As of 12:00 AM, only four out of eleven submitted their homework on time. Among these four, there are only a few students who have successfully completed the homework. This is a big problem. Why did they decide not to do homework? Is it because of the nature of quests? Or, is it because it is right before fall break? Regardless, it is certain that WGL4 may have been challenging to my students, because it involved them to actually go and talk to other users in the game. I wonder if this was due to the cognitive overload type of thing. I wonder if my instruction was unclear. I wonder if I did not scaffold them enough so they can be out there to interact with users without hesitation. However, we did have sessions about how to request friends, how to navigate the city etc., in order to have the fullest experiences…What can I do to improve/encourage my students to talk to them [other users]? Would it be better if I told them [my students] to go talk to anyone randomly for anything? It would be nice to ask the students during the midterm conference to see why they could not complete the homework, and what aspects of quests were too difficult to complete. After hearing from them, I will make sure to reflect on the gained feedback for the next WGL 5. I will not stop asking or encouraging them to talk
to other users; that is the purpose of this course! (Instructor Fieldnotes, October 12, Sunday)

As the excerpt above indicates instructor-researcher’s reflections regarding her teaching as well as the ways in which the assignment was introduced to students in the CALC program, the instructor-researcher began to notice if this significant event occurred due to the lack of scaffolding in class. Meanwhile, Student J, among the few who had completed the assignment, quoted the following excerpt which in turn provided a hint for instructor-researcher to understand why many students in class initially may have failed to complete tasks in the WGL4 assignment:

(8) このしゅくだいはちょっとむずかしいと思います。べつのメンバーにしつもんを聞いて、答えはちょっとむずかしかったです。たくさん言葉が分かりませんけど、会話は多くなりました。原宿と新宿を聞いていましたが会話はどこかへ行きました。答えから、少しだけわかります。

みんなもこのしゅくだいはむずかしいと思います。[MM user 1] さんのは「新宿は、昼の町、夜の町」言います。でも、他に何もないです。あまりわかりませんでした。多くの言葉を学ぶことができました。(Student J, WGL4, p.1)

The Student J’s excerpt above indicates something very important about the maintenance of shared context among the speaker and interlocutor. When it comes to interacting with others in any communicative situation, a successful communication occurs when the speaker and the interlocutor share the same purpose and the basic foundation of a topic being discussed between the two. When Student J began talking to another Meet-Me user

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14 Translation of (8)
I think this homework was a bit difficult to complete. I asked some questions to other [MM] members, but their answers were difficult [to comprehend]. There were many words I did not understand, but the conversation was [facilitated] more. I asked about Harajuku and Shinjuku, but the conversation [rather] went off topics. From their answers, I understood a little bit.

I think others [classmates] would find this homework difficult as well. [When I talked to the MM user 1], MM user 1 just said “Shinjuku is a town for day and night,” and nothing else. I did not understand much. I have learned many words [though].” (Student J, WGL4, p.1)
in the game (MM user 1), Student J started the conversation by asking whether the interlocutor (MM user 1) likes Shinjuku or Harajuku (preference). In response to this question, the interlocutor answered by saying “新宿は、昼の町、夜の町,” meaning “Shinjuku is a town for day and night.” This answer was confusing to Student J due to the response being seemingly out of the context from Student J’s point of view, as a result, causing a major communication break among the two communicators.

Analyzing the case of Student J’s interaction, there is one possible reason why this communication problem occurred. The interlocutor’s answer: “新宿は、昼の町、夜の町” is in fact not completely out of the context for the question Student J initially prompted. As a response to the Student J’s original question regarding the preference of Shinjuku or Harajuku, the interlocutor (MM user 1), although indirectly, expressed the preference of Shinjuku by sharing the two-faced characteristics: 1) Shinjuku is a place for business and entertainment during the day, and 2) Shinjuku is a place for nightlife. The ways in which the interlocutor communicated with Student J was somewhat figurative; thus, Student J’s lack of familiarity about the metaphor as well as lack of cultural background about Shinjuku accelerated miscommunication in the end. Reflecting back to the original assignment, it became clear to the instructor-researcher that the result of this miscommunication was due to two major constraints: 1) lack of providing shared context, purpose, background knowledge about the topic being discussed among the communicators, and 2) lack of scaffolding about how to approach game users. Consequently, this significant event led to the modification of the next Weekly Game Log (WGL) assignment. In order to promote more purposeful rather than open-ended interactions, the next WGL assignment involved more quest-based communicative
activities that would purposefully provide shared context and background between the participants and other game users.

While the case of Student J’s difficulty of finding a conversation partner may have been due to the result of the instructional flaw, it should be mentioned that the 3D virtual world like Meet-Me does not always provide team-based, quest-based activities that are potentially useful to facilitating social interactions naturally among game users. According to Peterson (2012c), when comparing the major difference between MMOs, 3D virtual worlds, and MMORPGs in regards to gaming environment, MMORPGs are specially designed to elicit purposeful interaction among game users (Peterson, 2012c). Since MMORPGs contain specific imbedded features such as gaming quests as well as the collective problem-solving group known as guilds, MMORPGs by nature prompt more game-based interactions compared to the cases in MMOs and virtual worlds. The present study seconds the Peterson’s claim, as Meet-Me did not explicitly contain MMORPG specific features like quests and guild oriented tasks. In order to provide such interactive environment for learners, the instructor-researcher supplemented quest-based, guild-like activities to promote collaborative interactions in a 3D virtual world.

Collaborative Communication. During Week 9, the instructor-researcher conducted two scaffolding sessions for participants, encouraging them to befriend with other game users in Meet-Me. The lesson included topics such as how to make friends as well as where to make friends, utilizing various in-game features that were specifically designed to meet new friends for socialization purposes. In these sessions, participants spent some time in class drafting their introduction paragraph to post them onto the friend request board in Meet-Me, which was open to public for anyone interested in making new
friends virtually. In addition, the instructor-researcher led participants to a hang-out place called “友達ベンチ (friend bench),” where they can socialize with other online users while sitting on a bench together. Furthermore, during the lessons, the instructor-researcher would also take a group of participants and engage them in a conversation with other users by starting the conversation, and later would leave the conversation group as the participants became more independent in communicating with them. Based on these scaffolding attempts, more participants were able to make friends and appeared to be more comfortable in opening conversation with other users in Meet-Me.

In addition to the scaffolding lessons, the instructor-researcher also modified the content of WGL to be a more quests-based assignment, requiring participants to complete tasks collectively with other users online. Similar to the concept of guild in MMORPGs, for instance, WGL 6 asked students to find a friend and go on a fishing trip together, while WGL 8 asked students to find a friend to go for a drive together. This way, the CALC program facilitates more specific conversation opportunities for participants with shared communicative environment, obtaining purposeful interactions that are specific to task completion. Upon applying these modifications at the end of the exploration phase, the present study found that more participants were tentative in communicating with other Japanese users, which in turn resulted in a successful completion of WGLs. Because the speaker and interlocutors were essentially completing the same tasks for the same purpose, they were thus able to facilitate conversation specific to the task, fostering what McGonigal calls “mutual regard” (McGonigal, 2011, p. 269).

To provide some examples, consider the following excerpt between Student A and MM user 2 in WGL 6 assignment during Week 10 of the CALC program:
1. Student A: おはようございます!
2. MM user 2: おはよう！
3. Student A: 英語をわ[か]りますか？
4. MM user 2: ちょっと
5. Student A: 私はアメリカ人です。
6. MM user 2: 困ったことはない？ 日本に住んでいるの？
7. Student A: 私は日本に旅行をしました。
8. MM user 2: うんうん。どこからアクセスしてるの？
9. Student A: アメリカに住んでいる。○○と△△と◇◇に旅行をしました。
10. MM user 2: うんうん
11. Student A: とても楽しかったでしたよ ^ ^
12. MM user 2: きゃ ^ ^よかったです ^ ^このゲームをさがしたの？
13. Student A: うん！私は私の日本語クラスのためにこのゲームをしました。
14. MM user 2: そかー^ ^
15. Student A: あなたは私と一緒に釣りに行きたいですか？
16. MM user 2: はい！どこにする？行ったことある？
17. Student A: しらない;;;
18. MM user 2: しばうらふとう

15 Translation of (9)
1. Student A: Good morning!
2. MM user 2: Morning!
3. Student A: Do you understand English?
4. MM user 2: A little.
5. Student A: I am an American.
6. MM user 2: Do you have anything you are troubled with? Are you currently living in Japan?
7. Student A: I’ve traveled to Japan.
8. MM user 2: Ok, ok. Where are you logging-in from?
9. Student A: I am living in America [now]. I’ve been to ○○, ΔΔ, ◇◇ [in Japan].
10. MM user 2: ok ok.
11. Student A: It was so much fun ^^
12. MM user 2: Aw^ ^ That’s good. Did you look up this game?
13. Student A: Yes! I am playing this game for my Japanese class.
14. MM user 2: Oh yeah, okay… ^^
15. Student A: Do you want to go fishing with me?
16. MM user 2: Sure! Where should we go? Have you ever been [to fishing]?
17. Student A: I don’t know ;;;
18. MM user 2: Shibaura Futo
20. MM user 2: Alright, alright.
21. MM user 2: I wonder if [Student A is] okay…Let’s go, let’s go, let’s go.
22. Student A: Yesss
23. MM user 2: Come on!
24. Student A: It was fun ^^
25. MM user 2: I haven’t had fun [like this] in a while
26. Student A: I am keeping it [the log] now. See ya soon!
27. MM user 2: See you again^^
Student A began the conversation by greeting MM user 2 in line one, then quickly moved on to introduce him/herself politely to the speaker. After revealing that Student A is American, MM user 2 responded by saying “Do you have anything you are troubled with? Are you currently living in Japan?” in line six, offering a polite, approachable attitude to Student A. Soon after the response from MM user 2, Student A then expanded the conversation by talking further about Student A’s connection to Japan, explaining why Student A is playing the game (line 13). In fact this strategy is called “small talk” (Peterson, 2011, p. 64; Peterson, 2012a, p. 31; Peterson, 2012c, p. 369), where speakers utilize a type of politeness to establish mutual relationship between speaker and interlocutor, obtaining a social cohesion that is necessary for successful communication.

After the small talk in the beginning, Student A asked MM user 2 to go fishing together (line 15). As a response, MM user 2 answered, “Yes, where should we go? Have you ever been [to fishing]?” showing an agreement to go fishing with Student A, while at the same time asking where to go, or if Student A had been to fishing before (line 16). As a response to this, in line 17, Student A answered by saying Student A did not know where to go. Conversely, MM user 2 suggested that they should go to Shibaura Futo in line 18, which is one of the famous fishing spots in Meet-Me. This example excerpt indicates that the interlocutor (Japanese MM user) took an initiative to carry on a
conversation rather than fully dependent on the Student’s input (JFL MM user), which resulted in making it possible for guided, rather smooth, collaborative communication.

In WGL assignment, the instructor-researcher not only asked students to complete interactive tasks with other Meet-Me users online, but also assigned them to keep a log of what had happened while playing the game. Based on the transcripts of WGL reflections, some students reported a positive event where completing the task with other users eventually led to more opportunities for interactions and game play outside of the assignment requirement. For instance, during the WGL 8 assignment in Week 12, participants were asked to complete two tasks: 1) find a partner to go for a drive, 2) go to the garage to get the car together, and 3) go for a drive on Shutokōsoku (metropolitan expressway) with their partner(s). The following is an excerpt from WGL reflection written by Student F:

(10)¹⁶ 30 分後に、トレードセンターにMM user 3さんがいきました。MM user 3さんに「いしょにドライブしませんか？」と言いました。MM user 3さんは「ドライブ？」。「私のくるまにのりますか？」と言いました。「はい~~」

私はStudent BとMM user 3さんとガレージに行きました。ガレージ番号と言って、私の車にのりました。Student BはMM user 3と話しました。MM user 3さんは建築士です。それから、MM user 3の車を見ました。早いレースカーでした。ガズレースに行って、私はMM user 3さんとStudent BとMM user 4さんとレースをしました。MM user 4さんは勝ちました。(Student F, WGL8, p.1)

¹⁶ Translation of (10)
After 30 minutes have passed, MM user 3 came to Trade Center. I said to MM user 3, “Would you like to go for a drive?” MM user 3 [then] said “Drive?” [So] I said “Would you like to get in my car?” [Then MM user responded] “yes ^~~^”

Student B, MM user 3 and I went to [my] garage. I told [them] my garage number, and [they] got into my car. Student B talked to MM user 3. MM user 3 is an architect. And then, we looked at MM user 3’s car. It was a fast racing car. We then went to Gazoo Racing, and MM user 3, Student B, MM user 4, and I all raced [together at Gazoo Racing]. MM user 4 won [the race]. (Student F, WGL8, p.1)
Student F’s report indicates that there are many speakers involved in Student F’s experience with driving on the highway. First, Student F and Student B worked on this assignment together, collaboratively speaking in Japanese to other Meet-Me users in order to find a partner to go for a drive. Approximately 30 minutes later, Student F and Student B met MM user 3, who agreed to go for a drive by answering “yes” with “^^” emoji expression. In Meet-Me, the use of emoji expression was frequently utilized by all users in order to show a positive emotion associated with the text in conversation. In this case, the emoji expression: “^^” represents a smile, indicating the MM user 3’s positive willingness to go for a drive with Student F and B.

While Student F and B were able to complete all the tasks required for WGL 8, one of the significant findings from Student F’s reflections is the Student F’s experience with MM user 3 that went beyond the assignment requirement. This was frequently observed among other WGL reflections, especially when the students had successful experiences in completing a collaborative task with the partners. As the excerpt above indicates, Student F, while conducting task requirement (i.e., driving on the highway), was able to have a successful communication with MM user 3, getting to know more about the user’s personal life such as MM user 3’s job status and the types of cars the MM user 3 owned. Eventually, a friend of MM user 3 (MM user 4) joined the team after the task completion; as a result, Student F, Student B, MM user 3, and MM user 4 all went onto the other area of Meet-Me virtually to participate in the additional activity called Gazoo Racing in the game.

Evidence regarding Vocabulary Acquisition. To provide evidence indicating participants’ acquisition of incidentally encountered vocabulary in the CALC curriculum,
the present study administered twelve sets of weekly vocabulary pre- and post-tests. As detailed in the description of Data 4 in Chapter Three, both pre- and post-tests included ten identical itemized vocabularies each week. Throughout the semester, the pre-test was administered in the beginning of the week (pre-instruction) and the post-test was administered at the end of the week (post-instruction). Among the total of 244 pre- and post-tests collected, item 1 through 5 (pronunciation of kanji) were evaluated by the instructor-researcher alone, while item 6 through 10 were evaluated by two raters, using blind-review method. This evaluative method was utilized due to the format of vocabulary test; the first five items (item 1 through 5) consisted of multiple choice assessment of correct kanji pronunciation, while the other five items (item 6 through 10) consisted of short answer assessment of vocabulary interpretation. Table 6 provides a detailed breakdown of weekly vocabulary pre- and post-tests evaluation by two raters.

