Japanese Learners' Awareness of Pitch Accent

And its Relationship to Their Oral Skills and Study Habits

THESIS

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Abstract

Pitch accent, a prosodic feature of the Japanese language, can be a challenging feature for learners to acquire. Many learners who are not familiar with pitch accent frequently make pitch accent errors. This study investigates whether pitch accent awareness training can increase the awareness of beginning-level Japanese language learners and examines whether there is any relationship among awareness, oral skills, and study habits. The training involved reviews and exercises involving Japanese mora, pitch accent and intonation, focusing mainly on pitch accent. The exercises involved counting the number of mora, marking utterances with accurate accent and intonation symbols, and practicing listening and speaking utterances with accurate mora, pitch accent, and intonation. The training also involved study sessions of recording practice using an online program that allowed participants in the intervention training to listen to the audio of model speech, record their own performance, and compare the two. Both the experimental group, which received the intervention, and the control group, which did not receive the intervention, were asked to complete a survey form three times (once immediately before, once immediately after, and once a month after the intervention). The survey was conducted in hopes of investigating how the Japanese learners prepare for class, their focus and attention on pitch accent and intonation, whether they could
detect their own errors, and the effect of these factors on their self-reported speaking proficiency in Japanese.

According to the results of the present study, it seems that pitch accent awareness training helps Japanese language learners to pay more attention to pitch accent, leads to an ability to identify and correct their own pitch accent errors more frequently, and makes for better oral production skills. The results suggest that an emphasis on pitch accent in the coursework also pushes students without extracurricular pitch accent awareness training to pay attention to pitch accent. Finally, the results also suggest that the experimental group had significantly better oral production skills in their post-training assessment than in their pre-training assessment before training began. Their perception skills also slightly improved, but their improvement was not significant. Both the experimental group and the control group significantly increased in self-evaluated speaking proficiency in Japanese over time. The results suggest that there may be a relationship between awareness and the study behaviors, but the data was not sufficient to conclude this. It would be most effective for Japanese language programs to emphasize the importance of pitch accent as well as to offer training outside the classroom.
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Chapter 1: Introduction

1.1 Identifying and Describing Basic Spoken Japanese Features

Rhythmically, Japanese is a mora-based language, unlike English, which is syllable-based. Japanese uses a timing unit called *mora*, which is loosely translated as "syllable," and an equal amount of time is allocated for each mora (Martin, 1975). A *mora* is defined as "the syllable-like unit of Japanese: each mora represents one beat and occupies roughly the same unit of time" that it takes to utter a single vowel (e.g. /a/), or a combination of consonant + vowel (e.g. /ka/), a combination of consonant + y + vowel (e.g. /nya/), or a single consonant (e.g. /t/ between the /a/ and /ta/ in *katta*) (Jorden & Noda, 1987, p. 1). In contrast to the Japanese *mora*, the term “syllable” does not have a universally accepted linguistic definition. Linguists such as Ladefoged, Stetson, and Catford offer differing explanations that focus on factors such as the sonarity, prominence, and physical effects on the human body of a word's constituent sounds. Most agree that the separation of words into syllables tends to rely to some degree on a speaker's intuition, as opposed to *mora* in Japanese words which are prescriptively identified (Vance, 1987).

Accent patterns of standard Japanese are expressed through pitch, leading to its designation as a “pitch accent language” (Horie, 1996). All spoken languages have pitch, but how pitch is used varies greatly in the phonological systems of different languages. In
terms of the purposes served by pitch, essentially there are three types of languages: tone languages, intonation languages, and pitch accent languages. In a tone language, pitch is phonemic. Pitch serves to distinguish words as different sets of tones, and it must appear in the lexical items formed by morphemes, the smallest grammatical unit in a language. In an intonation language, pitch is not used to distinguish words, but instead, it is used to signal different phrase-level pitch patterns. Phrasal-level pitch patterns convey abstract meanings of their own, which are usually related to the information structure of the utterance. In tone languages, stress (loudness) is typically not phonemic, while in intonation languages, such as English, stress is often phonemic. The pitch-accent syllable may be phonetically stressed in some languages such as in Swedish, but stress is not involved in Japanese (Hayes, 2009).

Because English is a stress language, a certain syllable in a word is recognized as being the most prominent, and the syllable is pronounced with a greater amount of energy (Horie, 1996; Tsujimura, 2007). This syllable carries the primary stress, and the prominence of the stressed syllable is produced with a combination of pitch, vowel duration (length), and greater intensity (loudness). One factor (e.g. pitch) alone is not sufficient to signify stress (Tsujimura, 2007). A stress can occur on any syllable depending upon various factors such as syntactical or semantic intent (Horie, 1996).

In Japanese, pitch patterns function to give morphemes, words and phrases their characteristic accent, or melody (Martin, 1975). Thus, in Japanese pitch is phonemic; it serves to distinguish morphemes and words. In a single accent phrase, each mora is associated with only one pitch; if there are two pitches, then there are two moras.
Words in isolation can be accented or unaccented. A word or phrase is considered accented if it consists of at least one high-pitched mora or an uninterrupted sequence of high-pitched moras that are immediately followed by a low-pitched mora (the combination constituting a pitch drop) in standard Japanese (Jorden & Noda, 1987). For instance, in Japanese aMERIKAt (LHHH) (‘America’) is unaccented while aMERIKAzin2 (LHHHLL) (‘American person/people’) is accented.

Intonation is typically related to pitch change at sentence level. In other words, pitch change occurs within a sentence. The functions of intonation are very similar in English and Japanese, but intonation is related to sentence stress in English because the stressed syllable is typically spoken on the highest note. Japanese intonation functions almost the same way as English does, but Japanese has the pitch accent (Horie, 1996).

Tsujimura (2007) explains that declarative utterances, or assertions, tend to have falling intonation toward the end of the sentence, whereas the ending of an interrogative utterance, a question, generally has rising intonation in standard Japanese. She gave the following examples that differ only in their intonation pattern toward the ends of the sentences: 1. Satoo-san-wa asita kimasu. "Mr. Sato will come tomorrow." 2. Satoo-san-wa asita kimasu (ka)? "Will Mr. Sato come tomorrow?" The first sentence is a falling intonation, and the second sentence is a rising intonation. As in the second example sentence, interrogative sentences may often end with the question particle ka, but the question particle can be omitted as long as the sentence bears a rising intonation in

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1 Jorden and Noda's (1987) JSL Romanization is used throughout this thesis. The pitch accent and intonation will be marked with JSL's accent and intonation symbols after these symbols and functions are described in section 1.3. The capital letters are used in the examples before section 1.3 to indicate higher pitch.

2 See above.
Japanese. More details of characteristics of mora, pitch accent and intonation are described in Chapter 2.

1.2 Research Rationale and Objectives of the Present Study

It is essential to have good pronunciation in any spoken language. In Japanese, it is critical in language learning to acquire phonological features such as pitch accent and intonation, as well as grammatical, pragmatic, and cultural aspects to communicate ideas and thoughts successfully (Nakazawa, 2012; Sugitō & Satō, 1997). Native English speakers learning Japanese may have difficulty with acquiring Japanese prosodic features such as pitch accent because English is a stress-timed intonation language. Pitch accent, which is a phonological feature of Japanese, is important to acquire because it is the basis of acquiring word and sentence intonation in Japanese (Nakagawa, 1996).

It takes many years to master a foreign language, especially Japanese, for native English-speaking learners. According to Hadley (2001, p.25-26) and Walker (1989, p.79-80), the Foreign Service Institute (FSI) of the U.S. Department of State provides four categories for foreign languages based on the amount of time needed for native English-speaking learners to reach a specific proficiency level in the target language. The FSI categorization's Group I languages include French, Spanish, Italian, Norwegian, and Portuguese. Group II languages include Bulgarian, Malay, Greek, Indonesian, and Hindi. Group III is comprised of languages such as Czech, Hebrew, Finnish, Polish, Russian, and Turkish. Group IV is comprised of Japanese, Arabic, Chinese, and Korean.