To provide an example, during Week 3 in Table 5, a total of eleven vocabulary pre-tests and ten vocabulary post-tests were collected for scoring. This also means that a total of 105 items were scored by two raters. Out of 105 items, two raters agreed on the scoring for total of 104 items and disagreed on one item, which yields 99.05% inter-rater reliability. The column “Disagreed Item” identifies the detailed information about the disagreed item, showing how the consensus was made between the two raters in the column “Consensus after Disagreement.” For instance in Week 3, two raters disagreed on Student K’s pre-test item 10 by each scoring the item as 0 (answer is inaccurate) and 0.5 (answer is close, related, but not accurately correct). After some discussion, a consensus was made between the two raters, making the final decision to score the disagreed item as 0.5.
### Table 6

**Inter-Rater Reliability and Detailed Breakdown of Weekly Vocabulary Pre- and Post-Test Evaluations**

<table>
<thead>
<tr>
<th>Week</th>
<th>Overall Number of Tests Graded</th>
<th>Overall Number of Items Scored</th>
<th>Overall Number of Items Agreed</th>
<th>Overall Number of Items Disagreed</th>
<th>Inter-Rater Reliability</th>
<th>Disagreed Item (name, pre-or post, item #)</th>
<th>Consensus after Disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>15 (Pre=8/Po=7)</td>
<td>75</td>
<td>74</td>
<td>1</td>
<td>98.67%</td>
<td>Student H, Post, #6</td>
<td>0 or 0.5 = 0.5</td>
</tr>
<tr>
<td>Week 2</td>
<td>22 (Pre=11/Po=11)</td>
<td>110</td>
<td>109</td>
<td>1</td>
<td>99.09%</td>
<td>Student J, Post, #7</td>
<td>0 or 0.5 = 0.5</td>
</tr>
<tr>
<td>Week 3</td>
<td>21 (Pre=11/Po=10)</td>
<td>105</td>
<td>104</td>
<td>1</td>
<td>99.05%</td>
<td>Student K, Pre, #10</td>
<td>0 or 0.5 = 0.5</td>
</tr>
<tr>
<td>Week 4</td>
<td>20 (Pre=11/Po=9)</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>100%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Week 5</td>
<td>21 (Pre=11/Po=11)</td>
<td>105</td>
<td>102</td>
<td>3</td>
<td>97.14%</td>
<td>Student D, Post, #2, Student F, Post, #10, Student K, Pre, #6</td>
<td>0.5 or 1 = 1, 0 or 0.5 = 0, 0.5 or 1 = 0.5</td>
</tr>
<tr>
<td>Week 6</td>
<td>20 (Pre=10/Po=10)</td>
<td>100</td>
<td>99</td>
<td>1</td>
<td>99%</td>
<td>Student K, Post, #9</td>
<td>0 or 0.5 = 0.5</td>
</tr>
<tr>
<td>Week 7</td>
<td>21 (Pre=10/Po=11)</td>
<td>105</td>
<td>105</td>
<td>0</td>
<td>100%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Week 8</td>
<td>21 (Pre=10/Po=11)</td>
<td>105</td>
<td>102</td>
<td>3</td>
<td>97.14%</td>
<td>Student B, Pre, #6, Student J, Post, #7, Student E, Post, #8</td>
<td>0.5 or 1 = 0.5, 0.5 or 1 = 0.5, 0 or 0.5 = 0</td>
</tr>
<tr>
<td>Week 9</td>
<td>20 (Pre=11/Po=10)</td>
<td>105</td>
<td>103</td>
<td>2</td>
<td>98.10%</td>
<td>Student E, Pre, #9, Student C, Post, #8</td>
<td>0 or 0.5 = 0.5, 0 or 0.5 = 0</td>
</tr>
<tr>
<td>Week 10</td>
<td>21 (Pre=11/Po=11)</td>
<td>110</td>
<td>109</td>
<td>1</td>
<td>99.09%</td>
<td>Student D, Post, #8</td>
<td>0.5 or 1 = 0.5</td>
</tr>
<tr>
<td>Week 11</td>
<td>20 (Pre=9/Po=11)</td>
<td>100</td>
<td>97</td>
<td>3</td>
<td>97%</td>
<td>Student E, Pre, #7, Student B, Post, #7, Student G, Post, #7</td>
<td>0.5 or 1 = 0.5, 0 or 0.5 = 0</td>
</tr>
<tr>
<td>Week 12</td>
<td>20 (Pre=10/Po=10)</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>100%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>244 tests</td>
<td>1220 items</td>
<td>1204 items</td>
<td>16 items</td>
<td>98.69%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
To assess participants’ vocabulary acquisition in the CALC program, the scores of weekly vocabulary pre- and post-tests were entered into SPSS for statistical analyses. Once all 132 test pairs (twelve sets of vocabulary pre-and post-tests for eleven participants) were entered into SPSS, the assumption of normality was tested via Kolmogorov-Smirnov and Shapiro-Wilk tests. Results of both tests indicated that the pre-tests distribution did not deviate significantly from a normal distribution (Kolmogorov-Smirnov test result: \( p = 0.017 \), Shapiro-Wilk test result: \( p = 0.031 \)) as well as post-tests respectively (Kolmogorov-Smirnov test result: \( p = 0.000 \), Shapiro-Wilk test result: \( p = 0.000 \)).

Figure 10 below includes histograms of the overall scores of weekly vocabulary pre- and post-tests throughout the semester. Both histograms suggest that the observed distribution does not fit the normal distribution.

**Figure 10.** Histogram of weekly vocabulary pre- and post-test scores throughout the semester

Based on the results of the test of normality, the present study utilized the Wilcoxon signed-rank test to compare two matched pre- and post-test samples of 116
cases. The results of Wilcoxon signed-rank test indicated that the median post-test score, Mdn = 6.50, was statistically significantly higher than the median pre-test score, Mdn = 4.0 (Z = -8.516, p = 0.000) and the increase was large (r = -.56). This would indicate that the semester-length CALC program elicited a statistically significant gain in the students’ scores of vocabulary post-tests, compared to the scores of vocabulary pre-tests across the semester (see Table 7).

Table 7

**Wilcoxon Signed-Rank Test Results for Weekly Vocabulary Pre- and Post-Tests (Total)**

<table>
<thead>
<tr>
<th></th>
<th>Mean Score</th>
<th>Median Score</th>
<th>SD</th>
<th>Z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>3.94</td>
<td>4.00</td>
<td>2.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>5.87</td>
<td>6.50</td>
<td>2.50</td>
<td>-8.516</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

Note: *: significant at p < 0.05, **: significant at p < 0.01, ***significant at p < 0.001

Next, in order to compare the difference between the scores of participants’ pre- and post-tests per test category, the present study divided each weekly vocabulary test into two categories: kanji pronunciation (item 1 through 5) and vocabulary interpretation (item 6 through 10). Since each weekly vocabulary test score was worth ten points maximum (one point per each item), kanji pronunciation and vocabulary interpretation category was each worth five points in total.

As the data was skewed, the most appropriate statistical test was Wilcoxon signed-rank test. Based on the test comparing the two matched pre- and post-test kanji pronunciation category (a total of 116 cases), the Wilcoxon signed-rank test results showed that the median post-test score of kanji pronunciation, Mdn = 4.0, was statistically significantly higher than the median pre-test score of kanji pronunciation, Mdn = 3.0 (Z = -7.214, p = 0.000). Calculation of the effect size (r = -.47) suggests this was a moderate to large increase. Similar to the Wilcoxon signed-rank test comparing the
two matched pre- and post-test vocabulary interpretation category (a total of 116 cases),
the results showed that the median post-test score of vocabulary interpretation, Mdn = 2.5,
was statistically significantly higher than the median pre-test score of vocabulary
interpretation, Mdn = 1.5 (Z = -7.633, p = 0.000) and the increase was large (r = -.50).
This would indicate that the semester-length CALC program yielded a statistically
significant gain in both categories of vocabulary acquisition: kanji pronunciation and
vocabulary interpretation (see Table 8).

Table 8

<table>
<thead>
<tr>
<th>Wilcoxon Signed-Rank Test Results for Weekly Vocabulary Pre- and Post-Tests per Test Category (Kanji Pronunciation and Vocabulary Interpretation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Category</strong></td>
</tr>
<tr>
<td>Kanji Pronunciation (Test item #1-5)</td>
</tr>
<tr>
<td></td>
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<tr>
<td>Vocabulary Interpretation (Test item #6-10)</td>
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</tbody>
</table>

Note: *: significant at p < 0.05, **: significant at p < 0.01, ***signficant at p < 0.001

In addition, the present study further analyzed participants’ learning outcomes
over the semester by comparing the median scores of participants’ weekly vocabulary
pre- and post-test per week. The Table 9 and Figure 11 indicate the results of Wilcoxon
signed-rank test examining the median difference between vocabulary pre-tests and post-
tests from Week 1 through Week 15:

Table 9

<table>
<thead>
<tr>
<th>Wilcoxon Signed-Rank Test Results for Vocabulary Pre- and Post-Tests per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week</strong></td>
</tr>
<tr>
<td><strong>Mean Score</strong></td>
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<tr>
<td>Week 1</td>
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<tr>
<td>Week</td>
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Note: *: significant at p < 0.05, **: significant at p < 0.01, ***significant at p < 0.001
Based on the Wilcoxon signed-rank test comparing the difference between the scores of participants’ pre- and post-tests each week, the results indicated that Week 1 and 2 did not show a statistical significance between the scores of pre- and post-tests (Week 1: $Z = -1.633, p = 0.102$; Week 2: $Z = -1.750, p = 0.080$). However, starting from Week 3 through Week 15, the test results showed that the median post-test scores were statistically significantly higher than the median pre-test scores (Week 3: $Z = -2.138, p = 0.033$; Week 4: $Z = -2.689, p = 0.007$; Week 5: $Z = -2.609, p = 0.009$; Week 7: $Z = -2.527, p = 0.012$; Week 9: $Z = -2.677, p = 0.007$; Week 10: $Z = -2.661, p = 0.008$; Week 11: $Z = -2.825, p = 0.005$; Week 12: $Z = -2.684, p = 0.007$; Week 13: $Z = -2.536, p = 0.011$; Week 15: $Z = -2.807, p = 0.005$). This indicates that there was a statistically significant learning gain among participants since the third week of the CALC program (week 3), and the learning gain was consistent until the end of the semester (Week 15).

Furthermore, the present study analyzed participants’ learning progression over the semester by calculating the median scores of test difference (i.e., the score increase) between the vocabulary pre-test and post-test each week. Figure 12 indicates the median score of test difference from Week 1 through Week 15. While the present study showed a statistically significant increase in the scores of weekly vocabulary tests from Week 3 to Week 15, there was a slight difference in the amount of learning growth (i.e., median score of test difference) each week. Of the significant test difference between Week 3 and Week 15, the median score remained consistent from Week 3 to Week 10 (median ranging from 1.50 to 2.00). However, the amount of learning growth appears to begin increasing from Week 10 through Week 15. This may indicate that, within the population, the more the semester progressed, the more learning growth was pronounced,
possibly implying the increasingly rapid progress of the participants’ vocabulary acquisition throughout the CALC program.

![Graph of Median Score of Test Difference per Week]

Figure 12. Median score of test difference per week

While the median score of all participants’ pre- and post-test difference appeared to increase as the semester progressed, another thing to consider would be whether the individual participant’s increase in pre- and post-test scores skewed the results. To examine the individual participant’s test outcomes throughout the semester, Figure 13 shows weekly vocabulary test score increase (i.e., pre- and post-test difference) among individual participants. As indicated in Figure 13, each participant rather followed a scattered learning growth; in other words, the amount of increase (or decrease) of each participant’s vocabulary test results varied individually across the semester. Looking closely at the individual participant’s test score increase, the present study acknowledges that all participants did not respond with equal growth, and more specifically, the significant increase was not always found for all participants (see Figure 13).
Figure 13. Weekly vocabulary test score increase among individual participant
Considering the variation in individuals’ performance that can be observed in the data in Figure 13, future studies could provide more focused and detailed results regarding individual participant’s learning growth and progression by addressing the following two concerns. First, by looking at the median scores of weekly vocabulary pre- and post-tests throughout the semester (see Table 9), the median test score in Week 12, for instance, is considerably lower than that of in other weeks. This may indicate that the Week 12 vocabulary test may have been too difficult for participants, possibly implying variation in test difficulty of instruments used in the present study. While learning growth (i.e., the median score of test difference) in Week 12 does not seem too far apart from that of other weeks, future studies should address the issues of assessment consistency, especially when the pre- and post- vocabulary test assessment format is utilized to evaluate participants’ overall learning progressions.

Second, while the present study found that the participants statistically significantly increased their understanding of kanji pronunciation and vocabulary interpretation after the CALC instruction, the amount of growth (or growth rate) may have been influenced by the individual student’s backgrounds and experiences before and during the CALC instruction, such as how many times participants encountered the vocabulary in the game or in class, or whether or not participants were previously exposed to the target vocabularies that were assessed weekly. Although formally evaluating participants’ Japanese background is quite challenging due to a lack of comprehensive performance-based measures of communicative competence, a future study could examine individual students’ learning experiences within lessons in greater
detail to learn more about whether students with particular profiles benefit differentially within a CALC environment.

**What Are Learners’ Attitudes and Perceptions toward Participation in the CALC Program?**

In addition to evidence regarding participants’ learning outcomes, the present study further conducted post hoc analyses regarding the JFL learners’ attitudes and perceptions toward their participations in the CALC program. In response to the research question three, the study mainly analyzed three data set: 1) the collection of exit slips, 2) 20-item post-study survey modified from Peterson (2011; 2012a; 2012b; 2012c), and 3) semi-structured interview. In order to examine any possible perceptual change or progress among the participants, the collection of exit slips was administered twice throughout the semester; the first one was collected during the midterm week, and the second one was collected at the end of the semester. The detailed post hoc reflections were elicited from the participants after the semester officially ended, using survey instrument and interview method detailed in Chapter Three.

As for the 20-item post-study survey, all participants completed the questionnaire which consisted of 20 Likert scale items, ranging from: 1 strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree (see Appendix D). To evaluate participants’ experiences in the CALC program more systematically, the present study employed five themes of questionnaire regarding: participants’ general impression about *Meet-Me* (item 1-4), participants’ reflections about the features of *Meet-Me* (item 5-8), participants’ reflections about communication in *Meet-Me* (item 9-13), participants’ perceived learning
in *Meet-Me* (item 14-18), and participants’ perceived preference regarding their participation in *Meet-Me* compared to the regular class (item 19-20).

**General Favorability and Satisfaction.** The 20-item surveys were analyzed by calculating the mean of each item and its frequency in population (see Appendix F). Once all data were entered into SPSS, the present study utilized Chi-square test in order to elicit participants’ general favorability and satisfaction for each survey item. To formulate this, the study combined the positive response categories (strong agree and agree) and the negative response categories (strongly disagree and disagree) into three categories of responses: agree, disagree, and neutral. By computing the five Likert scales into these categorical arrangements, the present study attempted to find the statistical significance of proportion regarding participants’ response category, assessing whether or not two proportions (agree or disagree) for each survey item are statistically different from each other. The results of Chi-square test are provided in Table 10.