According to FSI research, the estimated time spent to reach Level 2 proficiency in a Group I language for the average native English-speaking learner is 480 hours. For
Group II and Group III languages, it takes approximately 720 hours to reach level 2 proficiency. However, for Group III languages, it takes longer to reach the other levels of proficiency (both lower and higher) than with Group II languages. As for Group IV, which includes Japanese, it requires training of approximately 1,320 hours to reach Level 2 proficiency. This is almost three times the time required to reach an equivalent proficiency for Group I languages (Hadley, 2001; Walker, 1989).

The FSI scale ranges from 0 to 5. Level 0 indicates a novice with no functional ability, and 5 means the proficiency level is equivalent to an educated native speaker. Level 2 on this scale is equivalent to the Advanced level on the Proficiency Scale of the ACTFL (American Council on the Teaching of Foreign Languages) Proficiency Scale. An advanced learner is said to be able to handle advanced communicative activities such as describing and narrating in major time or aspect frames, dealing with most formal and some informal settings, discussing concrete and factual topics of personal and public interest, being understood without difficulty by speakers unaccustomed to nonnative speakers, and communicating using paragraph-length discourse (Christensen & Warnick, 2006; Hadley, 2001).

For a typical college setting, one year of instruction generally consists of 30 weeks, and one year of instruction would be approximately 150 hours since most foreign language courses are held for one hour per day. That said, it would require approximately 8.8 years of college instruction to reach Level 2 proficiency in Japanese (Christensen & Warnick, 2006). Brown (1997) reports that according to the United States Foreign Service and Department of State's investigation of the length of time it takes for
American learners to become proficient speakers in another language, it takes thousands of hours of contact in French or Spanish, while it would require approximately four to five times that many hours in Russian, Mandarin, Japanese or Arabic to be able to communicate in a business setting, such as with a business partner while negotiating a contract. Japanese is one of the most time-consuming languages for Americans to learn. Typical college courses do not provide the number of hours needed for Americans to learn Japanese, a Group IV language. As a result, what learners do outside the classroom has crucial ramifications for learning Group IV languages.

Nakazawa (2012) points out that although phonological features, such as segmental (e.g. voiced vs. voiceless sound), pitch accent (e.g. high pitch vs. low pitch) and intonation (e.g. rising vs. falling intonation), are important criteria in language learning, most institutes usually do not focus on these aspects. This is partially due to the limited time available in the classroom. Students need to study and practice their target language beyond classroom activities, especially if they want to develop pitch accent accuracy and mora-based speech rhythm. It is said that adolescents and adults with strongly developed skills in their first language can acquire a second language very efficiently, but not pronunciation (Collier, 1989). Hence, learners need to find effective ways of practicing and improving their pronunciation skills when they study outside the classroom.

It is thus not surprising that when speaking Japanese, American learners tend to use English intonation patterns at the utterance level, including a stress accent rather than pitch accent. For instance, American students learning Japanese may use rising intonation
to express questions even if the question does not need to rise, as in the case of questions with the particle *ka* (Christensen & Warnick, 2006). For example, in standard Japanese, the question *Wakarimasita ka?* ("Did you understand?") rises slightly in the ending, *ka*, with the pitch accent pattern of LHHHLLL (*waKARIMAsita ka*³), but still maintains the same pitch accent pattern with a statement *Wakarimasita* ("I understood.") with the pitch pattern of LHHHLL (*waKARIMAsita*⁴), as pitch rises with *ka*, the second mora (the basic unit of timing, often a syllable in duration), and drops with the 5th mora *si* (Jorden & Noda, 1987). Many English-speaking beginning-level Japanese learners make pitch accent errors because English is syllable-based and uses stress for accent and pitch for intonation. The characteristics and issues of English-speaking Japanese learners will be discussed in section 2.1 in Chapter 2.

Hirano-Cook (2011) claims that it is necessary for learners to realize the importance of Japanese pitch accent in order to improve their awareness of pitch accent and self-monitoring skills and to develop better perception and production skills. Schmidt (1990) argued that learning must involve attention, accompanied by the subjective experience of consciously noticing, or being aware of, all aspects of language (lexicon, phonology, grammatical form, and pragmatics). Even in the Japanese language programs where students are encouraged to speak with the appropriate pitch accent, students may still not be aware of or consciously notice the importance and the function of pitch accent, despite the fact that the textbook may contain detailed information on pitch accent or despite the effort of teachers trying to give feedback.

³ The capital letters indicate that these moras are spoken with higher pitch than the adjacent moras.
⁴ See above.
If students lack an awareness of pitch accent, delivering a message emphasizing the importance of oral skills in itself is no guarantee that the students will appreciate that importance. Beginning-level learners of Japanese may not be paying attention to pitch accent because of their lack of awareness of the roles and structures of pitch accent. The hypothesis of the current study was that their pitch accent and self-monitoring skills would improve such that they would pay more attention to pitch accent and be able to correct their own pitch-accent errors, and they would change their study habits if they were provided with awareness training. This research hopes to add to the body of work on the pronunciation of non-native speakers of Japanese and to add insight into how to better address problems dealing with pitch accent as well as practicing Japanese pitch accent outside the classroom.

This research study investigated the effectiveness of one month of pitch accent awareness training for beginning-level students of Japanese in improving their awareness of the importance of Japanese pitch accent. It also attempted to ascertain the relationship, if any, that might hold between pitch accent awareness training and oral skills, particularly pitch accent skills, as well as study habits. In order to test the effectiveness of the training and any potential relationship with performance, there were two groups: the experimental group (with training) and the control group (without training).

The anticipated benefits of this research included improvement in the experimental group’s pronunciation as well as the acquisition of more effective study techniques. It was expected that the proper instruction of pitch accent could enable learners to raise their awareness of the pitch accent for each Japanese word, phrase, and
clause, so that they may become able to communicate more efficiently. It was assumed that if learners were more aware of Japanese pitch accent, they would be able to monitor the model as well as their own speech, and they can detect and produce accurate pitch accent. The use of the computer program, where they listened to the model and compared it to their own recorded speech, was predicted to assist the experimental group in developing their monitoring skills. The experimental group was able to spend extra time to interact and practice Japanese with a native speaker (the investigator/trainer) outside the classroom. They gained more knowledge about Japanese phonology systems, and practiced applying the new knowledge. They were able to gain more input by listening to the trainer. They received immediate feedback on their speech productions, and were able to practice more to correct their errors or weakness in speaking.

1.3 The Japanese Program at The Ohio State University

All participants involved in the present study were beginning-level Japanese students at The Ohio State University (OSU). The Japanese program at OSU uses a performance-based approach that prioritizes cultural authenticity. The Japanese program aims to provide learners with guided opportunities to rehearse for future encounters in the language, through learning to observe, imitate and create in dialogue performances and contextualized exercises, based on extensive self-managed work that they have done before coming to class. The program emphasizes students’ oral skills at the beginning level. In their preparation for class, students are strongly encouraged to listen to the audio files and watch video files, available online, and to practice assigned basic dialogs or
“Core Conversations” (abbreviated "CC"s) and drills. The program also requires them to respond and react in a culturally coherent way using language they know.

In the program’s ACT classes (four days a week, conducted entirely in Japanese), students are expected to be fully prepared to perform linguistically as well as behaviorally appropriate to the Japanese culture. FACT class, or the lecture, meets once a week, is conducted mainly in English, and provides analysis and explanation of assigned work to support their performance in ACT classes. Christensen and Warnick (2006) describe the ACT classes and the FACT classes as follows:

In summary, the FACT classes include discussion about the language and the culture, such as explanations about how to produce the sounds of the target language, grammar patterns and how they are used, when and how certain vocabulary items are used, when and how natives of the target culture make apologies, how business cards are exchanged, and what the restaurant script for the target culture is like. The ACT classes provide opportunities for learners to perform in the culture, in contextualized settings that allow them to make apologies or exchange business cards or enact restaurant settings. It is essential that the situations are culturally authentic and that the learners understand the genre and the style involved, including the five elements of performance - the time, the place, the roles, the scripts, and the audience. (p.59)

Through ACT and FACT classes, students rehearse Japanese conversations that they may encounter in the future. Speaking Japanese with accurate pitch accent is also part of
performing in the Japanese culture because Japanese is a pitch-accent language. Students should aim to speak as native Japanese speakers would.