### Table 10

**Participants’ Attitudes and Perceptions toward Participation in Meet-Me**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would like to play <em>Meet-Me</em> again in the future.</td>
<td>4.0</td>
<td>0.011*</td>
</tr>
<tr>
<td>2. I enjoyed playing <em>Meet-Me</em> overall.</td>
<td>4.3</td>
<td>0.007**</td>
</tr>
<tr>
<td>3. I could work at my own pace in <em>Meet-Me</em>.</td>
<td>3.7</td>
<td>0.206</td>
</tr>
<tr>
<td>4. <em>Meet-Me</em> was easy to play.</td>
<td>4.0</td>
<td>0.020*</td>
</tr>
<tr>
<td>5. The chat system (i.e., log and cellphone) in <em>Meet-Me</em> was easy to use.</td>
<td>4.2</td>
<td>constant</td>
</tr>
<tr>
<td>6. Having my own avatar made me feel more engaged in the game.</td>
<td>4.6</td>
<td>constant</td>
</tr>
<tr>
<td>7. The 3D renderings of <em>Meet-Me</em> helped me understand the relative landscape of Tokyo.</td>
<td>3.9</td>
<td>constant</td>
</tr>
<tr>
<td>8. Other players/users of <em>Meet-Me</em> were helpful.</td>
<td>3.5</td>
<td>0.157</td>
</tr>
<tr>
<td>9. I have interacted with people (avatars) outside of class in Japanese.</td>
<td>3.5</td>
<td>0.366</td>
</tr>
<tr>
<td>10. The chat system (i.e., log and cellphone) in <em>Meet-Me</em> helped me communicate in Japanese easily with others.</td>
<td>3.8</td>
<td>0.034*</td>
</tr>
<tr>
<td></td>
<td>Having my own avatar helped me communicate in Japanese easily with others.</td>
<td>3.5</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12</td>
<td>I enjoyed interacting with others in <em>Meet-Me</em>.</td>
<td>3.9</td>
</tr>
<tr>
<td>13</td>
<td>I could easily follow the conversation in the chat/cellphone features.</td>
<td>3.2</td>
</tr>
<tr>
<td>14</td>
<td>I could learn new words and expressions through <em>Meet-Me</em>.</td>
<td>4.4</td>
</tr>
<tr>
<td>15</td>
<td>The chat system (i.e., log and cellphone) in <em>Meet-Me</em> was a good way to improve my Japanese speech.</td>
<td>4.2</td>
</tr>
<tr>
<td>16</td>
<td>I could learn new vocabularies through various <em>Meet-Me</em> navigations (i.e., icons, inventory, pop-up windows, etc.).</td>
<td>4.7</td>
</tr>
<tr>
<td>17</td>
<td>I did not feel like I was learning when playing <em>Meet-Me</em>.</td>
<td>1.6</td>
</tr>
<tr>
<td>18</td>
<td>I did not learn anything from <em>Meet-Me</em>.</td>
<td>1.3</td>
</tr>
<tr>
<td>19</td>
<td>Playing <em>Meet-Me</em> made me use my Japanese more than in a regular class.</td>
<td>4.5</td>
</tr>
<tr>
<td>20</td>
<td><em>Meet-Me</em> allowed me to express my opinion more freely than in a regular class.</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Note: *: significant at p < 0.05, **: significant at p < 0.01

In regards to participants’ general impression about *Meet-Me* (item 1-4), items 1, 2, 4 showed a statistical significance of the participants’ general positive impression about gaming experiences in *Meet-Me*. However, when the participants were asked about whether or not *Meet-Me* made them work at their own paces (item 3), the responses rather varied; seven out of eleven participants agreed to the statement (67%), while three disagreed (27%) and one remained neutral (9%) to the statement.

As for the participants’ reflections about the features of *Meet-Me* (item 5-8) such as chat, avatar, 3D renderings, and *Meet-Me* existing users, the Chi-square test results showed statistics to be constant in item 5, 6, and 7. However based on the information given in the frequency table (see Appendix F), the participants showed positive attitudes toward item 5, 6, and 7. For instance when the participants were asked whether or not the chat system (i.e., log and cellphone) in *Meet-Me* was easy to use (item 5), nine participants 82%) agreed that it was easy, while two remained neutral (18%) to the statement. In particular for item 6, the majority (91%) strongly agreed or agreed that
having their own avatar made them feel more engaged in the game, yielding the second highest mean score of all items in the survey (M = 4.6). As for the item 7, while the general favorability is not seemingly as strong as the previous two items, seven participants (64%) agreed that the 3D renderings of Meet-Me helped them understand the relative landscape of Tokyo (item 7), while four participants remained as neutral (36%). Although participants overall showed generally positive attitudes toward Meet-Me game features, such as chat, avatar, and 3D renderings, the present study did not find a statistical evidence for the item 8 statement: other players/users of Meet-Me were helpful (p = 0.157), indicating participants’ rather mixed feeling for their game peers in Meet-Me.

Since Meet-Me was a MMO-based virtual world, participants were asked about their experiences regarding their communicative experiences in Meet-Me (item 9-13). Out of five items, item 10 indicated that the MMO specific feature: chat, log, and cellphone system helped them communicate in Japanese easily with others with statistical significance (p = 0.034). However, the result of Chi-square test did not provide a statistical significance for item 9, 11, 13, indicating some of the possible challenges participants faced when learning to communicate with other Japanese users online. Some of the reasons why participants found it difficult to communicate with other users in Meet-Me were more detailed in the commented data solicited from the exit slips and semi-structured interview.

When analyzing the participants’ own perceived learning in Meet-Me, the study could not perform Chi-square test for all five items (item 14-18), due to the fact that all participants’ answers were constant (either all agreed or disagreed). With reference to the frequency table (see Appendix F), some items indicate rather strong favorability, showing
the participants’ beliefs about their own Japanese learning and improvement in the CALC program. Out of five items regarding participants’ perceived learning in Meet-Me, all participants (100%) showed a general agreement to the statement: I could learn new words and expressions through Meet-Me (item 14). When participants were asked about whether the chat system (i.e., log and cellphone) in Meet-Me was a good way to improve their Japanese speech (item 15), some participants reported neutral (36%), while moderate amount of participants (64%) showed a general agreement to the statement.

As for the item 16, most participants (91%) felt equipped with vocabulary through various navigations in the game, showing the highest mean score of all items in the survey (M = 4.7). Despite the challenges and difficulties possibly indicating the results of participants’ experiences regarding communication in Meet-Me (item 9-13), all participants (100% except one provided no answer) disagreed with the statement: I did not learn anything from Meet-Me (item 18), illustrating their positive attitudes toward learning and game play in Meet-Me.

The item 19 and 20 in the survey attempted to examine participants’ perceived general preference regarding their participation in Meet-Me compared to the regular traditional class (item 19-20). Based on the results of Chi-square test, most participants (82%) generally agreed that playing Meet-Me made them use Japanese more than in a regular class (item 19), while 18% of the participants remained neutral. When the participants were specifically asked whether or not Meet-Me allowed them to express their opinion more freely than in a regular class (item 20), the study found that 73% of participants generally agree to the statement, despite the 18% of population remained neutral and 9% of population disagreed with the statement.
Furthermore, these interpretations of post hoc survey are also borne out by exit slip written comments. When participants were asked about their general impression about the CALC program at the end of the semester, the majority of the participants provided a positive feedback about the course as well as the *Meet-Me* virtual environment itself:

I think it was a very good idea that keeps students entertained yet focused, and just allowed everyone to work together. Personally, most if not all of my experiences were good ones; I had a lot of fun as well as learned a lot. (Student A, Final exit slip, p. 1)

*Meet-Me* was rather confusing at first, but it grew on me as the course went on and I learned more. The people you meet online are usually quite friendly and I learned a lot in the conversations I had with them. (Student F, Final exit slip, p. 6)

I thought it was an interesting tool for learning. In most of my past Japanese classes it was straight-forward, old school learning. This course was different, and required full attention. (Student G, Final exit slip, p. 7)

I liked it better than regular class. In a normal Japanese class, you get vocabs, study grammar, then take a test. In this class you communicate with actual Japanese people and have to figure out what they are saying plus what the game is saying. (Student H, Final exit slip, p. 8)

The course overall was structured and delivered perfectly, nothing to change. My experiences in *Meet-Me* have been great and just contributed that much more in making me want to continue to study the language as well as the culture. (Student I, Final exit slip, p. 9)

*Meet-Me* has really given me a better understanding of what Japan’s railway system is like and how other forms of transportation is used. This game has increased my kanji recognition and how to comfortably talk to strangers. (Student K, Final exit slip, p. 11)

While participants showed general favorability and satisfaction about the CALC program, some participants additionally highlighted difficult experiences they had in playing *Meet-Me*:

The games are fun but some of the controls aren’t good. However, it doesn’t make me not want to play. The course itself is a good and innovative way to learn the
language but all the kanji can make conversation difficult. (Student B, Final exit slip, p. 2)

I do like playing Meet-Me, however I find that it’s very hard for me to communicate with others in the game. Often times there would be [no] log or since there is a difference in time there would not be people available to talk to. Also many were rude or ignored me. However, I did enjoy the people who I did get to talk to. (Student C, Final exit slip, p. 3)

It was interesting playing Meet-Me in class, instead of using the normal format for class. The game was difficult to play at times because of all kanji I could not read. (Student D, Final exit slip, p. 4)

It always seems like in classes when you introduce third party there are risks involved. However because I am an avid believer in gaming helping development, I can attest game experience is useful and practical. (Student E, Final exit slip, p. 5)

Besides the difficulty playing Meet-Me in general, one participant noted that the assignment combined with in-game interactions was particularly challenging:

I think it was very interesting. It was a very different way to teach a class. I liked the creativity of teaching. By means of a game, I had a mostly positive experience in Meet-Me. I think that some of the assignments were challenging, especially those involving other members. (Student J, Final exit slip, p. 10)

In regards to the experienced difficulty both in game and with the course assignments, it can be speculated that some of these challenges may have caused from the time differences between Japan and the United States. Because there was a 14-hour time difference at the time of the study, the participants occasionally struggled to find other users online, especially when the course was conducted at 2:00 p.m. in Eastern time zone, which was 4:00 a.m. in Japan.

Furthermore, when considering the Student C’s difficulty in communicating with other game users online, two reasons can be considered: 1) as Student C noted, some users could be ignorant or rude in the context of online gaming, and 2) it could be due to the technical glitch in Meet-Me which prevented users from noticing the conversation
when avatar was moving or in the process of obtaining commands. As for the latter, even when the participants were to start conversations by greeting or starting off of a small talk, if the interlocutors are in the process of moving or being away from the computer, they do not notice the conversation (i.e., there is no notification system in Meet-Me that is regularly utilized in other MMO or MMORPG programs). As for the difficulty in regards to kanji recognition mentioned by Student B and Student D, Meet-Me does not provide JFL user-friendly tool such as furigana, which is known as the reading aid for language learners to decode unfamiliar kanji. Because Meet-Me was not specifically designed to serve for larger audiences outside of Japan, the issue of kanji recognition may be persistent if leaners have minimum understanding of kanji.

Despite the difficulty participants experienced, it would appear that the participants generally enjoyed and even favored the CALC program that was fully based in the 3D virtual simulation of Tokyo. Based on the post hoc analyses of collected data, the survey (item 19 and 20) showed a statistical significance in regards to the participants’ use of Japanese compared to that of in a regular traditional class. Likewise, some participants even articulated their preference of the CALC program over the regular course, as seen in the comments provided by Student G and Student H. These findings showed an antagonistic interpretation from Ranalli’s study (2008), as Ranalli concluded that the simulation games might not be considered for adequate “substitutes for traditional course-based instruction” (Ranalli, 2008, p. 452). In the case of present study, the participants’ feedback about the course was overwhelmingly positive; participants said that the course was “unique, fun, and engaging” and it “challenged us to flex our
Japanese to our maximum capacity,” and “I learned more Japanese this semester than in my other semesters.”

**Characteristics of the CALC Program.** While the 20-item post study survey was administered to obtain a general sense of participants’ favorability, the analyses of the participants’ exit slips and interview transcripts provided participants’ more in-depth perspectives regarding their participations in the CALC program. In particular, the exit slips were administered twice in the semester; the one collected during the midterm week, and the second one collected during the final’s week to investigate any possible perceptual change among the participants. There were four basic questions included in the exit slip, assessing: 1) participants’ overall impression about the course, 2) the most helpful things participants learned in the course, 3) whether or not participants encountered any problems, what could have been more helpful to their learning, and 4) whether or not participants think playing *Meet-Me* overall improved any of their Japanese skills. Based on the thematic analysis of the exit slip written comments and interview transcripts, the present study found that the participants frequently provided a similar claim to describe characteristics of CALC curriculum.

When participants were asked about their experiences and general impressions about the CALC program, several mentioned the nature of rigor and intensity of the CALC program:

…it [playing *Meet-Me*] forced me, per se, to use the language and not rely on English. Now I think it’s easier for me to understand Japanese more when listening to it.” (Student A, Final exit slip, p. 1)

…it [playing *Meet-Me*] forced me to think and read in Japanese. I feel more comfortable going into the game alone now and interacting with people than at the start of the semester. (Student B, Final exit slip, p.2)
I like the class as it forces me to learn Japanese (Student H, Midterm exit slip, p. 8)

One of the common themes found from the participants’ comments was the concept of rigor, as many participants used the words such as “force” to describe the characteristics of CALC program. In fact, the concept of rigor across data rather appeared as a positive phenomenon, indicating how the CALC curriculum confined to simulate all-Japanese environment for participants as if they were in Japan. Since the present study was designed to promote an environment where the participants engage in purposeful communication without relying on the other secondary sub-skills such as English translation, the nature of restriction (e.g., force) was beneficial or even necessary for participants to acquire Japanese more naturally.

Similarly to the word “force,” the concept of rigor was also prevalent when participants were asked the most helpful things they learned in this course. According to Student E and Student K:

The program pushes us to learn to speak practically in a somewhat impractical method. Most people if you take too long to speak, you get them to become bored and walk away, so it acts as a speed medium. I also learned kanji definitions for ones I didn’t know before (Student E, Midterm exit slip, p. 4).

I do believe Meet-Me has helped with my language skills. It has helped me to read kanji and be able to talk to strangers in Japanese. It has pushed me to write in Japanese quicker and respond in Japanese (Student K, Midterm exit slip, p. 11)

As the Student E and Student K’s written comments suggests, the word “push” was similarly used to describe the characteristics of CALC program. The concept of rigor in this case, according to Student E and Student K, is a “speed medium,” indicating that the program provided a naturally pressured environment for participants to speak and respond quickly in order to facilitate conversation more effectively. While Student E does
not explicitly argue about what it means to “speak practically in a somewhat impractical method,” Student E’s comments seem to suggest positive attitudes toward the program, indicating Student E’s self-motivated nature of Japanese acquisition through communicative interactions in the game. Similarly to Student E’s insight about learning to communicate quickly, Student A also mentioned that the CALC environment promoted what Student E called speed medium:

Student A: Having to use Japanese and having to use it semi-quickly, to be able to communicate with them was a kind of challenge, [but] it really helped for comprehension in writing, to be able to do it quickly.

Yamazaki: Why do you think you could become semi-quickly in that context?

Student A: I feel like because when you talk to someone online, they are not going to have much patience, especially if you are in their…um, you are pretty much in their house, so you have to abide by them. So, taking to them, I wanted to be able to react and communicate quickly enough to where they wouldn’t lose their patience and just leave…or be like hello are you still there. (Student A, interview, p.1)

In reality, when it comes to teaching students how to facilitate conversations, a quick response and question-asking can be quite challenging for JFL learners, especially when they have been previously trained to translate from Japanese to English for comprehension. As Student A claims that learning to communicate semi-quickly in the game was “a kind of challenge,” Student A noticed the need to speak faster than normally in a regular class, or else Student A would experience major communication break during their conversation. Relying on the translation for comprehension thus becomes invalid in this context, thus participants needed to find a way to understand the conversation by using contextual cues or reading for key words.

Furthermore in the CALC program, having a real-time conversation with native speakers allowed participants to be intrinsically motivated to communicate efficiently,
rather than seeking for external incentives such as rewards, scores or point systems to acknowledge their effective delivery of conversations. As the Student E and Student A’s quotes indicate, Student E and Student A were more concerned about not making the interlocutor “bored” or lose patience, or having an experience of communication failure due to the slowness or unnaturalness of the conversation. This indicates the maintenance of intrinsic motivation for continuous interaction in the most realistic manner, as Student E and Student A exploited a disposition of being perceived positively or even being accepted by the interlocutor who speaks Japanese as a native language.

**Perceived Learning Outcomes.** In addition to the characteristics of CALC, the present study analyzed participants’ perceived Japanese learning outcomes; in other words, what participants thought they learned through the CALC program. Based on the analyses of three data samples: 20-item post-study survey, the collection of exit slips, and the transcripts of semi-structured interview, the present study found two themes: 1) consistent perceived learning outcomes among participants, and 2) acquisition of colloquial Japanese though game play.

When participants were asked about what aspects of CALC curriculum helped their Japanese acquisition the most during the midterm week (Week 8), most participants answered the pre-productive aspects of learning, such as reading and listening. Despite the variety of responses given by the individual participants, many participants shared a similar perceived learning outcome in Week 8:

… general understanding is better than before. (Student A, Midterm exit slip, p. 1)

Learning to listen in Japanese. (Student B, Midterm exit slip, p. 2)

My listening skills have really improved; being able to understand context in spoken Japanese more now. (Student C, Midterm exit slip, p. 3)
Listening and responding quickly. (Student D, Midterm exit slip, p. 4)

With Japanese speaking so common in the class, I’ve become a lot more used to hearing and use Japanese phrases. (Student F, Midterm exit slip p. 6)

Yes, my reading and understanding has improved. (Student G, Midterm exit slip, p. 7)

I learned to listen for key words to understand what Yamazaki Sensei wants me to do. (Student H, Midterm exit slip, p. 8)

One of the most helpful things I learned is understanding everyday common terminology for items and places. (Student K, Midterm exit slip, p. 11)

The consistency in the participants’ responses can be explained when looking at the structure of the CALC curriculum. Since the first phase of the CALC program was designed to provide an orientation for participants to function in all-Japanese virtual environment, the CALC curriculum naturally facilitated more task-based demonstration, providing multisensory input for participants before focusing on their production. This was also evidenced by one participant during the semi-structured interview, when Student F identified some of the highlights of learning outcomes in the CALC curriculum:

I learned a lot of vocabularies. I learned a lot of…just comprehension in general. Um, not a lot of grammar really. But…I guess the confidence is the biggest thing? Since I am actually very shy person so…I guess it would really be the biggest thing for someone who is shy. (Student F, interview, p. 2)

In addition to affective elements of learning outcomes (i.e., gaining confidence), Student F identified vocabulary acquisition as well as comprehension as one of the perceived learning outcomes in the CALC program. When Student F was asked about what Student F meant by comprehension, Student F further noted:

I was able to learn a lot of meaning behind what people say…you know how when you like, say one thing, you can mean another thing or you can mean multiple different things by saying something? It’s kind of like that as well. (Student F, interview, p. 2)
In fact, Student F’s comments indicate how the CALC program provided an effective input containing variability or what Student F called “multiple different thing” known as the breadth of association (Coleman, 2007). By participating in the semester-long CALC program, Student F was able to notice such variability and eventually came to comprehend communicative behaviors of interlocutors accordingly (i.e., demonstration given by the instructor or the interactions with other game users in Meet-Me), depending on the context in which the communicative event had occurred. While the increased comprehension was one of the Student F’s perceived learning outcomes rather than the observed event during the course of the study, the Student F’s reflection is unique in such a way that addresses the importance of providing contextual factors of the given speech sound or text.

Once the participants got used to the 3D virtual world environment toward the end of exploration phase, the CALC curriculum focused more on activities that would promote production-based communication for participants. Based on the analyses of participants’ perceived learning outcomes over time, the present study found some of the evidence indicating that the design of CALC curriculum might have affected the shifting process in which participants thought they learned the most from the CALC program. When comparing the participants’ exit slip comments between two periods of data collection (midterm exit slips and final exit slips), the participants seemed to exploit a different set of learning outcomes between the midterm and final’s week. Although a few participants remained to identify listening comprehension as one of the most highlighted learning outcomes throughout the semester, some participants have shifted their perceived learning outcomes to be more production based. To demonstrate this, when the
participants were asked the same question about their perceived learning outcomes during the final’s week, several participants identified conversational or interactional skills as one of the highlights of their learning outcomes:

- I learned a lot of more conversational ways of speaking, as well as new vocabulary. (Student A, Final exit slip, p. 1)

- I feel more comfortable going into the game alone now and interacting with people than at the start of the semester. (Student B, Final exit slip, p. 2)

- Abilities I found included communicating after a mistake rather than freezing up. (Student E, Final exit slip, p. 5)

- I learned a lot of conversation skills in the class from making friends to small talk, to asking directions. (Student F, Final exit slip, p. 6)

- I learned how to compose my sentences faster. I’m now able to think in Japanese and better articulate myself, even sometimes if I’m wrong, it’s okay. (Student G, Final exit slip, p. 7)

- Playing Meet-Me was a drastic help in my Japanese skills. The game helped to make me want to search people out to talk to them. (Student I, Final exit slip, p. 9)

- I have learned how to navigate virtually in Tokyo. I can apply this knowledge to the real world on how to get directions or understand how to find a location. I have also learned how to have casual conversations in Japanese to Japanese players. My skills in communication have improved overall by interacting with various Japanese players too. (Student K, Final exit slip, p. 11)

Compared to the midterm assessment of participants’ perceived learning outcomes, the participants identified more about the production-based communicative skills such as the ability to facilitate small talk, interact, and communicate with other interlocutors online. Furthermore, the Student E and Student G’s quotes show that the participants focused more on carrying a smooth and continuous communication rather than consciously monitoring themselves for mechanical mistakes. As seen in the example of Student E and Student G, through their participation in the CALC program, some participants were able to transition their focus from language accuracy to sole communication.
While data indicating the gradual shift in participants’ perceived learning outcomes over time that was parallel to the structure of the CALC curriculum, a few participants consistently identified listening and reading comprehension as the primary learning outcomes throughout the semester. According to Student C and D:

I feel [Meet-Me] helped my reading skills most of all, it also instilled in me to ask a lot of questions instead of sitting there dumbfounded. However I want more experience in speaking and writing. (Student C, Final exit slip, p. 3)

I learned some new vocabulary and my listening skills have improved. However, I don’t feel like my speaking ability has improved. (Student D, Final exit slip, p. 4)

As the comments suggest, Student C and Student D both expressed their desire to gain more experiences in speaking, asserting their beliefs about how Meet-Me may have not provided adequate speaking practices for participants. While these comments were few in the provided post hoc reflections in the present study, a lack of speaking practice, identified by Student C and D, may have resulted from the nature of gaming environment in which Meet-Me could offer. Since the current version of Meet-Me does not support voice chat or multi-way talk through microphones, the participants may have felt that the acquisition of conversational or interactional skill were restrained to text-based communication only. While the CALC program provided a variety of speaking activities such as TTG assignment and in-class interactions with an attempt to supplement this limitation, the future study may provide additional arrangements to espouse spoken-based communication in and outside of the CALC curriculum.

**Acquisition of Colloquial Japanese Expressions.** In addition to the participants’ progressive outlook on their perceived learning outcomes, an acquisition of colloquial Japanese was also identified as one of the potential learning outcomes among participants. When Student B was asked about the most helpful things about playing
Meet-Me for Japanese learning during the interview, Student B identified a couple of instances where Student B learned to acquire colloquial Japanese expressions, such as use of slang or informal conversation styles:

Yamazaki: What did you find it [playing Meet-Me] helpful for Japanese learning?

Student B: Just general Japanese slang that you wouldn’t see in a textbook. For a while we didn’t know how to say “lol” for Japanese, which is just “www.” So I mean, those little things that you know, unless there is a class specifically designed to teach you about slang, it’s really helpful for that. (Student B, interview, p. 4)

When Student B was asked to provide more examples of colloquial expressions besides the slang of “lol,” Student B further mentioned that the native speakers of Japanese in the game often spoke informally by omitting the words:

Student B: Just omitting words like Japanese people do…you know they leave words out that are just assumed…whereas in you know, the elementary and intermediate classes are pretty heavy…um…they pretty forced into you to always say, you know です or you know, finish off ます which you know native Japanese people don’t do. And sometimes, it makes it harder because you have to think really what they are saying without using those words. (Student B, interview, p. 4)

In addition to acquiring slang or colloquial expressions through Meet-Me interactions, Student B mentioned that the foundational language courses, both elementary and intermediate, focused on teaching the polite and formal expressions using です and ます.

Because Student B was only exposed to particular speech patterns in previous Japanese courses, Student B expressed both difficulty and interest in recognizing various Japanese discourse patterns outside of the formal classroom settings.

While Student B was the only person who articulately claimed the positive exposure to Japanese colloquial expressions, the present study observed a couple of instances when participants learned to utilize colloquial expressions such as “www,” an English equivalent of laugh-out-loud “lol.” For instance when Student K was interacting
with MM user 5 during the bug-catching Weekly Game Log assignment, Student K was able to interactively utilize “www” to facilitate amiable conversation with MM user 5:

(11) 1. Student K: バグがうるさいです！
2. MM user 5: www でしょう？
3. Student K: 楽しいでしょう！！！
4. MM user 5: はい、とても楽しかった
5. Student K: どのように多くのバグをキャッチしましたか？ [どのように多くのバグをキャッチしましたか？]
6. MM user 5: 8 びき
7. Student K: 宇和！ [うわ！] すごい！！
8. Student K: すみません
9. Student K: 違う感じ [漢字] ＞ ＜
10. MM user 5: どうですか？
11. Student K: わたしも8 びき！！！
12. MM user 5: 上手上手！
13. Student K: いえいえ
14. Student K: www
15. Student K: もう一度試してみたい？

17 Translation of (11)
1. Student K: Bugs are loud!
2. MM user 5: lol Aren’t they?
3. Student K: It’s fun!
4. MM user 5: Yes, it was fun.
5. Student K: How many bugs did you catch?
6. MM user 5: 8 bugs
7. Student K: Wow! That’s great!!
8. Student K: I am sorry.
10. MM user 5: How are you doing?
11. Student K: I also caught 8 bugs!!!
12. MM user 5: Good job!
13. Student K: No no [Thank you]
14. Student K: lol
15. Student K: Do you want to try again?
16. MM user 5: Yes! Let’s go!
17. Student K: It was fun like the first time!
18. MM user 5: Yes, it was fun
19. Student K: Oh my gosh! I received 1864 cocore!
20. MM user 5: I received 1340 cocore
21. Student K: Congratulations!
22. Student K: lol
23. MM user 5: lol
24. Student K: Thank you for coming to do a bug-catching [with me]!
25. MM user 5: No no [you’re welcome]. It was fun.
26. Student K: Good bye!
27. MM user 5: See you again!
16. MM user 5: はい、行きましょう！
17. Student K: それは、初めてと同じくらい楽しかったです！
18. MM user 5: はい、それは本当に楽しかった
19. Student K: うわーああ!!! 1864 ココア受け取った!!!
20. MM user 5: 私は 1340 ココア受け取った
21. Student K: おめでとう！
22. Student K: www
23. MM user 5: www
24. Student K: バグをキャッチするために来ててててててがあがろう！
25. MM user 5: いえいえ。楽しかった
26. Student K: さようなら！
27. MM user 5: またね！

As the conversation in excerpt eleven indicates, both Student K and MM user 5 collaboratively went on a bug-catching tour, checking each other for their status of task completion by using in-game chat system. In their interaction, MM user 5 used “www” in line two as a response to Student K’s reaction to the bug-catching environment (i.e., bugs being loud in the park), promoting an approachable, friendly context to facilitate further conversation. Students K and MM user 5 carried on the conversation continuously, while occasionally complementing each other for their accomplishments as well as task completion. When Student K was praised by MM user 5 (line 12), Student K immediately said “いえいえ,” in English translation “no, no,” which is one of the polite humble responses commonly used in Japanese for reacting compliment. Soon after Student K successfully acknowledged MM user 5’s applauds, Student K then added “www” after (line 14) to show Student K’s sociable personality, asking MM user 5 to go on the second round of bug catching (line 15).

As Student B noted earlier, traditional textbook-based Japanese instruction often emphasizes on the polite form of expression by encouraging students to rather communicate with complete sentences and structured grammar. However, as seen in the
case of Student K, the use of colloquial expressions such as slang or the omission of particular segments of speech worked as an establishment of rapport between the two communicators. These instances support Peterson’s (2012c) findings from the study involving MMORPG interactions by college EFL learners, as Peterson argues that the use of informal language can “reduce social distance, and convey cooperation” (Peterson 2012, p. 369).

**Participants’ Beliefs about Language Acquisition.** While the post study survey, exit slips, as well as semi-structured interviews attempted to elicit participants’ general impressions about CALC curriculum, the complied data showed some of the insights regarding participants’ beliefs and attitudes toward their language acquisition. When participants were asked about their general learning outcomes from the CALC program, a few participants mentioned that grammar acquisition and sentence composition were two of the most highlighted areas of their perceived learning outcomes:

- I have learned new vocabulary and grammar. Also, I have used this course to help me review what I already learned but forgot. (Student C, Final exit slip, p. 3)
- My vocabulary and grammar was improved greatly as well my comprehension. (Student F, Final exit slip, p. 6)
- I learned how to compose my sentences faster. (Student G, Final exit slip, p. 7)
- It also have helped expose me to how native Japanese people form their sentences which has given me more ways to form them than I would have thought of (Student I, Midterm exit slip, p. 9)
- This course is very challenging having to compose Japanese sentences so quickly. (Student K, Midterm exit slip, p. 11)

Perhaps these quotes indicate that even though participants learn to communicate based on the observation, interaction, and input to be received from the task-based instruction in the CALC program, some participants exploited a disposition that the knowledge about
grammar or an ability to compose sentences are essential constituents of language acquisition. This was particularly interesting, since the instructor-researcher did not teach grammar nor sentence structure in the CALC program, let alone taught them neither implicitly nor explicitly throughout the semester. However, unexpectedly in the present study, the participants claimed to have acquired these subskills, indicating them as one of the most helpful things they learned in the CALC program.