In their Japanese class, students are expected to use Japanese language, which they have prepared from their CC, drills and Application Exercises, as a tool to communicate with others in various settings in the way native Japanese speakers would communicate in Japan. Their performance should be culturally coherent, using accurate grammar, segmental, pitch accent and intonation. Their daily performance is evaluated based on their interactions, language use, and ability to repair. Their grade is determined by whether their performance is culturally coherent and whether they can communicate with a native comfortably without creating difficulties or puzzlement. Students are given immediate feedback and corrections when they make errors in both verbal language (e.g. inaccurate grammar, mispronunciation, and misuse of honorifics) and non-verbal behaviors (e.g. crossing legs and male bowing with his hands in front).

Learning materials in the first semester of the Japanese program at OSU include *Japanese: The Spoken Language, Part 1* (Jorden & Noda 1987), hereafter JSL, *Japanese: The Written Language, Part 1* (Jorden & Noda, 2006) *Japanese: The Written Language Katakana Workbook, Part 1* (Jorden & Noda, 2006), and media materials (audio files and video files). These learning materials are materials to prepare for the Japanese class. They are not used during the class hours. The multimedia materials are available at the course website, so that students can practice listening and speaking to communicate. A handout, "How to Work with Media Materials" (Noda, 2003), was also available to students, so that they could learn how to use these multimedia materials effectively. The handout
explains that they should listen and watch the medial materials to develop listening comprehension and accurate speech until they can perform the model conversation effortlessly in class. This repetition should help learners to be able to communicate using the related conversations in different contexts in the future encounter (Noda, 2003). The JSL Interactive CD-ROM Program (Noda, 1998) is recommended as an additional learning material, which included explanations about Japanese language and culture, interactive exercises, and a quiz-style structure check.

The use of media materials are more encouraged than reading the dialogue scripts in the program, but JSL is also a very useful resource to learn Japanese language and culture. Students were expected to use JSL to learn new vocabularies, read miscellaneous notes to learn Japanese culture, learn structural patterns to learn Japanese language, and complete exercises such as application exercises, eavesdropping and utilization to practice what they have learned. Students are expected to use JSL’s written presentation of the dialogues as a support for the auditory materials. JSL has various kinds of information on Japanese language system and culture, and it describes, with examples, Japanese pronunciation—moras, pitch accent, and the intonation system—in some detail in the Introduction. All Japanese words used in JSL are written in JSL Romanization with JSL accent and intonation symbols. Written Japanese materials used in this research project’s workshops were written in JSL Romanization and used JSL’s symbols for marking pitch accent and intonation.

Japanese words in the research materials for the training were written based on JSL Romanization, which was familiar to participants, and JSL's pitch accent patterns
were marked with /\ (rising), /\ (falling), and /\ (rise and fall). Pitch accent rules were described in JSL as follows:

1. Only a word that contains /\ or /\ is said to be accented, and the accent is on the mora where the accent mark occurs.

2. Actually, the rise in pitch symbolized by /\ is automatic, given the boundaries of the accent phrase. It always occurs on the second mora of the accent phrase, unless the accent itself falls on the first mora, in which case only the first mora is high-pitched.

3. Accented words or elements which regularly form a single high sequence in a combination with a preceding unaccented word or phrase will be cited with the /\ accent only. Thus, `dà indicates that /sore +`dà/ > sore dà; /Yokohama + dà/ > Yokóhama dà. (But note: /Kyôoto + dà > /Kyôoto da/.) (Jorden & Noda, 1987, p. 12)

These pitch accent rules were (re-)introduced to the experimental group during the training.

In summary, a single accented word or phrase cannot have more than one high-pitched sequence, and the pitch drops after the mora marked by /\ or /\/. If there is no drop in pitch, then the word or the phrase is considered unaccented and are not marked in JSL (i.e. not marked by /\). For example, sore by itself is unaccented (i.e., there is no drop in pitch), but the first mora so is lower pitch and the second mora re goes up in pitch. The second mora of the accent phrase always rises, unless the accent itself falls on the first mora, in which case only the first mora is high pitched followed by low-pitched
mora. For example, the word *Yokohama* does not have an accent, so the initial mora is low pitch followed by all higher pitched moras. Since there is no drop in pitch, it is considered unaccented and *Yokohama* is written without any pitch-accent marks in JSL. At first glance, it seems as if all the moras in this word are at the same pitch; however, *Yo* is actually lower pitch and the rest are at a relatively higher pitch. When an unaccented word such as *Yokohama* is combined with the accented element such as *dèsu*, it becomes part of an accent phrase. *Yokohama* will be marked by `/./`, and the accent phrase will be written as *Yokóhama dèsu* (Jorden & Noda, 1987).

Intonation is also marked in JSL, and utterances (generally represented as full sentences) are marked with JSL intonation symbols in the research material for the training that my project offered learners. The intonation symbol `/./` indicates a final mora ending with low pitch level. It indicates that an utterance is terminal declarative, with finality. The symbol `/\` indicates a slight rise in the pitch on the final mora, and it occurs without lengthening that mora. This intonation often occurs with sentence particles such as *yo* to express empathy and friendliness, and often occurs with the sentence particle `/ka/` (a question-marker) to make a question. `/?/` indicates rise in pitch on the final mora of an utterance and usually occurs with the lengthening of that mora. This intonation usually makes a statement into a question, typically in a relaxed style. The symbol `/\` seeks confirmation of an assumption made by the speaker, and it is similar to `/\` but occurs only in combination with the sentence-particle, `/ne/` (a confirmation-seeker). The symbol `/!/` shows animation, and the final mora starts high and has slightly falling pitch with no significant lengthening. An utterance-final `/../` indicates incompleteness, where the final
mora has neutral pitch and there is a gradual fading into silence (Jorden and Noda, 1987). These intonation symbols are useful, and students in the program would be familiar with these intonation symbols if they had read the introduction of JSL. In case they did not read the introduction or did not pay attention to intonation, these intonation symbols were (re-)introduced to the experimental group in the present study.

1.4 Research Questions

The pitch accent awareness training was given to the experimental group to examine the relationships among awareness, oral skills, and study habits. The previous studies show that explicit instruction is helpful, and perception and production training are effective to increase learners' awareness and pronunciation. The current study investigated whether the pitch accent awareness training is indeed effective in increasing learners' awareness and oral skills. This study looked at the influence of the training in learners' study habits as well. Students in the Japanese program at OSU are encouraged to listen to the audio, but it is not predictable whether they actually listen to the audio and/or how often they listen to or repeat after the model. The study closely observed the experimental group's study behaviors during the study sessions, which were held during the training.

The research questions posed by this study are as follows: for beginning level learners of Japanese in a program that emphasizes oral skills, 1) Does the pitch accent awareness training increase learners' awareness of pitch accent? 2) Is there a relationship between learners' awareness of pitch accent and their oral skills? 3) Is there a relationship between learners' awareness and their study habits?
The first research question was posed to test the effectiveness of the training in learners' awareness of pitch accent. The hypothesis was that the training could increase learners' pitch accent awareness. The second research question was posed to see if there was any association with learners' increased awareness of pitch accent and their oral skills. Oral skills in this study refer to speaking skills in pitch accent, segmental (sounds), mora, and intonation. Although all these skills were observed and analyzed, pitch accent skills were discussed more primarily in this study. The hypothesis was that if awareness of pitch accent were to increase, the students’ oral skills would also increase, particularly in the area of pitch accent, as it was the primary focus of the training. It was assumed their other speaking skills would increase because they are interrelated. Also, it was predicted that if they could pay close attention to pitch accent and monitor their speech, they would likely also be able to detect errors of other kinds. The third research question was posed to examine whether there is any relationship between learners' increased awareness of pitch accent and their study methods and behaviors. If learners pay more attention to pitch accent while studying for their class, they may approach the learning materials differently. The hypothesis was that participants would change their study habits after the training in order to improve their oral skills, particularly pitch accent skills. Because the training involved a self-recording activity, it was assumed that learners practice recording their speech and comparing it with the model in the media materials.

This study was conducted to answer all the research questions. A survey was distributed, collected and analyzed to examine students’ awareness of pitch accent to answer the first research question. Data from a survey on self-evaluation of the students'
speech proficiency was collected and analyzed to answer the second research question. In addition to the survey, the experimental groups' oral skills on the pre-training/post-training assessments and recorded speech samples on SE during study session in the training were examined to answer the second research question. To answer the third research question, the survey response on students' study preparation methods for their oral class was analyzed to examine students' study habits.

1.5 Organization of the Remaining Chapters

This study has five chapters: Chapter I: Introduction, Chapter II: Literature Review, Chapter III: Methodology, Chapter IV: Results and Discussion, and Chapter V: Conclusions. Following the present chapter, Chapter II provides an overview of mora, pitch accent, and intonation and previous studies in relation to training in pitch accent.

In Chapter III, the research questions and methodology used to collect data for this study are described, and results of the findings in the study are analyzed and discussed in Chapter IV. Chapter IV includes the results and discussion of the survey data on students' awareness of pitch accent, their speaking proficiency, and their study habits. All of these assessments are self-reported. It also includes the analysis of experimental group's oral skills, which was examined from their training assessment, and their study behaviors, which was observed during the study sessions. Comparisons are made both between subjects (participants with extracurricular training and without that training) and within individual subjects (before training began and after training) in relation to their awareness of pitch accent, oral skills, and study habits.
Conclusions and suggested future research are provided in the final chapter, Chapter V, which includes a summary of answers to the study’s research questions, the limitations of the study, and pedagogical implications.
2.1 Overview of Pitch Accent, Mora, and Intonation

2.1.1 Pitch Accent

Because each mora in an accent phrase is assigned a specific pitch, Japanese is a pitch-accent language as opposed to a stress language such as English or a tone language such as Chinese. Each mora is assigned a pitch accent of high or low pitch in Japanese. Accent shows the location in the word where the pitch of the mora falls from high pitch to low pitch (Tsujimura, 2007). Pitch accent can be controlled by making the vocal cords tense to create high and low pitches in Japanese, whereas stress accent can be controlled by adjusting air pressure from the lungs to control the loudness in some languages such as English (Tanaka & Kubozono, 1999). Japanese also differs from tone languages. In Japanese, each accent phrase can have only one pitch-accented mora (Hayes, 2009). In other words, the pitch can fall only once within a single phrase (Martin, 1975). On the other hand, in a tone language, each syllable of the word is assigned a separate tone, such as high or low tone. Tone languages typically have words that are differentiated solely by the tone (Tsujimura, 2007).

According to Martin (1975), "each Japanese word has an inherent accent pattern, a tune that is appropriate to it in certain critical contexts. Those words which are TONIC are characterized by an inherent fall of pitch" (p.18). Martin identifies three types of tonic
words: “prototonic,” “mesotonic,” and “oxytonic.” Prototonic words fall in pitch immediately following the first syllable. Mesotonic words fall in pitch somewhere between the first and last syllables. Finally, oxytonic words fall in pitch on the last syllable, though if the last syllable is comprised of a single vowel, the fall in pitch will only be heard if the word is followed by a copula or particle (e.g. *inu desu* 'it's a dog', *otoko mo* 'the man also'). If the last syllable has two vowels or a vowel followed by *n*, the fall in pitch can be heard even without a copula or particle following the word (e.g. *koohii [desu]* '[it is] coffee', *yasui* 'it is cheap'). In addition to these three types of tonic words, Martin labels words that have no falls in pitch “atonic” words, which usually begins with a low syllable followed by a set of high syllables (*kore [wa]* ('as for] this', *Shibuya [e]* '[to] Shibuya').

Japanese phrases can have different meanings depending on their pitch accent patterns. Accent can enable us to distinguish different words, as in *ame* ('rain') and *ame* ('hard candy'). These words may look the same at the first glance, but actually are different words with different meanings, and have distinct accent patterns. In Tokyo, Japanese people lower the pitch from *a* to *me* (High-Low) to pronounce the word *ame* ('rain'). It does not matter how much you lower the pitch as long as you lower the pitch. On the other hand, if you raise the pitch on the second mora, *me*, it will become *ame* ('hard candy' [Low-High]) (Sugitô & Satô, 1997). Pitch accent also indicates word boundaries. For example, the same sequence of vowels and consonants, such as *moo, simasita (MOo, siMASita)* ('I already did it') and *moosimasita (moOSIMAsita)* ('I already
(humbly) said it'), will have different meaning due to a difference in position of the word boundary, which is manifested with a pitch accent change.

Acquisition of Japanese pitch accent can be challenging for English-speaking learners of Japanese. Nakagawa (1996) investigated the common characteristics and problems of native English speakers learning Japanese in America, England, Australia, Canada, and New Zealand. She looked at her findings on moraic and prosodic features of participants’ recordings on words, sentences, and stories. Participants in her study were able to speak Japanese rather fluently and can engage in daily conversation with Japanese speakers; however, they had rarely been trained in pitch accent, and learned pitch accent intuitively.

According to Nakagawa (1996), English-speaking learners tend to lengthen a high-pitched mora. Nakagawa (1996) claimed that it did not sound as unnatural to pronounce words involving long vowels that start with a high-pitched mora followed by a vowel, such as DÔozo\(^5\) ('please') and KYÔoto\(^6\) ('Kyoto'), but these hardly constitute a large segment of the Japanese lexicon. English-speaking learners tend to lengthen high-pitched moras even when it is not appropriate, as in yôozî instead of yôzi ('4 o'clock'). This is why the mispronunciation of syûuzin ('prisoner') instead of syûzin ('the head of a family') is possible and can lead to miscommunication (or unintended puns). The reverse could also be challenging. It is harder for native English speakers to maintain mora length

\(^5\) Here, the first mora is capitalized to indicate that these English-speaking participants lengthened the high-pitched mora in the Nakagawa's study.
\(^6\) See above.
for low pitch syllables. They may pronounce *tokai* ('a city') instead of *tookai* ('eastern sea'), for instance.

Another typical problem of English-speaking learners based on the investigation of Nakagawa (1996) is that low pitch moras can be pronounced in a way that lacks clarity. English speakers speak based on stress rather than controlling pitch. The rhythm of English is determined by controlling the stress of syllables. Unstressed syllables may sound unclear in English. Because of that, when the English-speaking learners speak Japanese, they tend to pronounce the vowels unclearly on the unaccented moras, and it may sound like they are saying something else. For instance, instead of *yuumee* ('famous'), they may sound as if they are saying *vomee*, *vamee* or *imee*. The tendency seen in her study was that many students had this type of error if the first syllable was low pitch.

Nakazawa (1996) indicates that English-speaking learners also tend to pronounce */n + vowel/* instead of a nasal sound */n/* followed by a distinct following vowel. For instance, instead of saying *Nihon e kimasita* ('I came to Japan'), they may say *Nihone kimasita*. Accent patterns may change and the rhythm becomes unbalanced.

Nakagawa (1996) also found that these participants tended to stress or rise in pitch on the first syllable, or rise in pitch in the second syllable from the last. The tendency of stressing or rising in pitch was most likely due to their English-language rhythm sense. Another characteristic Nakagawa found was that native English speakers' high-low pitch gap tended to be big, compared to native Japanese speakers. Another common characteristic was the learners’ difficulty in determining when to raise or drop their pitch.
2.1.2 Mora

Han (1963) argues that in the process of learning Japanese pronunciation, many English-speaking Japanese language learners find difficulty with pronouncing long vowels and long consonants. For example, learners may find it difficult to perceive or produce the contrast between short and long vowels as in \textit{o.ba.sa.n} ('aunt; woman') vs. \textit{ob.\text{"a}.sa.n} ('grandmother; old woman'). They may find difficulty with the contrast between short and long consonants as in \textit{y\text{"o}.ka} ('leisure') vs. \textit{yo.k.ka} ('the fourth day; four days') or as in \textit{ko.n.na} ('this kind (of)') vs. \textit{ko.n\text{"a}} ('powder'). These contrasts can be difficult for English-speaking learners because these kind of contrastive distinctions do not occur in English (Han, 1963). These words also differ in pitch accent as well.