Likewise, when participants were asked about whether or not they have encountered any problems as well as their feedback on what could have been more helpful to their learning, some participants requested more of an explicit instruction of vocabulary and grammar. According to Student C, F, H, I and K:

For learning, I feel like I need more vocabulary and to learn better grammar. (Student C, Midterm exit slip, p. 3)

I think the class is quite difficult. Having a weekly worksheet on vocabulary for the classes to come would be quite helpful. (Student F, Midterm exit slip, p. 6)

The only problem was my lack of knowledge of the language. (Student H, Midterm exit slip, p. 8)

My greatest problem was the vocabulary and getting the grammar structure of more advanced sentences. (Student I, Final exit slip, p. 9)

I would have liked more repetition to further instill what we learned in each daily activity. Having a list of specific vocab to constantly memorize would have helped with my ability to understand topics quicker and to remember the lesson in the long run. (Student K, Final exit slip, p. 11)

Despite the participants’ learning growth and progression over time in the proposed CALC program, some participants exploited their beliefs that the explicit grammar and vocabulary instruction will lead to more successful Japanese acquisition. While the supplemental in-class handouts included newly learned vocabularies in a task-based manner (i.e., gaming manual), some participants claimed that they would possibly find it
helpful to have the list of vocabulary and its translation isolated from the context often seen in the regular language textbook.

Furthermore, Student K noted in the exit slip that it would be helpful if the CALC program provided more repetitions of tasks acquired in the lesson. The repetition is in fact helpful for procedural memory retention if the repetition was done to promote parallel sensory input for participants; however, Student K then contradictory suggested that constant vocabulary memorization would be helpful. The latter approach rather follows a structuralist language learning approach, which may possibly hinder students’ performative learning of target language. It can be hypothesized that these participants’ dispositions about what it means to acquire target language and what they think would be helpful to their learning may not always match with what the current theories of SLA have to say about language acquisition. In other words, what participants think or find helpful for Japanese acquisition may utterly be different from what they actually need to do to acquire Japanese. Nevertheless, it is important to note that the participants’ attitudes and beliefs about language acquisition may also depend on the ways in which participants were instructed in their previous language courses.

**Summary of Results and Findings**

The present study utilized qualitatively driven mixed-method case study approach compiling eight sources of data to evaluate an overall curriculum application and its effectiveness of a Computer-Assisted Learning of Communication (CALC) program for Japanese as a Foreign Language (JFL) students (n=11). Based on the semester-length of data collection and multi-method data analyses, the present study indicated some of the empirical evidence in supporting the participants’ natural acquisition of Japanese.
During the orientation phase of the CALC program, the findings suggested the observed instances of participants successfully navigating and following tasks virtually in an all-Japanese environment. The participants, despite individual differences in task completion, accomplished assigned tasks after going through various briefing sessions in navigating virtual world. Upon task completion, participants were also able to maintain what Peterson (2012a) called “intersubjectivity” (p. 32), where the participants collaboratively communicated with each other to facilitate task understanding and project cohesion.

During the exploration phase of the CALC program, the participants’ sophistication in target language outputs was pronounced; in particular, the participants were able to provide persuasive talk while at the same time maintaining the concept of audience during their speech production. Once the CALC program moved onto the activity phase, participants were gradually able to communicate with other Meet-Me users online, along with the instructional modifications applied to the curriculum. Since many assignments conducted in the CALC program were designed to promote collaboration for all Meet-Me users online, participants were able to complete tasks while simultaneously facilitating conversations with native Japanese game users online.

In addition to the qualitative analyses on the participants’ behavioral and linguistic outcomes throughout the semester, the present study conducted a semester-long weekly vocabulary pre- and post-test to assess the following hypotheses: 1) $H_A$: On average, CALC instruction made a difference in participants’ vocabulary acquisition, and 2) $H_0$: CALC instruction made no difference in participants’ vocabulary acquisition. A total of 116 pre- and post-test pairs were collected and analyzed via SPSS, and the results
of Wilcoxon signed rank test suggested that the median post-test scores, Mdn = 6.50, were statistically significantly higher than the median pre-test scores, Mdn = 4.0 (Z = -8.516, p = 0.000) and the increase was large (r = -.56). This would indicate that, on average, the semester-length CALC program elicited a statistically significant gain in students’ vocabulary acquisition. When further statistical tests were conducted to compare vocabulary test categories (kanji pronunciation and kanji interpretation), the similar results were observed; there was, on average, a statistically significant gain in students’ vocabulary acquisition, both for kanji pronunciation (Z = -7.214, p = 0.000, r = -.47) and kanji interpretation (Z = -7.633, p = 0.000, r = -.50). Furthermore, when compared the median difference between vocabulary pre- and post-test per week (from Week 1 through Week 15), the findings appeared to show an accelerated learning growth among participants, possibly implying the increasingly rapid progress of the participants’ vocabulary acquisition. However, based on the micro-level analysis of the participants’ learning growth over the semester, the present study suggested that the individual participant’s increase in pre- and post-test scores varied significantly, and thus possibly resulted in skewing the results.

To respond to the research question three, the present study examined post hoc surveys, exit slips, and semi-structured interview to elicit participants’ attitudes and perceptions toward their participation in the CALC program. Based on the mixed-method analyses of complied data, the participants generally showed their favorability and satisfaction toward the CALC program, despite the challenges and difficulty they faced during the course of their study. When analyzing the participants’ general impressions about the CALC program, the notion of rigor was found to be one of the emerging
themes of the program characteristics. Furthermore, based on the thematic and content analyses of participants’ perceived learning outcomes over time, many participants identified somewhat similar, consistent learning outcomes throughout the semester. When additionally examined for a specific instance of the perceived learning outcomes, some participants expressed an interest about colloquial Japanese expressions, or even learned to utilize them in order to maintain social cohesion and collaboration with other Meet-Me users online.

In spite of the participants’ positive feedback and general impressions about the CALC program, the study affirmed the participants’ subconscious beliefs about language acquisition. While the CALC program was essentially the study of communication to learn functional Japanese in the given virtual simulation of Tokyo, many participants expressed that their successful Japanese acquisition was a result of successful grammar acquisition. In particular, when participants were asked about any suggestions or possible modifications for the CALC program, some proposed that more structuralist, explicit instruction of grammar and vocabulary might be helpful for a complete Japanese learning. While the relationship between what learners think about language acquisition and what SLA theories need to say about language acquisition is a subject of debate for future research, there is a possibility that the participants’ beliefs about Japanese acquisition may utterly be different from what they need to do to acquire Japanese.
Chapter Five
Discussion, Implications, and Conclusion

Summary of the Study

In this dissertation study, the process in which JFL students learned to communicate in the curriculum which was fully based in the 3D virtual simulation of Tokyo has been examined. In particular, the effectiveness of the newly designed instructional approach called Computer-Assisted Learning of Communication (CALC), derived from the overarching theory of Second Language Acquisition (SLA) and Warschauer’s (2004) Integrative Computer Assisted Language Learning (CALL), was analyzed. Since the purpose of the study was to investigate an instantiation of CALC within the context of Japanese as a Foreign Language (JFL) classroom, the study attempted to evaluate the CALC program from multiple perspectives, investigating the area of student learning outcomes, student feedback, curriculum designs, as well as reflective instructional evaluation.

As discussed in the literature review, due to a general lack of empirical evidence within contemporary CALL research, the present study provided both qualitative and quantitative evidence regarding the participants’ learning outcomes in the proposed CALC program. The findings and results in Chapter Four suggested that the participants, when engaged in the semester-long CALC program, acquired contextualized communicative knowledge to function in Japan. Despite the fact that the CALC program did not provide any explicit instructions of grammar or vocabulary, the results of weekly vocabulary pre- and post-tests suggested, on average, a statistically significant gain in kanji pronunciation and vocabulary interpretation. A qualitative analyses on the
participants’ target language (TL) outputs also showed instances when the participants learned to successfully utilize communicative subskills, such as persuasive talk, collaborative communication, and the use of colloquial Japanese, depending on the contexts in which interactions were taken place. Furthermore, the post hoc reflections indicated the participants’ positive attitudes and perceptions toward the CALC program, showing general favorability and satisfaction about their experiences in the program.

While the participants generally agreed that the CALC program was effective in facilitating acquisition of Japanese communicative skills, several participants described their outcomes by referring to the advancement of grammar and sentence composition, although these aspects of language acquisition were never explicitly addressed in the curriculum.

As a final note for this chapter, the present study provides a discussion of the proposed instructional approach: Computer Assisted Learning of Communication (CALC) by revisiting the issues of designing and instructing the theory-based curriculum within the context of JFL classroom. The purpose of this section is to highlight characteristics of CALC from the curriculum design and the instructional point of view, addressing various features of CALC program and its methodological limitations. After the reflective discussion on the proposed CALC program, an evaluation of the overall effectiveness of the CALC program, followed by implications for language teachers who are considering to implement the contemporary CALL practice will be described. The chapter will conclude with suggestions for future studies, presenting a list of possible research foci that would involve CALC curriculum implementation and assessment.
From CALL to CALC: Issues Revisited

The present dissertation study is unique in a way that it involves the entire process of CALC curriculum implementation, ranging from designing the Integrative CALL curriculum that was conceptualized by the current theories of SLA, examining student learning outcomes and progress over time, and lastly, assessing an overall effectiveness of the curriculum from multiple perspectives. From a theoretical standpoint, Chapter One and Chapter Two included a discussion about the dissonant relationship between current SLA and CALL theories, providing a progressive outlook on the CALL history, trends, and issues with an intention of developing a cosmopolitan view of CALL orientation: Computer Assisted Learning of Communication (CALC). From a practical standpoint, the study exemplifies the entire process of applying CALC into practice, with a hope of generating more sophisticated discussion about the role of SLA in the contemporary CALL environment.

While the present study followed a qualitative driven mixed-method case study approach, the study also had elements of participatory action research (PAR). This was where the instructor-researcher intended to take action in transforming a long-lasting language education that focused excessively on teaching and assessing students’ declarative knowledge about language. As an instructor of Japanese as a Foreign Language (JFL), the researcher was particularly motivated to teach students how to function in an all-Japanese environment. Typical lesson plans thus contained task-based activities, ranging from learning to use transportation, learning to shop, or learning to fish so that students would be able to learn to live, join the community, and build mutual relationships with Japanese users online, which could go beyond the activity of the class.
In fact, one of the challenges foreign language educators face today, especially when teaching a foreign language (FL) in the context outside the target language (TL) speaking countries, is the absence of environments in which language and culture are nurtured. Throughout the history of language education, practitioners have made their very best effort to provide authentic materials to their students; however, their considerable effort was often foiled by misconceptions about what language is and what needs to be done to teach one. Due to our living in an age of accountability, practitioners are also under scrutiny for standardized tests that often promote vocabulary rote-memorization and grammar translation. Under such circumstances, language teachers are constantly facing unprecedented pressure to accept a static way of teaching and assessing knowledge about a target language, as contrasted with knowledge about how to perform actions in a target language, or ultimately, how to live life in a target language.

Furthermore, despite the advancement of technology now allowing various collaborative features like massively multiplayer online (MMO) contexts in contemporary CALL research today, both theorists and practitioners “find themselves at the crossroad among disciplines that appear to offer insights for work in CALL” (Chapelle, 1997, p. 19). Because of this, the current trends in CALL research provides a somewhat distorted focus of SLA, rationalizing CALL implementation by means of boosting student motivation, as CALL programs and their features can be fun and engaging especially for today’s students who are “digital natives.” Furthermore, there is a general assumption that contemporary CALL practice has a great potential to supplement language instruction in the classroom, yet never before was it considered to replace
formal classroom instruction with virtual simulations as exemplified in this CALC program.

The lines of inquires discussed thus far were fundamental in developing the CALC approach. As discussed in Chapter Two, the issues in SLA, the issues regarding the distorted focus within contemporary CALL research, lack of theoretical nexus between CALL and SLA, and the long lasting challenges in foreign language education, provided the groundwork for this researcher to reconceptualize contemporary CALL practices today. By conducting the Japanese advanced conversation course entirely in the 3D virtual world of Tokyo, this CALC program was successfully able to provide more situated, immersive, and experiential environment to teach students how to function in Japan. The significance of the study thus lies in the curriculum instantiation itself, in addition to providing various evidence of CALC effectiveness collected and analyzed from multiple sources of data.

**Effectiveness of the CALC Program**

In addition to creating CALC curriculum that was designed to take advantage of the sociocognitive nature of CALL, analyses of data collected throughout the semester yielded statistically significantly positive learning outcomes particularly in regard to students’ natural vocabulary acquisition. This is in fact one of the highlights of the study, as the evaluation of curriculum effectiveness should start from the assessment of potential learning outcomes, investigating whether or not the participants learned to communicate in the CALC program. Based on the qualitative analyses of student learning outcomes, the findings also supported the effectiveness of the CALC program, as the participants acquired specific communicative skills, such as acquisition of persuasive talk, awareness
of audience, use of colloquial Japanese, and evidenced capacity for collaborative actions and task completion. Not only was the CALC program effective in facilitating performance-based outcomes among participants, the program was also effective in supporting the participants’ general favorability and satisfaction about their experiences. This was important as, in fact, positive feedback from the participants is critical for an effective implementation of a CALC curriculum, as the affective elements of SLA play an important role for overall attainment of target language (cf. Krashen & Terrell, 1983).

**Implications for Teaching**

This study illustrated a number of instructional ideas, sample assignments, and performance-based activities that can be implemented or even modified to fit the objectives of any CALC-based foreign language classrooms. In particular, the study utilized a stand-alone 3D virtual world called *Meet-Me*, developing a curriculum in which functional Japanese was taught through collaborative game play. Upon designing the CALC program, *Meet-Me* was selected as a context for various reasons. As discussed in Chapter Three, *Meet-Me* was one of the most populated virtual worlds that exist in Japan today with attractive game features such as a 3D Massive Multiplayer Online (MMO) environment that was free and open for players of all ages. While it might be challenging for language teachers to choose an appropriate virtual environment in other target languages available in the current market, there have been an increasing number of studies that investigate the use of virtual worlds, simulation games, and other MMORPG programs in various contexts of language education (cf. Coleman, 2002; deHaan, 2005; Miller & Hegelheimer, 2006; Ranalli, 2008; Peterson, 2011; 2012a; 2012b; 2012c; 2013).
Speaking from a personal standpoint, the researcher played multiple roles in the present study: a theorist, a curriculum designer, and an instructor of the CALC program. From the instructor’s point of view, the intention of designing and instructing the CALC program was to provide a complete immersive experience for students, where the students learn to communicate through direct experiences in an all-Japanese environment. Since going to Japan through a study abroad program was simply not an option for all the participants in the present study, there was a need to find an alternative environment, such as by making effective use of the 3D virtual reality of Japan in Meet-Me. By providing a Japan-like alternative reality where students learn to function through constant simulations, interactions, and collaboration, the instructor-researcher speculated that the experiences would be as valuable as going on a study abroad program, or even better in the sense that the students could be given a certain anonymity through the use of avatars to avoid social anxiety or embarrassment they may possibly encounter in a face-to-face communicative situation.

In fact, one of the challenges language teachers face in foreign language classrooms is the medium of instruction. As Wilkerson’s study (2008) revealed, in the college-level modern language classrooms there is often a surprisingly limited use of the target language, despite the fact that contemporary practices encourage practitioners to teach in the target language as much as possible. Wilkerson’s study revealed that instructors often relied heavily on English when teaching Spanish as a target language, especially when they needed to save time, demonstrate authority, and reduce ambiguity as a means of providing correct answers and feedback particularly when students were confused during the instruction. This was intriguing, as Wilkerson argued that the lack of
the target language being spoken by the instructors may have influenced students’ articulation, and ultimately impacted their success in acquiring the target language (Wilkerson, 2008).

Wilkerson’s study (2008) examined the use of English only in the Spanish as a Foreign Language classroom. It is likely that similar results would be found in many foreign language classrooms, especially when the primary focus of instruction is language accuracy or grammar translation, although this has not been empirically examined. Typically, language acquisition does not occur when there is a complete lack of context in the input to be received in the target language (cf. Klein, 1986; Yngve, 1996). However, when students are provided with various multisensory input through direct and concrete experiences simultaneously, students will eventually acquire the name of the objects or how to perform tasks in a target language (Coleman, 2005; 2007; cf. Coleman, Hickman, & Wrege, 2007).

From the instructor’s point of view, it is indeed challenging to teach a foreign language in an environment where the target language is not spoken at all by any members of the surrounding community. Even if the instructor brings a textbook or authentic materials that are written in a target language, these materials are not comparable to the amount of input participants receive in the experiential environment, for instance, if they were to be in Japan and do the same activities. This is when the creation of a virtual reality can play an important role; where MMO-based simulation games can serve as a platform to generate meaningful and collaborative actions from students. When practitioners let go of their assumptions about language teaching by shifting focus from teaching about language to teaching how to function in the given
virtual environment, it is possible for practitioners to conduct instruction entirely in a
target language, as they would be demonstrating tasks by doing them, rather than
explaining them. Ultimately, students can learn to take actions in the target language,
while at the same time constantly constructing the breadth of association needed to
function in the given target language speaking environment.

Limitations and Suggestions for Future Research

Results from the present study suggest several directions for future research; in
particular, ideas for future studies can be generated by addressing the methodological
limitations identified in Chapter One. The first limitation is the issue of generalizability
deriving from the research design and site selection. Due to this work being a small scale
case study involving only eleven JFL learners as primary participants of the study (n=11),
it is difficult to generalize the results and findings to other university level JFL student
populations.

Furthermore, while the present study utilized a qualitatively driven mixed-method
case study approach, the context of the present study falls into what Glesne (2011) called
“backyard research” (p. 41), where researchers conduct studies in a familiar environment
such as studying their own intuitions, students, or agency. While backyard research can
be valuable especially when there is an already established rapport between the
researcher and participants, it can also create issues regarding generalizability, as well as
some ethical and political dilemmas that may result in skewing data dynamics and
interpretation. To avoid such possible biases, eight sources of data were collected through
two research phases: 1) a semester-long consent study of the CALC curriculum
implementation, and 2) a post hoc study of the participants’ attitudes and perceptions
regarding the CALC program. While the backyard research method allowed the researcher to engage in rather intense data collection among the participants, future studies may consider larger JFL populations from various instructional settings for a large-scale examination of CALC approach.

In regard to the outcome of the study, the present study found evidence that JFL students learned to communicate in the given CALC environment. While the study recruited all students who were then registered in an advanced conversation course, there was no prior assessment to evaluate students’ primary Japanese proficiency. When focusing more on the micro-level analysis of the individual student’s learning progression, further investigation regarding participants’ background (e.g., level of Japanese proficiency, participant’s academic records of prior Japanese classes, etc.) is necessary to achieve a comprehensive outlook on the CALC phenomenon. While there will be methodological challenges to define what proficiency is and to determine or create and instrument that can be used to assess such ability, future studies could consider the relationship between participants’ backgrounds and their learning growth in the CALC program, examining whether or not participants’ background (e.g., level of Japanese proficiency) predicts their performance.

When considering the curriculum implementation of the CALC program detailed in this dissertation, there is certainly room for additional inquiry. While this study was focused on a semester-long SLA-driven instantiation of the CALC program in an advanced JFL conversation course, future studies could include a longitudinal study that documents participants’ learning over several years. In addition, given that the CALC program can offer lessons entirely in a virtual environment coupled with
instructional materials, future studies many also consider the application of CALC in the area of distance CALL, exploring the possibility of designing and offering learning online or via a hybrid CALC-JFL program. By addressing the game-specific limitations and challenges identified by the participants in the present study (e.g., lack of speech-based in-game communication, high levels of kanji utilized in the game commands, the time difference with Japan causing difficulties in meeting native Japanese speakers online, etc.), distance CALC or hybrid CALC can make language education more accessible to future students.

Furthermore, as a couple of the participants suggested in their post hoc reflections, it could be interesting to design a CALC program that would meet the objectives of elementary and intermediate level JFL courses. By implementing a CALC program for students who have no prior experiences in Japanese, future studies could investigate the dynamics of Japanese acquisition among participants with a variety of experience in learning the language to examine whether or not students benefit from a CALC curriculum from the initial stages of their language acquisition, or whether different degrees of experience and capacity with the target language impacts their experiences in a CALC environment. There is also the a possibility of conducting an experimental study similar to the design utilized in Miller & Hegelheimer’s study (2006) and Ranalli’s study (2008), where these researchers examined the effectiveness of a particular program in comparison to different instructional conditions (i.e., with or without supplemental materials, with or without explicit vocabulary and grammar instruction). While the instructional objectives of the CALC program are quite different from Miller & Hegelheimer’s study (2006) and Ranalli’s study (2008), the
methodological conditions as well as research design could be replicated for future studies.

As a final note, the present study explored the use of a 3D virtual world in a JFL classroom, examining the ways in which participants learned to communicate in through use of a CALC curriculum. While the outcomes of the present study are not conclusive in providing a comprehensive look at the issues of contemporary CALL research today, this study provided evidence that the effectiveness of CALL programs goes beyond increasing motivation for language learning. More specifically, this study introduced a new instructional approach called CALC, emphasizing the importance of practical, task-based teaching for the purpose of acquiring contextualized communicative competence for participants to function in the target language community. Since the use of virtual worlds in language classrooms is a relatively new topic in the field of CALL, further investigation is necessary for designing and teaching CALC-based language courses.

Final Thoughts

As a reflective note of this dissertation study, I would like to conclude with the following excerpts from the post hoc interview with Student H. Just before this excerpt, Student H and I had an extensive discussion about Student H’s overall experiences in *Meet-Me*, sharing insights about what Student H liked and disliked about some of the features of the game. As the interview progressed, Student H noted:

Oh the class? Different! Different…that is the best word to describe. It’s teaching but I am not telling that I am teaching. It is more like, okay, you are learning, you are hearing me, but you are playing this game while you are hearing me…you are learning without actually knowing that you are learning…but you are learning…You are playing the game essentially, but you are learning Japanese. (Student H, interview, p. 3)
I think Student H’s quote indicated something very important about teaching and learning in the context of language education, in particular, the issue of the importance of parallel sensory input, and most importantly, the discussion regarding the notions of implicit verses explicit learning, and procedural knowledge verses declarative knowledge (Paradis, 2009) to name a few. This discussion is, in fact, a long-running, never ending subject of debate among scholars and practitioners in the field of Second Language Acquisition. Because there is a fundamental assumption about language acquisition which encourages learners to “study hard” to obtain a second or foreign language, language learning for many became a subject of discipline, rather than something to facilitate communicative actions. In the following excerpts, Student H continued to prove this point by using the metaphor of knowledge:

Student H: It was definitely a change. Because normally in class, you just sit around, you sit down and then you know, the teacher talks and you just sit still, whereas like I said playing the game, you get excited, you are like excited about the class. You are just happy, just to be glad, you know what’s gonna happen. Today you are gonna come in, and you are gonna get your character, and you are gonna do something active, well it’s not really active, virtually active, but you are doing something with your hand or whatever, with your mind, and you are not just sitting there and being…fed knowledge. You are actually in the center of the knowledge. It’s like a…it’s like, you know funny…it’s like The Magic School Bus [laughs].

Yamazaki: It’s like a school bus?

Student H: It’s like The Magic School Bus. The Magic School Bus is like this old cartoon…where…it was also book, it’s where this classroom they get on this magical bus, and they would go to places like…it was this one episode where one of the boys was sick and they got on the bus and the bus turned into like a small little bus and went inside the little boy’s body and they explored his illness and everything. But that’s what it was like. It’s like that. Just like hey…I am gonna take you in-depth. Come with me, come with me into this world. It’s like jumping into a book, instead of, the book being pushed into your face. (Student H, interview, p. 3)
During this interview session with Student H, I was fairly confused about what Student H had said about *The Magic School Bus* to describe the characteristics of the CALC program. After the interview session, I opened my browser to search for *The Magic School Bus*, and soon found several episodes, including *Inside Ralphie* mentioned by Student H. While I have never been aware of this animated TV series before, I soon came to acknowledge the magic of experiential teaching and learning depicted in this show after watching a couple of episodes, in particular, when *The Magic School Bus* took teacher and students to explore inside of the student’s body to learn about the function of body and sickness. With the advancements in technology now allowing complex and intricate simulation gaming and virtual reality (VR), I believe designing our own versions of *The Magic School Bus* is already possible in contemporary CALL today.
References


doi:10.1080/0958822940070207


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**Web Resources Referenced**

Meet-Me: [http://www.meet-me.jp/](http://www.meet-me.jp/)


World of Warcraft: [http://us.battle.net/wow/en/](http://us.battle.net/wow/en/)


Wonderland: [http://wl.igg.com/](http://wl.igg.com/)

Active Worlds: [www.activeworlds.com/](http://www.activeworlds.com/)

## Appendix A

### Eight Sources of Empirical Study

**Experimental Design with Statistical Evidence**

<table>
<thead>
<tr>
<th>Citation</th>
<th>CALL Environment</th>
<th>Participants</th>
<th>Research Questions</th>
<th>Data Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miller &amp; Hegelheimer (2006)</td>
<td><em>The Sims</em></td>
<td>University Intermediate-level ESL students (n=18)</td>
<td>Does receiving explicit vocabulary instruction prior to completing a computer simulation task enhance vocabulary acquisition? Do students use the supplemental materials? If so, do they perceive the materials as helpful in understanding and completing the simulation? After experiencing three conditions of supportive material, which supplemental materials do students perceive as being the most helpful? Which are the least helpful?</td>
<td>1. Pre- &amp; Post-Tests 2. Pre- &amp; Post-Project Survey 3. Weekly Quizzes 4. Questionnaires (three scale response &amp; short surveys)</td>
</tr>
<tr>
<td>Ranalli (2008)</td>
<td><em>The Sims</em></td>
<td>University Intermediate-level ESL students (n=9)</td>
<td>Does structured play of the computer simulation game <em>The Sims</em> facilitated by the use of supplementary materials lead to vocabulary acquisition? How do the participants respond to the supplementary materials and modified mode of play? Do participants enjoy playing the game and perceive it as useful for language learning?</td>
<td>1. Pre- &amp; Post-Tests (matching, multiple choice, &amp; short answer of 30 words) 2. Pre- &amp; Post-Project Survey (participants’ background, Likert scale survey) 3. Weekly Quizzes (10 words)</td>
</tr>
</tbody>
</table>
### Qualitative Design (Discourse Analysis)

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<th>Citation</th>
<th>CALL Environment</th>
<th>Participants</th>
<th>Research Questions</th>
<th>Data Collected</th>
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<tbody>
<tr>
<td>Peterson</td>
<td><em>Allods Online</em></td>
<td>University EFL students (n=7)</td>
<td>What are the significant features of learner interaction?</td>
<td>1. Pre-study questionnaires (participants’ background)</td>
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<td>3. Fieldnotes</td>
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<td>4. Post-study questionnaires</td>
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<td>5. Informal post-study interviews</td>
</tr>
<tr>
<td>Peterson</td>
<td><em>Second Life</em></td>
<td>University EFL students (n=8)</td>
<td>Do EFL learners engage in collaborative social interaction in Second Life?</td>
<td>1. Pre- &amp; Post-Tests (matching, multiple choice, &amp; short answer of 30 words)</td>
</tr>
<tr>
<td>(2012a)</td>
<td></td>
<td></td>
<td>In what ways, if any, did the computer-based nature of the interaction and the communication tools provided by Second Life facilitate the production of TL output?</td>
<td>2. Pre- &amp; Post-Project Survey (participants’ background, Likert scale survey)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>What are learner attitudes toward interaction in Second Life?</td>
<td>3. Weekly Quizzes (10 words)</td>
</tr>
<tr>
<td>Peterson</td>
<td><em>NineRift</em></td>
<td>University Intermediate-level EFL students (n=6)</td>
<td>During interaction in a MMORPG, do learners utilize interaction management strategies, and engage in types of TL interaction involving collaboration that are held to be beneficial in SLA research?</td>
<td>1. Participants’ text-chat interaction (chat logs)</td>
</tr>
<tr>
<td>(2012b)</td>
<td>(2D virtual world MMORPG)</td>
<td></td>
<td>What are learner attitudes toward game play in a MMORPG?</td>
<td>2. Researcher observation and fieldnotes</td>
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<td>3. Pre- and Post-study questionnaires</td>
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<td></td>
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<td></td>
<td></td>
<td>4. Interviews</td>
</tr>
</tbody>
</table>
Qualitative Design (Discourse Analysis Continued)

<table>
<thead>
<tr>
<th>Citation</th>
<th>CALL Environment</th>
<th>Participants</th>
<th>Research Questions</th>
<th>Data Collected</th>
</tr>
</thead>
</table>
| Peterson (2012c) | Wonderland (2D animation manga-like MMORPG) | University EFL students (n=4) | What are the significant features of EFL learner linguistic and social interaction in a MMORPG?  
What are learner attitudes toward participant in MMORPG-based gaming? | 1. Recorded text-chat interaction (chat logs)  
2. Pre- and Post-study questionnaires  
3. Personal interviews (post hoc) |

Qualitative Design (The Case Study)

<table>
<thead>
<tr>
<th>Citation</th>
<th>CALL Environment</th>
<th>Participants</th>
<th>Research Questions</th>
<th>Data Collected</th>
</tr>
</thead>
</table>
| Peterson (2013) | Wonderland (2D animation manga-like MMORPG) | University EFL students (n=10) | During game play in a commercial MMORPG do learners engage in forms of TL interaction that are identified as beneficial in social accounts of SLA? If so, what types of interaction do they undertake?  
What are learner attitudes toward gameplay in a commercial MMORPG? | 1. Screen-capture recordings of text-chat interaction (chat logs)  
2. Fieldnotes of significant events  
3. Post-study questionnaires  
4. Semi-structured interviews (post hoc) |
Qualitative Design (The Case Study Continued)

<table>
<thead>
<tr>
<th>Citation</th>
<th>CALL Environment</th>
<th>Participants</th>
<th>Research Questions</th>
<th>Data Collected</th>
</tr>
</thead>
</table>
| deHaan (2005) | Nintendo 64 video game:  
*Jikkyo Pawafuru*  
*Puro Yakkyu 6* | University part-time JFL student (n=1) | Is it difficult for a particular JFL student to balance game play and language learning while playing a Japanese baseball video game?  
Can a particular JFL student improve his listening comprehension by playing a Japanese baseball video game?  
Can a particular JFL student improve his reading comprehension by playing a Japanese baseball video game?  
How does a particular JFL student use a baseball video game’s repetition, contextual clues, controllability, and simultaneously presented aural and textual language to learn language? | 1. Pre-test composed of 55 kanji characters, asking the participant to write the pronunciations  
2. Pre-test consisting of 47 common words and expressions from the game, asked the participant to translate into English the best he can (Recorded)  
3. Video recording of one hour game play (play, react, & ask questions to the researcher in English)  
4. A short interview  
5. Seven game logs collected from his at-home gaming phase  
6. Kanji Post-test and 2) Aural Post-test |
Appendix B

Syllabus for the CALC-JFL Course

Course Description
This course prepares students to effectively facilitate conversation in an all-Japanese environment. The course is designed for students who have completed the foundational courses (JAPN**** through JAPN ****, preferably in addition to other ****- and ****-level courses) to develop an advanced level of proficiency in Japanese. In particular, this course focuses on the speaking and cultural activities to help attain specific skills that are needed to function in Japan. Since an experiential and immersive environment is key for successful language acquisition, most of our classes are located in the virtual city of Tokyo; in other words, students who are enrolled in this course will be going to Tokyo virtually and explore the city as if they were going on a short study abroad trip in Japan. Through various thematic units covering day-to-day situations, students will learn to communicate, express themselves, and solve problems that occur in socio-cultural contexts. Students will be exposed to authentic materials with various simulations and demonstrations, thereby acquiring cultural knowledge in order to best present themselves in a Japanese-speaking environment.