Like Han (1963), Nakagawa (1996) also stated that one of the common problems is pronouncing words with long consonants (e.g. /\text{"k}k\text{"}/), long vowels (e.g. /\text{"a}a/) and vowel sequences (e.g. /\text{"a}i\text{"}/). Giving an equal interval of time to each mora may be challenging for them, as in the example of pronouncing \textit{kite} ('come') vs. \textit{kitte} ('stamp'). Instead of giving equal intervals of time as in Japanese, they may lengthen the first vowel but shorten the second vowel for vowel sequences. For example, they may say \textit{maainiti} instead of \textit{mainiti} ('everyday'). They may sound as if they are pronouncing English's diphthong instead of two moras (Nakagawa, 1996).

2.1.3 Intonation

While accent is a property of phrases (which may be as short as a single word), intonation is a property of utterances. It is perhaps most typically associated with

\footnote{Period "," indicates a mora boundary in this paragraph.}
sentence, but by no means limited to them. Intonation is imposed over a sequence of words, and each phrase has its own pitch accent pattern. In Japanese, intonation is manifested by pitch, and the pitch accent pattern of each word is generally maintained even if the intonation changes. With the same pitch accent, you could make interrogative or declarative with different intonations like in English. For example, if we look at a word gozi, meaning 'five o'clock,' the accent pattern is high-low. You can make a question Gozi? ('Five o'clock?') as you still have high-low pitch accent pattern, but with a rise in pitch from the middle of the final mora, zi, and you can make a response statement Gozi. ('Five o'clock.') if your pitch of zi stays low (Tanaka & Kubozono, 1999).

Because a question generally begins with high intonation rising gradually in English, English-speaking learners tend to start with the intonation rising from the beginning or from the middle of the sentence instead of rising in the final mora. English interrogative utterances can be predictable because their intonation maintain the height from the beginning and as if slowly raise the curve. On the other hand, Japanese declaratives and interrogative utterances both keep the same pitch patterns, and show the judgment, confirmation, and question at the end of the utterances (Nakagawa, 1996). In Japanese, pitch accent is part of word for each word, so the pitch accent pattern does not change based on the speaker's feeling or situation. In contrast, intonation is not part of word, and intonation pattern changes based on circumstances. For example, âme ('rain') and ame ('hard candy') are different words that differ only in pitch accent as mentioned in 2.1.1. The accent of these words won't change based on the speaker's feeling. As for intonation, the intonation pattern change based on what the speaker wants to
communicate. If the speaker raises the end of the word, *ame* ('rain') or *ame* ('hard candy'), which is the end of *me* in this example, it becomes an interrogative in both words (Sugitō & Satō, 1997). Intonation is also critical in Japanese because the meaning of the sentence could change drastically depending on the intonation patterns, in addition to making questions or statements. For example, *Kare wa, ii hito zya nai.* literally means 'He's not a good person.' when you lower the ending. However, if you say with higher intonation in the ending, the meaning changes to 'Isn’t he nice!' (Sugitō & Satō, 1997). There are many functions of intonation, including showing how words make up phrases, showing emphases, changing the type of sentence, and showing emotion (Tanaka & Kubozono, 1999).

2.2 Explicit Instruction

In the present study, pitch accent awareness training, or the explicit instruction of pitch accent, was conducted to the experimental group in hope to raise awareness of learners of Japanese pitch accent and to increase learners' pitch accent skills. Unlike implicit learning, which is natural and unconscious acquisition of knowledge about underlying structure of a complex incentive environment, explicit learning involves a conscious operation. In the conscious operation, the individual attends to particular aspects of incentive environment and tests their hypotheses in a search for structure. Learners adopt what they have been told to an explicit mode of learning when the learned material is simple, or it is relatively complex but there is only a limited number of variables and the critical features are salient. Learners then explicitly generate and test the model of the system updated accordingly. As a result, the learner can verbalize this
knowledge and transfer to novel situation. One thing to note is that explicit instructions may only interfere if the material is more randomly structured with a large number of variables and the relationships are not apparent. An implicit mode of learning is more effective in that situation (Ellis, 2008). The primary focus of the research materials used in the present study was pitch accent, and the importance and functions of pitch accent were explicitly told to participants through oral and written presentation and through exercises.

2.3 Effectiveness of Training

Previous research indicates that training learners in pitch accent helps improve their perception and production skills. For instance, Hirano-Cook (2011) reported that one month of pitch accent training for Japanese language students resulted in improved receptive, or perceptual, and production skills of an accurate Japanese pitch accent. The pitch accent training is effective and students gained better awareness, perception, and production in pitch accent. Two types of studies were conducted by Hirano-Cook (2011): 1) a study of the perceptual ability of American learners of Japanese to identify the accent location of Japanese pitch accent accurately through their Japanese language study and 2) a study to test whether pitch accent awareness training could improve American learners' perceptions and production abilities as well as self-monitoring skill in Japanese. Hirano Cook defined the self-monitoring skill as the ability to monitor individual's own pronunciation and correct their errors.

Hirano-Cook avoided overuse of the direct repeating model. Instead, the feedback was more implicit in that correct sounds/pitch was given as a model after participant
pronounced words. Hirano-Cook's participants were asked to evaluate their own speech production and verbally state how they were different from the model. The stimuli, or tokens, involved in her study consisted of four-mora Japanese nouns or sounds of different types of pitch accent: type 0/LHHH ("has no accent"), type 1/HLLL ("an accent on the first mora"), type 2/LHLL ("an accent on the second mora"), and type 3/LHHL ("an accent on the third mora") (Hirano-Cook, 2012, p.30).

In Hirano-Cook's (2011) Study 1, an accent listening test was conducted to examine whether learners of Japanese were able to identify the accent location in words that they hear in the Identification Test. Participants included one-hundred nineteen native speakers of American English who were taking or have taken Japanese language courses at a university. They were divided into five groups according to the level of Japanese language class they were in (1st year, 2nd year, 3rd year, 4th year, and 5th year). The result of her Study 1 indicated that Japanese language learners could perceive Japanese pitch accent and would improve as they progress their Japanese language course in each level, suggesting that learners' ability to identify the location of the accent improves as they become more advanced.

Hirano-Cook (2011) further conducted a discrimination test to investigate the discrimination ability of participants who were originally not skilled at identifying the accent location in order to distinguish between different accenthual patterns. The discrimination test included an identification task and a discrimination task. Participants included thirty-eight native speakers of American English. Twenty-three participants were taking a second year level Japanese language course and fifteen participants were
taking the third year level Japanese language course. Participants were divided into two groups based on their scores on the results of their identification task (identifying the accent location words): top students (who scored high in their identification task) and bottom students (who scored low in their identification task). Her result suggested that participants who were not skilled at identifying the exact location of pitch fall can still distinguish pairs of different accentual pattern in perception.

*Study 2* by Hirano-Cook (2011) was conducted to examine whether Japanese pitch accent training has a positive effect on learners' perceptual and production abilities of Japanese pitch accent. The experimental group received training outside their regular Japanese language courses, while the control group did not receive any training, but both groups took pretests and posttests of perception and production. There were six 30-minute training sessions, given twice per week for one month, and participants were given awareness lectures and perception and production exercises.