The course is organized into 15 modules outlined in the course schedule below (page number). Instructions will be given entirely in Japanese, and it is the student’s responsibility to prepare in advance for the class and ask questions for clarification on assignments. Because this course is a conversational class with a lot of group work, your regular attendance and active participation is required for a successful outcome.

Course Objectives
By the end of the semester, the student will be able to:
1) Ask and respond to questions appropriately
2) Demonstrate ideas and feelings effectively
3) Follow and navigate directions
4) Communicate with native speakers of Japanese collaboratively
5) Present persuasively
6) Give a well-structured short speech

Required Textbook
There is no required textbook for this class; all reading materials will be made available online. You will find an outline of topics and assignments in the course schedule below.

Technology Requirements
This is a web-assisted course, meaning that we will meet weekly in a traditional classroom setting but will supplement and even replace some class work with online activities. Access to a computer with an Internet connection is required. You will need to access materials for this course, in addition to materials and assignments that you submit, through the Blackboard course site.

Blackboard
Go to University’s Blackboard homepage: (link)
You will need your user name and password to log in.
If you are new to Blackboard and find the website a little difficult to navigate, please don’t worry – take some time to explore the site and contact office (link) for help if you need it. I will also walk you through this process in class, or you can make a personal appointment with me during office hours for help.

**Software**

On your computer, you must have the necessary tools and up-to-date software and plug-ins: Microsoft Office, Adobe Reader, and Flash Player. If you need to obtain a copy of these, contact IT at ###-###-####. Additionally, this course will be using the following software, for which I will provide further instructions in class on how to access:

- **Meet-Me** 3D Virtual World: [http://www.meet-me.jp/](http://www.meet-me.jp/)

  To fully participate this course, you need to download the software called Meet-Me, the 3D virtual city of Tokyo. This is a free game anyone can download once you create an account. The only limitation is that you have to have Windows as an operating system, so please consult with me if you are a Mac user. In this case, I would lend you a Windows laptop throughout the semester for you to use in class or at the Foreign Language Lab. Detailed instructions on how to install this program will be given in the first two weeks of the class.

  How do I start Meet-Me? See: [http://www.meet-me.jp/howto/member](http://www.meet-me.jp/howto/member)  
  (Japanese Only)  
  (Step 1: Create an account, Step 2: Download an application)

**Course Assignments Policy**

- **No English Policy**

  Since this is an advanced conversation course, I want all of you to understand the importance of maintaining an all-Japanese environment. Since you only get a total of 150 minutes per week to immerse yourself completely in Japanese, there will be no English allowed in class. This is seemingly challenging at first, but you will soon get acclimated to this environment. To help you understand the instructions, please familiarize yourself with the following statements:

  先生、わかりません。
  先生、○○○って、なんですか？
  先生、○○○は英語で なんと言いますか？
  先生、もう一度 おねがいします。
  先生、もうすこし ゆっくり おねがいします。
  先生、たすけて ください。

1. **Attendance and Participation (10%)**

   Attending each class is mandatory. If you are absent, it is your responsibility to acquire missed notes from classmates. You may also schedule an appointment during my office hours for any assignment make-ups. Late assignments can be
turned in late but will receive a penalty. Please see the Late Assignment Policy below for more information about the penalty. If you miss a class more than two times without submitting formal written documentation to me, you will receive zeros for attendance. If you arrive late to class (more than 15 min), you will be given a zero in attendance for that day.

✓ **Late Assignment Policy**

It is important that you complete all assignments on time, as they are designed to support your growth and understanding of the topics being studied. Papers and homework assignments not turned in on time will receive a grade penalty: major assignments such as *Persuasive Pair Presentation* and *Three-Minute Speech* will lose 10%, and weekly assignments such as *Weekly Game Log*, *Weekly News Comprehension*, and *Tokyo Tour Guide* will lose 50% unless prior arrangements have been made with the instructor (i.e. show formal written documentation of your absence, such as doctor’s notes, family emergency, etc.). Papers and presentations are considered late if not turned in by the deadline (dates and time) written in the detailed schedule below or in the detailed assignment guide.

2. **Weekly Game Log (20%) a.k.a. WGL**

Once you learn the basics of how to navigate *Meet-Me*, you will start playing the game outside class as a homework assignment. You are required to log-in and play the game at least 30 minutes twice a week, then write a Weekly Game Log (WGL) of your experience. There are a total of 10 WGLs throughout the semester, and each WGL should be at least one page in length. Since there is a different agenda and quests for you to follow every week, please make sure to check our Blackboard course website and look at the information under the *Weekly Game Log* folder for further information about procedures and deadlines. When writing WGLs, please also know that all of your logs should be typed in Japanese, double-spaced with 12-point, preferably “DFKai-SB,” font. All versions of Microsoft Word will have the option of “DFKai-SB;” there is no need to download an additional foreign font. Once you have completed your WGL assignment, please submit your work on Blackboard course website under the *Weekly Game Log* folder.

In addition to the WGLs you will be writing throughout the semester, I request all of you to log-in and play the game as frequently as you can to make sure if your version is up-to-date. Often time there is a software update that asks you to wait about 30-40 minutes (depending on your internet speed etc.), especially when you do not play the game for such a long time. While your WGL assignment allows you to avoid this issue, please keep in mind to always log-in to check the status of your game BEFORE our class starts on Monday at 2:00. The most wasteful thing we may face is the long-term update right when our class starts since you will not be able to fully participate in that class lesson until the update is complete. The more you play, the better you will become; so please try your best to play as much as you can in your free time. It is also important to keep working (i.e. fishing or collecting insects) to earn virtual money called ココア (cokoro) as much as you can, since you will be able to use it for many different occasions both in and outside the classroom.
3. Tokyo Tour Guide (10%) a.k.a. TTG
Around week 7 of our tentative course schedule, we will start exploring some of the main sites and tourist attractions in virtual Tokyo. The list of sites being visited include: Harajyuku (原宿), Shinjyuku (新宿), Akihabara (秋葉原), Asakusa (浅草), Odaiba (お台場), and Roppongi (六本木). In this assignment, you will work as a Tokyo Tour Guide (TTG) to show and tell some of the best qualities you find in the assigned location of your choice. To do so, you will first need to visit the site on your own and find some of the “hot spots” in advance. While on site, take pictures (screenshot) of the spots and save them onto your computer. Further, write notes on why and what you found interesting.

The next step is to prepare yourself for a Show & Tell session in class using all the information you gathered on site. The Show & Tell session will be given at the beginning of each lesson. Since you are a tour guide, it is required that you prepare a visually-attractive handout in Japanese for all the members in class so that you can convince them to visit such places (please see or use the sample flyers on Blackboard). Your Show & Tell session should be given entirely in Japanese and the session should be approximately 10-15 minutes. Please know that everyone must sign-up to be a TTG at least one time throughout the semester. For an assessment, you will be evaluated based on the two parts: 1) your performance during the Show & Tell, and 2) your handout with the list of hot spots.

4. Weekly News Comprehension (20%) a.k.a. WNC
Since we are currently in an English-speaking country, it is important that you set a time to fully immerse yourself in an all-Japanese environment each day. In this assignment, you will read and listen to weekly news provided by NHK, the national broadcasting corporation (http://www3.nhk.or.jp/news/easy/). This website is called News Web Easy, which was specially created for audiences for which Japanese is a second/foreign language. The website provides up-to-date issues and events occurring both nationally and internationally. In addition, these news files also include transcripts that you can read while listening. They also have a built-in dictionary that will help you understand the meaning of a word or difficult kanji specific to the news.

By doing this assignment, you will not only improve your listening and reading proficiency, but you will also gain background knowledge about contemporary issues in Japan. Contemporary social issues are often assessed in employment-related interviews and other life situations; thus, it is important that you prepare yourself for it. Also, knowing social events and issues in Japan will help you start or expand conversation with your friends and co-workers.

There will be a total of 10 Weekly News Comprehension assignments throughout the semester, and each assignment is graded based on a 100-point scale (total 20%). In each week, you will be assigned to read and listen to one newscast of your choice from News Web Easy. As a reflection of each daily news, you will write a one-page (typed, double-spaced with 12-point, preferably “DFKai-SB,” font) reflective response in Japanese. Detailed instructions of how to use this news website will be given in class, but I recommend that you access it and familiarize yourself with the format. Once you have completed your WNC
assignment, please submit your work on Blackboard course website under the Weekly News Comprehension folder.

5. Persuasive Pair Presentation (20%)
In this assignment, you will find a partner in class (or solo if you prefer) to give a 20-minute presentation entirely in Japanese using PowerPoint. The purpose of this assignment is to practice persuasive talk, since such communicative skills are necessary in any diplomatic circumstance in Japan. Also, if you are considering teaching English in Japan or working in a Japanese company, an ability to persuade others and convince your peers is an essential social skill.

The topic of this presentation is: Why “University Name”? Your task is to provide a 20-minute presentation with your partner that would convince Japanese high school students to come to the University. Since Japanese high school students generally do not speak adequate English, the presentation has to be given entirely in Japanese. Treat this assignment as an internship; imagine as if you are working as an international recruiter with your co-worker (in other words, your partner) to promote the best part of the University. Your job is to attract future international students from Japan by providing exciting and inspirational information.

The presentation must include a short introduction of the speakers, a clear presentation of the main points with adequate supporting details (including visual and audio aid, food, etc.). You may play video during the interview, but please know that it has to be relevant to supporting your claim and should be less than 4 minutes. Once again, the purpose of this assignment is how well you present the content in a persuasive manner. At the end of the presentation, please make sure to include an opportunity for the audience to ask questions. You must also provide a short oral/written activity to assess the comprehensibility of the presentation. I will provide an assignment guide later with more detailed information about exactly what your presentation should include.

6. Three-Minute Speech (20%)
In this assignment, you will be asked to 1) compose a three-minute speech in Japanese, and 2) perform it to the audience at the end of the class (December 18th, final exam). The objectives of this assignment are to showcase your talent as being a (Name of the University) JFL (Japanese as a Foreign Language) student, in addition to preparing yourself to express your thoughts and beliefs freely to a Japanese-speaking community. The topic of the speech is yours to choose; it could be things you like (わたし好きな○○), your future (わたしの将来), or your opinion or thoughts (わたしの意見、考え). The speech must be three minutes long and it has to be audio-recorded for final submission. The 25% of the grade consists of:

- Written essay script of the three-minute speech (10%)
- Speech presentation given individually in class on Submission of an audio file of your speech (10%)

I encourage all of you to submit your speech to the Annual Japanese Speech Contest, hosted by ABCDE. The deadline of the application is usually January in
the following year. If elected, you will have a chance to go to ABC to present and possibly win an award! Detailed information about ABCDE’s Annual Japanese Speech Contest can be found at: link

**Grade Evaluation**

<table>
<thead>
<tr>
<th>Attendance &amp; Class Participation</th>
<th>10 %</th>
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<tbody>
<tr>
<td>Weekly Game Log</td>
<td>20 %</td>
</tr>
<tr>
<td>Tokyo Tour Guide</td>
<td>10 %</td>
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<tr>
<td>Weekly News Comprehensions</td>
<td>20 %</td>
</tr>
<tr>
<td>Persuasive Pair Presentation</td>
<td>20 %</td>
</tr>
<tr>
<td>Three-Minute Speech</td>
<td>20 %</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100 %</strong></td>
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</table>

**Grading Scale**

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<th>Cut-off Points</th>
<th>Letter Grade</th>
<th>Cut-off Points</th>
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<tbody>
<tr>
<td>A</td>
<td>100-94</td>
<td>C</td>
<td>76-74</td>
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<tr>
<td>A-</td>
<td>93-90</td>
<td>C-</td>
<td>73-70</td>
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<tr>
<td>B+</td>
<td>89-87</td>
<td>D+</td>
<td>69-67</td>
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<td>B</td>
<td>86-84</td>
<td>D</td>
<td>66-64</td>
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<tr>
<td>B-</td>
<td>83-80</td>
<td>D-</td>
<td>63-60</td>
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<td>C+</td>
<td>79-77</td>
<td>F</td>
<td>59-0</td>
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**Extra Credit Opportunities**

You will have multiple extra credit opportunities for this semester. Although not confirmed, here is the list of possible extra credit opportunities so far. Possibly, more opportunities may be announced later in the semester.

**Academic Integrity**

Academic integrity is a key component of professionalism. It is expected that all students uphold the principles of academic integrity in their work for the class. Students who do not follow these principles may be subject to disciplinary action. Please refer to this website (link) for more information.

It is essential that you cite all sources of ideas and quotes correctly and completely (including web-based resources). If you are in doubt about how to proceed in a professional manner, please ask me.