In Hirano-Cook's (2011) Study 2, forty-five native speakers of American English participated in the perception task, which tested their perception ability to identify the location of accent in words, and thirty-three native speakers of American English participated in the production task, which tested their Japanese pitch accent production. The participants were taking the second or the third year level Japanese course at a university. Hirano-Cook found that training was effective in both perception and production of Japanese pitch accent. She found that training can improve learners' perception of Japanese pitch fall even with novel stimuli that participants had never heard before. Her results also indicated that there was no statistically significant improvement
in perception for the control group, but learners who underwent no such training (the control group) also improved in production, but it was not as dramatic as those with training for the 1st accent and 2nd accent words and production without accent information condition.

Nakazawa (2012) similarly researched the effectiveness of one month of pronunciation and intonation training using a supplementary computer program, *Pronunciation Check* among English-speaking and Chinese-speaking learners of Japanese. Like Hirano-Cook (2011), Nakawaza (2011) also showed positive results and found the face-to-face workshops and the computer-assisted trainings to be effective. Involved in her study were fifteen students studying intermediate or advanced level Japanese at an Australian university, although three did not complete all training sessions. Over 4 weeks, one group participated in a weekly 1-hour “face-to-face workshop” only, and the other group participated in a weekly 1 hour "face-to-face workshop" and an extra self-training/a supplementary computer program called “Pronunciation Check” with five features: “1) detection of pronunciation errors; 2) assessment of pronunciation; 3) feedback; 4) an editorial system; and 5) monitoring” (p.185). The survey was also collected to check the participants’ self-evaluation, perception, and awareness of their Japanese pronunciation and intonation. She found that both types of training (face-to-face and computer) are effective, and learners improved their pronunciation and awareness along with their self-confidence. She proposed that the training is helpful even with small numbers of training workshops.
The results of Hirano-Cook and Nakazawa’s research indicated that the training was effective; nevertheless, neither of them discussed its influence on study habits, which was investigated in the present study. In the present study, in addition to awareness and oral skills, study habits of learners were also investigated. Their study methods and behaviors were observed and analyzed.

The training sessions in the current study were individualized, unlike Hirano-Cook's training, and the trainer was next to the experimental group throughout the training sessions, unlike Nakazawa's computer-assisted training. In Hirano-Cook's study (2011), the training involved a “peer learning method” with the hope that learners would learn from each other’s errors/corrections. Nakazawa (2012) used Pronunciation Check, the supplemental tool, so that learners could use it individually to build more confidence in their pronunciation and feel less anxious and more comfortable when speaking. In the current study, which investigated how students study, speak, and monitor their speech, the training session was individually conducted and the trainer was next to each participant with the training in order to closely examine their oral skills, self-corrections, and study behaviors.

Similarly, Hirata (1999) also conducted research on the flexibility of perception and production abilities of native speakers of English learning Japanese using computer-assisted training programs. She found that sentence training helps learners perceive and produce durational and pitch contrasts in connected speech, and that production training is effective on both production and perception. She examined through three experiments.

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8 In sentence training, learners were asked to describe a particular characteristic (such as mora) of a given word that is presented in a frame sentence (Hirata, 1999).
the effectiveness of two computer-assisted training programs, which were Training program I (Hirata named it "Good-Bye, Syllable!") and Training Program II (Hirata named it "Visi-Pitch for Japanese"), a perceptual training regimen, and a production training regimen. Both of the training programs involved tasks where learners worked individually and a computer gave immediate feedback. In addition, both of the training programs had variations in speech such as rate, voice, and pitch in order for learners to cope with speech variation in real-world situations.

Hirata (1999)'s Training Program I was a perceptual training program that involved identifying the number of moras in order to improve learners’ ability to perceive durational contrasts, such as single/germinate consonants and short/long vowels, and to expand the perceptual ability from words spoken in isolation to words spoken in sentences and also from slower to faster speech. Various numbers of moras were introduced in order to enhance the understanding of moraic rhythm. Training Program II was a production training program that involved practicing to match the pitch contour of the learner’s own production to those of a model on a computer screen. Training Program II used "Visi-pitch (CSL-Pitch Program, Model 4331, by Kay Elemetrics), a device with which learners can see dynamic, real-time representation of Japanese pitch patterns on a computer screen, and then receive immediate visual feedback on their own speech" (Hirata, 1999, p.52). Her intention was to enhance the ability of learners to produce the appropriate Japanese pitch accent and moraic rhythm, and also to expand learners’ abilities in perception and production from words spoken in isolation to those same words spoken in sentences.
Experiment I and II of Hirata (1999) were designed to examine the acquisition of Japanese moraic rhythm in various speech settings (rate of speech, various numbers of moras, talkers) in both words and sentences. In experiment I, Hirata (1999) investigated whether her Training Program I, the perceptual training providing speech variations, could improve learners' perceptual abilities for Japanese durational contrasts. Ten students (five males and five females) who just started the beginning level Japanese course at the University of Chicago participated in the study. Participants were divided into three groups: Group 1, word-level training from sessions 1 to 10 (4 participants); Group 2, word-level training up to session 4 and the sentence-level training for the remaining 6 sessions (4 participants); and the control group (2 participants) who took the perception and productions test but did not participate in the training. Her result of Experiment I showed that there was no effect specific to the training type (Group 1: word training only and Group 2: word and sentence training); and that the two groups showed a similar amount of improvement in their word and the sentence tests.

In Experiment II, Hirata (1999) investigated whether word or sentence training could improve learners' ability to perceive difficult phonemic contrasts in the target language, and also examined the amount of improvement on easy vs. difficult words. No production test was conducted. Experiment II used same testing materials as Experiment I except that new sessions were added for the sentence training. One group was given the sentence training (the words were always presented in frame sentences) exclusively for all 10 sessions, and the other group the word training (words were spoken in isolation) exclusively in order to compare more explicitly the effects of word training vs. sentence
training. Thirty native speakers of English who were learning beginning level Japanese at the University of Florida participated. Participants were divided into three groups: word training (12 participants), sentence training (11 participants), and control (7 participants).

Hirata's (1999) findings of Experiment II suggest that the sentence training method was effective for the acquisition of difficult durational contrasts. Word-level training participants significantly improved on the word test scores but not on the sentence tests. On the other hand, sentence-level training participants improved on both word test scores and sentence scores. She suggests that even though it is more difficult to manage tasks in connected speech than tasks in isolated word contexts, training with sentences is more effective and beneficial than with isolated words in perceiving and producing difficult durational and pitch contrasts in connected speech.

Hirata (1999)'s Experiment III was designed to examine the acquisition of both Japanese pitch accent and moraic rhythm, and how perception and production abilities are developed through Training Program II, or the production training. Eight native speakers of English learning intermediate level Japanese at the University of Chicago participated in Experiment III. There were only two groups in the Experiment III: the Training Group, who participated in both training sessions and perception/production test, and the Control Group, who did not participate in the training but took the tests. Unlike the perceptual training, which was effective only in the perception, her result showed that the production training was effective in both perception and production abilities, especially for sentence tests. Hirata (1999) argues that production training may be more
beneficial for the overall acquisition of speech in the target language since learners have to listen to the model and their production.

Hirata (1999) suggested that practicing discrimination alone may not increase their production skill. Therefore, in the present study, training involved practicing both perception and production in the present study in order that students would be familiar with JSL pitch accent mark and pitch pattern in general. Both words and sentences were used as stimuli during the training in the present study, and the dialogues from CC were used during the study sessions.

2.4 Speak Everywhere

Nakazawa (2012) suggested using speech technologies to teach pronunciation outside the classroom as a supplemental tool. According to Yoshida’s (2010) study, a simple repeat-after-the model exercise has a significant effect on acquiring Japanese word accentuation (as cited in Fukada, 2013). In the present study, a computer program called Speak Everywhere was used as part of a study session in the training. During the study session in the training, the experimental group participants practiced as they listened to the model and repeated after the model using Speak Everywhere.

Fukada (2013) stated that Speak Everywhere (hereafter SE) was developed in the Center for Technology-Enhanced Language Learning in the School of Languages and Cultures at Purdue University. It was designed with the intention of improving language learners’ speaking fluency in their target language. SE is a web-based software program that consists of three sub-systems: author, instructor and student. The author sub-system can be used by instructors and/or material designers to create oral exercises using video,
audio, graphics, and/or text. Students use the student sub-system to access and work on the exercises that instructors or material developers created. Students can view the instructions and do the exercises instructors have provided. For instance, if the exercise were "listen and repeat," the students would repeat after the video/audio that their instructor uploaded, record their oral responses as they speak, and listen to themselves immediately afterwards. They can compare the model and their own recording to identify and address errors in their performance. Once satisfied, they can submit their recording to the system, and instructors can check and grade them and give feedback through text and/or audio (Fukada, 2013).
Chapter 3: Methodology

3.1 Participants

Twenty students taking the first semester of the Japanese language program at the 
Ohio State University participated in this study. Two groups were involved in this study: 
the experimental group who received training and the control group who did not. The 
total number of participants was nine for the experimental group who participated in all 
training sessions and completed the survey three times, and the total number of 
participants was eleven for the control group who did not receive any training but 
completed the survey three times. The class section randomly chosen as the experimental 
group consisted of fifteen students in the beginning, and the class section randomly 
chosen as the control group consisted of sixteen students. Two students from the section 
randomly chosen as the experimental group and three students from the section randomly 
chosen as the control group did not volunteer to participate in this study; therefore, no 
data was collected from them.

Only the data collected from those who participated throughout the research was 
used for analysis. The data for participants who dropped out was not counted toward the 
data analysis in order to avoid incomplete data influence on the study’s result. The 
experimental group originally consisted of thirteen participants who volunteered with the 
intention of improving their oral skills to participate in the Japanese pitch accent
awareness training workshops and the survey. One of the students in the experimental group signed up to volunteer, but did not show up to any of the training sessions or complete the survey. One student from the experimental group participated in the first two workshops, but dropped out from the Japanese course. One student in the experimental group also dropped out in the middle of training, and another student received all the training, but did not complete the post-survey and later-survey (right after the training and a month after the training, respectively). The control group originally consisted of thirteen participants who did not receive any training, and agreed to volunteer to participate in completing the survey. Two students of the control group dropped before completion of the survey before the later-survey.

Considering the diversity in language background amongst students in most classrooms in American colleges and universities, participants' native language was not controlled. The only restriction was their age; all participants were over 18 years old. Most of the participants were native speakers of American English. There was one native Chinese speaker each in both the experimental and the control group, and there was a native Portuguese speaker in the control group. All three non-native English speakers were fluent in English. There were six males and three females for the experimental group, and six males and five females for the control group. None of them indicated that s/he had ever stayed in Japan. Participants' background information on their native language, age, and gender can be found in the following table.
3.2 Instruments and Procedures

3.2.1 Selection

Two out of seven sections of the first semester of the Japanese program were randomly selected for potential research participation: one section as the experimental group and another section as the control group. The beginning-level learners who volunteered to participate in the experimental group received pitch accent awareness training outside their regular Japanese language course, and students who volunteered to participate in the control group did not. Both groups were asked to complete the survey three times.

After informing the students about the research study and receiving the written consent forms from volunteer participants, the researcher acted as a trainer to provide pitch accent awareness training for the experimental group. The control group did not receive training so that the researcher could examine how training affects a students' way of studying and their oral skills through the data collected by the survey.

3.2.2 Survey

To examine the influence of the awareness training and its durability after the training, the investigator gave a survey to the experimental and control group. The same survey was given to both groups three times. The pre-survey was given and collected
before the training began, which was a little over a month after participants' Japanese class began at their institute. The post-survey was given right after the one-month training was over, which was close to their midterm exam. The later-survey was given and collected one additional month later. The later-survey was collected near their final exam. Each survey was collected few days after they were given to participants, so that they have time to reflect their ideas to answer each question. All participants received a package of snacks when they submitted their survey.

The survey played the role of self-evaluation to reflect Japanese language learners' general study methods, speaking skills, awareness of Japanese language features, and ability to identify errors. Questionnaires had multiple-choice questions and open-ended questions. The questionnaires asked the following: how students prepared for their ACT class, whether learners paid attention to pitch accent and intonation on different occasions, what their self-reported speaking proficiency level in Japanese was, how their speaking proficiency had changed over time, whether they had begun paying more attention to pitch accent since the last time they took the survey, and what kind of activities or workshop they desired to have available to supplement their Japanese language studies at their institute. The experimental group was given additional questions on their survey the post-survey and the later-survey, related to the training and Speak Everywhere. These included the following questions: how the workshops helped them; what they thought of SE, the recording activities, and the ability to listen to their recording; and whether they were able to identify their own errors during the study
session using SE. All research materials used in designing the training and the survey can be found in Appendix A and Appendix B.

3.2.3 Interventions: Pitch Accent Awareness Training

The pitch accent awareness training, the intervention, was given to the experimental group in order to examine the effectiveness of individualized pitch accent awareness training and the relationship among (1) awareness of pitch accent, (2) oral skills (particularly with regard to pitch accent), and (3) study habits. The experimental group underwent a one-month training regimen that involved individual coaching sessions, study sessions, and pre-training/post-training assessment. The one-month training involved four 15-minute individualized training sessions. The first session included approximately 5 minutes of pre-training assessment, followed by approximately 10 minutes of an individual coaching session. The second and third sessions each consisted of approximately 10 minutes of individual coaching session followed by approximately 5 minutes of study session. The fourth individual coaching sessions was consisted of approximately 5 minutes of individual coaching session followed by approximately 5 minutes of study session. Immediately after the fourth session, a post-training assessment was given, using approximately 5 minutes. Audio\(^9\) of these sessions' interactions was recorded throughout the training regimen.

Each participant in the experimental group met with the trainer once a week in a quiet room reserved on campus. First, oral consent was obtained from these participants,\(^9\)The investigator recorded audio of all training sessions on her laptop through RealPlayer software. No microphone was used because it was able to pick sounds clearly. The investigator's laptop was Lenovo ideapad P400 Touch. The laptop was located in front of the investigator and a participant throughout the session. The investigator opened RealPlayer before the training session began. She clicked start before the training began and ended when the session was over for each participant.
and they were informed that they could withdraw at anytime. Once the training started, the trainer and these participants spoke mostly in Japanese. This should not have been too intimidating for students because they were already used to learning in a Japanese-language-only environment in their ACT class at their program. The participants were given immediate oral feedback by the trainer when they made errors of segmental (e.g. mispronunciation at the segmental level such as *sya* vs. *sa*: *Masyao* instead of *Masao*), moraic (e.g. short vs. long vowel: *Isógasi* instead of *Isógasi*), pitch accent (e.g. inaccurate pitch location: *Hāsi desu* instead of *Hāsi desu*), and intonation (e.g. wrong intonation: *Sōo desu ka* instead of *Sōo desu ka ✓*). Immediate feedback was not given during pre-training assessment and the post-training assessment.

3.2.3.1 Individual coaching session

The individual coaching session involved reviewing, practicing, and taking mini quizzes on Japanese mora, pitch accent, and intonation. Pitch accent was particularly emphasized throughout the training. The first and the second individual coaching sessions focused on reviewing Japanese mora, pitch accent, and intonation based on Japanese: The Spoken Language (Jorden & Noda, 1987, abbreviated as “JSL”), which was the textbook that participants used at OSU. These reviewing materials should thus have been familiar to participants. To account for the possibility that participants might not have been paying close attention to them, this review ensured that all of the students started with a basic understand of the functions and importance of these concepts.

The third and the fourth session focused more on distinguishing and speaking minimal pairs/triplets. The training participants were able to get additional help and
practice with an emphasis on pitch accent outside of the coaching they would receive in the regular classroom. An example of recognition exercises and quizzes is one task which required participants to mark words with accent and intonation symbols. A task that tested their production required them to listen to the investigator and repeat after her. To test their overall abilities with recognition and production, the quizzes required them to say these minimal pairs/triplets by looking at a visual representation. The trainer corrected mispronounced words and practiced them together with the subjects. More detailed descriptions of these activities are available in section 3.3.