**Special Accommodations**

The Americans with Disabilities Act (ADA) requires that reasonable accommodations be provided for students with physical, sensory, cognitive, systemic, learning, and psychiatric disabilities. In accordance with ADA and university policy, if you have a documented disability and require accommodations to obtain equal access in this course, please contact the instructor at the beginning of the semester. Please also contact Student Disability Services for verification of eligibility at ###-###-#### (voice) or ###-###-##### (TDD).
<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Topics &amp; Contents</th>
<th>Dues &amp; To-do's</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1</td>
<td>Course introduction</td>
<td>Bring your own computer (Windows only)</td>
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<td></td>
<td></td>
<td>• Review syllabus &amp; assignment</td>
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<td>• Getting to know each other</td>
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<td>Getting started</td>
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<td>• Download &amp; install Meet-Me</td>
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<td>• Assignment instruction</td>
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<td>Week 2</td>
<td>Traveling to virtual Tokyo</td>
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<td>• Set-up your avatar</td>
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<td>• Learn basic navigation</td>
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<td>• Communication tools (chat, cellphone, letter)</td>
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<td>Week 3</td>
<td>Exploring the neighborhood</td>
<td>WGL 1 &amp; WNC 1 due on Sunday, at 11:59PM</td>
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<td></td>
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<td>• Visit your room &amp; Cocoiko Park</td>
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<td>• Describe sites and objects</td>
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<td>Using transportation</td>
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<td>• Train &amp; bus system</td>
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<td>• Use of map, GPS, navigation system</td>
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<td>Week 4</td>
<td>Learning to fish (earn virtual money)</td>
<td>WGL 2 &amp; WNC 2 due on Sunday, at 11:59PM</td>
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<td></td>
<td>• Visit nearby river, pond, and ocean</td>
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<td></td>
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<td>• Use of fish reference book</td>
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<td></td>
<td>• Exchange them for a virtual money</td>
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<td></td>
<td>Learning to catch insects (earn virtual money)</td>
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<td>• Visit nearby forests</td>
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<td>• Use of insects reference book</td>
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<td>• Exchange them for a virtual money</td>
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<td>Week 5</td>
<td>Learning to shop</td>
<td>WGL 3 &amp; WNC 3 due on Sunday, at 11:59PM</td>
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<td></td>
<td>• Go to イオン JUSCO</td>
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<td>• Shop necessary items</td>
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<td>Exploring Shibuya (渋谷)</td>
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<td></td>
<td>• What is there in Shibuya?</td>
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<td>• Activity: Shopping in Shibuya</td>
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<td>Week 6</td>
<td>Introduction to Speech [3-Minute Speech]</td>
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<td>• Assignment instruction</td>
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<td>• Brainstorming in class</td>
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<td>Introduction to Presentation [PPP]</td>
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<td>• Forming a pair</td>
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<td>• Assignment instruction</td>
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<td>• Brainstorming in class</td>
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<td>Week 7</td>
<td>Exploring Harajyuku (原宿)</td>
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<td>• TTG Presentation</td>
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<td>• Comparing Takeshita Street &amp; Omote Sando</td>
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<td>Exploring Shinjyuku (新宿)</td>
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<td>• TTG Presentation</td>
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<td>TTG (4 students) due in class</td>
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<td>WGL 4 &amp; WNC 4 due on</td>
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<td>Week 8</td>
<td>Midterm Conference</td>
<td>Sunday, at 11:59PM</td>
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<td>Student must submit the script of a three minute speech essay and consult with the instructor</td>
<td>Three-Minute Speech Essay script due in office</td>
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<td>Week 9</td>
<td>Exploring Akihabara (秋葉原)</td>
<td>TTG (4 students) due in class</td>
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<tr>
<td></td>
<td>TTG Presentation</td>
<td>WGL 5 &amp; WNC 5 due on Sunday, at 11:59PM</td>
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<td></td>
<td>Making Tomodachi</td>
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<td></td>
<td>Exploring Asakusa (浅草)</td>
<td>TTG (4 students) due in class</td>
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<td></td>
<td>TTG Presentation</td>
<td>WGL 6 &amp; WNC 6 due on Sunday, at 11:59PM</td>
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<tr>
<td></td>
<td>Activity: Take pictures at 雷門, look around Asakusa Street Market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td>Exploring Odaiba (お台場)</td>
<td>TTG (4 students) due in class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TTG Presentation</td>
<td>WGL 7 &amp; WNC 7 due on Sunday, at 11:59PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swimming in お台場海浜公園</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Exploring Roppongi (六本木)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TTG Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Exploring Ikebukuro (池袋)</td>
<td>WGL 8 &amp; WNC 8 due on Sunday, at 11:59PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What is there in Ikebukuro?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finding Ginza (銀座)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What is there in Ginza?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td>Buying a car at Toyota Auto Mall</td>
<td>Bring your own computer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of Toyota car do you want?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>※Bring: Toyota Gold Ticket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Driving on the Highway</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learn to drive your car</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td>Visit Attraction: サッカー練習場</td>
<td>WGL 9 &amp; WNC 9 due on Sunday, at 11:59PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How do we get to サッカー練習場？</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activity: Let’s play soccer together!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visit Attraction: 虫捕りパーク</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How do we get to 虫捕りパーク？</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activity: Insects Collector Championship!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>※Bring: Attraction Ticket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 14</td>
<td>PPP Work-in-Group Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student must bring the pictures and necessary resources to make PowerPoint for your presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 15</td>
<td>Intensive Fishing Tour 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>メタポリスマリーナ 深海魚ツアー</td>
<td>WGL 10 &amp; WNC 10 due on</td>
<td></td>
</tr>
<tr>
<td>Week 16</td>
<td>Persuasive Pair Presentations</td>
<td>Persuasive Pair Presentation due in class</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------</td>
<td>------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>Final Exam (12:30-2:30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Each student will give 3 minute speech</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Submit to the 16th Annual Japanese Speech Contest</td>
<td>Three-Minute Speech due in class</td>
<td></td>
</tr>
</tbody>
</table>

（※Bring: 竿代 2000 ココア）
Intensive Fish Tour 2: 秘境釣りツアー
- 竹芝駅（※Bring: Attraction Ticket）
Sunday, at 11:59PM
Appendix C
Tokyo Tour Guide (TTG) Assignment Guide

**Tokyo Tour Guide (TTG) Assignment Guide**

**Description:** Around week 7 of our tentative course schedule, we will start exploring some of the main sites and tourist attractions in virtual Tokyo. The list of visiting sites includes (although subject to change): Harajuku (原宿), Shinjuku (新宿), Akihabara (秋葉原), Asakusa (浅草), Odaiba (沖縄), and Roppongi (六本木). In this assignment, you will work as a Tokyo Tour Guide (TTG) to show and tell some of the best qualities you find in the assigned location of your choice.

**What to do:**
1. First, you will need to visit the site on your own and find some of the “hot spots” in advance.
2. While on site, take pictures (screenshot) of the spots and save them on your computer.
3. Take notes on why you found the spots interesting.
4. Prepare yourself for a Show & Tell session in class using all the information you gathered on site.
5. Create a visually-attractive flyer for your Show & Tell session.

**What is Show & Tell?**
The Show & Tell session will be given at the beginning of each lesson. Since you are a tour guide, it is required that you prepare a visually-attractive flyer in Japanese for all the members in class so that you can convince them to visit such places. Your Show & Tell session should be given entirely in Japanese and the presentation should be approximately 10-15 minutes. Please know that everyone must sign-up below to be TTG at least one time throughout the semester.

**Sign-up:**

<table>
<thead>
<tr>
<th>Due Dates</th>
<th>Location</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>原宿 (Harajuku)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>新宿 (Shinjuku)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>秋葉原 (Akihabara)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>浅草 (Asakusa)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>沖合 (Odaiba)</td>
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<tr>
<td></td>
<td>六本木 (Roppongi)</td>
<td></td>
</tr>
</tbody>
</table>

**Grading Rubric (10%):**

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show &amp; Tell</td>
<td>Did you appear comfortable and prepared in your show &amp; tell presentation? Did you use gestures and inflection to present your ideas? Did you include one or two tourist spots specific to the assigned location? Did you encourage/convince the audience to visit the tourist spots? Was it persuasive? Was the audience engaged? Did the presenter receive a lot of questions?</td>
<td>5%</td>
</tr>
<tr>
<td>Flyer</td>
<td>Did the flyer include a picture (screenshot) of the attractions? Did the flyer include a brief description of the listed attraction?</td>
<td>5%</td>
</tr>
</tbody>
</table>
Appendix D
20-item Post Study Survey

Post Hoc Reflections on the Virtual World Japanese Learning Experiences

Please continue to take 20-items survey on the next page. For each item please indicate your degree of agreement by placing an X-mark in the appropriate box.

For each item identified below, please answer the following questions by placing an x-mark in the appropriate box.

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would like to play Meet-Me again in the future.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2. I enjoyed playing Meet-Me overall.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. I could work at my own pace in Meet-Me.</td>
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<tr>
<td>4. Meet-Me was easy to play.</td>
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</tr>
<tr>
<td>5. The chat system (i.e. log and cellphone) in Meet-Me was easy to use.</td>
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</tr>
<tr>
<td>6. Having my own avatar made me feel more engaged in the game.</td>
<td></td>
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</tr>
<tr>
<td>7. The 3D renderings of Meet-Me helped me understand the relative landscape of Tokyo.</td>
<td></td>
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</tr>
<tr>
<td>8. Other players/users of Meet-Me were helpful.</td>
<td></td>
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<tr>
<td>9. I have interacted with people (avatars) outside of class in Japanese.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>10. The chat system (i.e. log and cellphone) in Meet-Me helped me communicate in Japanese easily with others.</td>
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<td></td>
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<tr>
<td>11. Having my own avatar helped me to communicate in Japanese easily with others.</td>
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</tr>
<tr>
<td>12. I enjoyed interacting with others in Meet-Me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13. I could easily follow the conversation in the chat/cellphone features.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I could learn new words and expressions through Meet-Me.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. The chat system (i.e. log and cellphone) in Meet-Me was a good way to improve my Japanese speech.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I could learn new vocabularies through various Meet-Me navigations (i.e. icons, inventory, pop-up windows, etc.).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I did not feel like I was learning when playing Meet-Me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I did not learn anything from Meet-Me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Playing Meet-Me made me use my Japanese more than in a regular class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Meet-Me allowed me to express my opinion more freely than in a regular class.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Thank you for completing this survey.
Appendix E

Semi-Structured Interview Protocol

The purpose of this study is to explore Japanese as a Foreign Language (JFL) students’ perceptions, attitudes, and beliefs about the Computer-Assisted Learning of Communication (CALC) curriculum. This interview will last no longer than 15 minutes unless you want to talk longer. Do you have any questions before we begin?

Questions:
1. Briefly describe your experiences playing Meet-Me. What were your experiences with Meet-Me like?
   Follow-ups:
   What is your first impression about Meet-Me?
   How did your experience of Meet-Me progress over the semester?
   Would you continuously play Meet-Me after this semester?
   How likely would you recommend the game Meet-Me to your friends?

2. In your view, what were the good points of playing the game?
   Follow-ups:
   What were the most helpful things you liked about the game?
   Did you like the communication tool such as cellphone, chat/log system?

3. Did you encounter any problems?
   Follow-ups:
   What could have been more helpful to your Japanese learning?
   Did you encounter any communication problems?
   If so, what did you do to resolve it?

4. Do you think playing Meet-Me improved any of your Japanese skills? Please explain or specify.
   Follow-ups:
   What part of Japanese skills would you say was improved?
   What aspects of the games (communication tools, landscape, transportation, etc.) did you find helpful for your language learning?

5. What were your overall experiences with this course (i.e., virtual-world based language learning course)?

6. Is there anything else you would like to tell the researcher about your experiences participating in the course or the game, Meet-Me?
Appendix F

Post Study Survey Results: Frequency Table

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>5(27.3)</th>
<th>4(54.5)</th>
<th>3(9.1)</th>
<th>2(9.1)</th>
<th>1(9.1)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would like to play Meet-Me again in the future.</td>
<td>4.0</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>2. I enjoyed playing Meet-Me overall.</td>
<td>4.3</td>
<td>5</td>
<td>4(54.5)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>3. I could work at my own pace in Meet-Me.</td>
<td>3.7</td>
<td>4(36.4)</td>
<td>3(27.3)</td>
<td>1(9.1)</td>
<td>3(27.3)</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>4. Meet-Me was easy to play.</td>
<td>4.0</td>
<td>4(36.4)</td>
<td>4(36.4)</td>
<td>2(18.2)</td>
<td>1(9.1)</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>5. The chat system (i.e., log and cellphone) in Meet-Me was easy to use.</td>
<td>4.2</td>
<td>4(36.4)</td>
<td>5(45.5)</td>
<td>2(18.2)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>6. Having my own avatar made me feel more engaged in the game.</td>
<td>4.6</td>
<td>8(72.7)</td>
<td>2(18.2)</td>
<td>1(9.1)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>7. The 3D renderings of Meet-Me helped me understand the relative landscape of Tokyo.</td>
<td>3.9</td>
<td>3(27.3)</td>
<td>4(36.4)</td>
<td>4(36.4)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>8. Other players/users of Meet-Me were helpful.</td>
<td>3.5</td>
<td>2(18.2)</td>
<td>4(36.4)</td>
<td>3(27.3)</td>
<td>1(9.1)</td>
<td>1(9.1)</td>
<td>11</td>
</tr>
<tr>
<td>9. I have interacted with people (avatars) outside of class in Japanese.</td>
<td>3.5</td>
<td>4(36.4)</td>
<td>3(27.3)</td>
<td>0</td>
<td>3(27.3)</td>
<td>1(9.1)</td>
<td>11</td>
</tr>
<tr>
<td>10. The chat system (i.e., log and cellphone) in Meet-Me helped me communicate in Japanese easily with others.</td>
<td>3.8</td>
<td>3(27.3)</td>
<td>4(36.4)</td>
<td>3(27.3)</td>
<td>1(9.1)</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>11. Having my own avatar helped me to communicate in Japanese easily with others.</td>
<td>3.5</td>
<td>2(18.2)</td>
<td>4(36.4)</td>
<td>4(36.4)</td>
<td>0</td>
<td>1(9.1)</td>
<td>11</td>
</tr>
<tr>
<td>12. I enjoyed interacting with others in Meet-Me.</td>
<td>3.9</td>
<td>2(18.2)</td>
<td>6(54.5)</td>
<td>3(27.3)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>13. I could easily follow the conversation in the chat/cellphone features.</td>
<td>3.2</td>
<td>1(9.1)</td>
<td>3(27.3)</td>
<td>4(36.4)</td>
<td>3(27.3)</td>
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<td>11</td>
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<tr>
<td>14. I could learn new words and expressions through Meet-Me.</td>
<td>4.4</td>
<td>4(36.4)</td>
<td>7(63.6)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>15. The chat system (i.e., log and cellphone) in Meet-Me was a good way to improve my Japanese speech.</td>
<td>4.2</td>
<td>6(54.5)</td>
<td>1(9.1)</td>
<td>4(36.4)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>16. I could learn new vocabularies through various Meet-Me navigations (i.e., icons, inventory, pop-up windows, etc.).</td>
<td>4.7</td>
<td>9(81.8)</td>
<td>1(9.1)</td>
<td>1(9.1)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>17. I did not feel like I was learning when playing Meet-Me.</td>
<td>1.6</td>
<td>0</td>
<td>0</td>
<td>3(27.3)</td>
<td>1(9.1)</td>
<td>7(63.6)</td>
<td>11</td>
</tr>
<tr>
<td>18. I did not learn anything from Meet-Me.</td>
<td>1.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3(30)</td>
<td>7(70)</td>
<td>10</td>
</tr>
<tr>
<td>19. Playing Meet-Me made me use my Japanese more than in a regular class.</td>
<td>4.5</td>
<td>7(63.6)</td>
<td>2(18.2)</td>
<td>2(18.2)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>20. Meet-Me allowed me to express my opinion more freely than in a regular class.</td>
<td>3.9</td>
<td>3(27.3)</td>
<td>5(45.5)</td>
<td>2(18.2)</td>
<td>1(9.1)</td>
<td>0</td>
<td>11</td>
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</table>