All Japanese texts used in the training were written in JSL Romanization and were marked with the same pitch accent and intonation symbols used in JSL. This was done in order to assist the participants to be familiar with the symbols and to be able to use the textbook as a resource when they need a reference. As described in section 1.3.1, in JSL,  `/./ indicates a rise in pitch on the marked mora,  '/.' means a drop from high to low immediately after the marked mora (ex.  \textit{Wakárimasēn} ['I don’t understand”'], and  `\textit{\textbackslash anáta} ['you']). In addition, training materials also used the symbol L for low pitch and H for high pitch accent for some tasks. For example, the word “Yokohama” was written as  \textit{Yokóhama} (LHHH) for one task.

Some of individual coaching sessions, as well as pre-/post-training assessment, involved practicing or testing to hear or say minimal and near minimal pairs and triplets. Most minimal and near-minimal pairs or triplets were borrowed from JSL. In their introduction of “Supplementary Pronunciation Drills,” Jorden and Noda (1987) provide lists of words and sentences that contain minimal or near-minimal pairs or triplets.
Minimal pairs used in the research differ in only one phonemic feature of moraic pattern (e.g. kāre vs. kāree [short vs. long vowel]), pitch accent patterns (e.g. Tūyu desu. vs. Tuyū dēsu. [HL LL vs. LH HL]), or intonation pattern (e.g. Isōgasisi vs. Isōgasisi? [rising vs. falling intonation]). Near-minimal pairs and triplets differ in two phonemic features as in Masao vs. maśsāo, which differ in a moraic feature (short vs. long consonant) and a pitch accent feature (LHH vs. LHHL). The language used in the training sessions was mostly Japanese, although the instructions for tasks and quizzes were written in English.

3.2.3.2 Study Session

Three of the training sessions included one-on-one study sessions with the trainer, which involved practicing with their speaking assignment based on JSL's Core Conversations (abbreviated as CC), which are short Japanese dialogues used in their ACT class, and recording activities using Speak Everywhere. First, the experimental group participants repeated after the trainer, and then they alternated speaking each side of the conversation with the trainer. After the participants have practiced the dialogues several times with the trainer, they used Speak Everywhere to practice more and submit their recordings. During the study sessions, training participants' study attitude/behaviors were examined by observing how they approached recording activities. This was not an attempt at investigating their class preparation method in an attempt to answer the research question, as the CC was that of a previous ACT class they had just completed. Also, there were no study sessions held before training to compare students’ study methods before and after training.
The software system *Speak Everywhere* (abbreviated as SE) was used to give the oral exercise during the study session towards the end of each second, third, and fourth training sessions. The oral exercises in the current study were created by the investigator/trainer using SE, and were based on the CCs. Participants in the experimental group were asked to record themselves through SE after they practiced the CC that they had recently performed in their ACT class. In an attempt to increase their awareness, self-monitoring skills, and oral skills, they were asked to listen to their own speech product and re-record their speech if not satisfied.

In order to observe the experimental group's study behaviors and to control the time spent on SE, these participants were asked to use SE in front of the trainer. They accessed SE on the researcher's computer and listened to the audio model that the researcher had pre-recorded. Then they repeated what they heard and recorded it without referring to the textbook. They were able to listen to the audio of the model and their own utterances as many times as they wanted to, and pause if needed, as well as delete and re-record their production if they did not like their speech production. Some participants re-did their recording much more than the other participants. On rare occasion, these enthusiastic participants stayed a little longer (about 5 minutes) than the training session's designated duration (15 minutes) to submit the satisfied recordings.

The investigator examined the experimental group's final speech products they submitted on SE to check their oral skills. The investigator was seated beside the participants in order to examine how they approached the computer program, whether they repeatedly listened to the model and their own speech, and whether they could
identify their errors and make self-corrections. Since there were only three study sessions for very short durations (only approximately 5 minutes each for each study session), the observations made during the study session were not used as data in investigating the influence of awareness training on the students' oral skills and study methods, rather in examining their general oral skills and study behaviors during the study sessions. While the program was intended to be used on-line, for the purpose of this study, a stand-alone application version of SE was used on the researcher's laptop to avoid any trouble that students might encounter when logging in to SE's website from their own computers. This eliminated the potential introduction of additional variables that could negatively affect the results of the study.

While using SE, the experimental group was not permitted to look at the textbook and were told to listen to the audio and pay attention to mora, pitch accent and intonation. This was to examine their listening skills, rather than their ability to read the accent/intonation symbols in this task. Learners should not rely on the visual text, for written scripts are seldom available in a normal conversation with a Japanese native speaker. Because they had already memorized the CC for their ACT class, it should not have been an issue for the participants to record without looking at their textbook. In addition, the CCs that learners just learned in their ACT class were assigned to practice and record on SE because they needed to focus on their own speaking rather than memorization.
3.2.3.3 Assessments

A pre-training assessment was given to experimental group participants in the beginning of the first training session, and a post-training assessment was given at the end of the fourth training session in order to evaluate experimental group participants' receptive skills and production skills before and after the training sessions. Receptive skills, or perceptual skills, were examined by assessing the participants' ability to listen and identify the accurate Japanese words/sentences of the visual representation with JSL pitch accent and intonation symbols. Production skills were assessed by their ability to speak the assigned words/sentences fluently with accurate pronunciation, particularly regarding to their pitch accent Voice-recorded pre-training assessment and post-training assessments were assessed and analyzed.

Pre-training assessments and post-training assessments were exactly the same and contained 15 questions of minimal or near minimal pairs or triplets, which resulted in 33 tokens, or 33 words or sentences. These words and sentences were mostly novel to the participants. Tokens used in the assessment were as follows: 1) obasañ/obásañ 2) Sàtoo desu./Satoo desu. 3) Sòo desu ka../Sòo desu ka✔ 4) Masao/massào 5) Siro desu./Sìro dèsu. 6) Isógasii./Isógasii? 7) konna/konà 8) muko/mukoo 9) Tuyu desu./Tuyù dèsu. 10) Māiniti desu./Mâiniti dèsu., 11) Soré o kiru kara./Soré o kirù kara. 12) Ikimåsu ne $/Ikimåsu ne! 13) yôka/yooka/yokka 14) Hási desu./Hasì dèsu./Hasì desu. 15) Kâre da./Kâree da./Karée dà. These tokens were listed on a sheet of paper.

The 33 tokens, or the 15 questions, were listed on a sheet of paper with the instruction on top of the sheet. The same sheet of paper was used as both the perception
test and the production test. To assess the experimental group's receptive ability, they were first asked to listen to the trainer and choose which of the two or three tokens the trainer had said. Then, to assess their production ability, they were told to say each of the 33 tokens listed on the sheet of paper. Participants had to say each token as accurately as possible without any help from the trainer by looking at visual cues (pitch accent and intonation symbols). The trainer did not correct or give feedback during the assessment.

3.3 Contents of Training Sessions

3.3.1 Contents of First Training Session

The first training session included a pre-training assessment and an individual coaching session. The experimental group participants were first asked to complete the pre-training assessment that checked their receptive and production abilities. To assess their receptive ability, the trainer asked participants to listen to her once and select the answer from two or three options of speech samples that include the minimal or near minimal pair words or sentences that differ only in one or two criteria of mora, pitch accent, and/or intonation. For example, Sātoo desu. ('I'm Sato.') and Satōo desu. ('This is sugar.') are minimal pair sentences that differ only in pitch accent (HLL LL in the former and LHL LL in the latter). Another example is Masao ('Masao [person's name]') and maśsāo('pale blue'), which are near minimal words that differ in their mora (3 moras and 4 moras respectively) and pitch accent (LHH and LHHL respectively). After the perception test, to assess their production ability, the researcher asked participants to say each minimal and near minimal pair word/sentence listed with the correct mora, pitch accent, and intonation.
After they completed their pre-training assessment, a review session was held for the participants as part of an individual coaching session. The experimental group participants were asked to watch "The Basics of Accent" and "The Basics of Intonation" sections of "Review: Accent & Intonation" in the Noda and Itomitsu's (2008) DVD-ROM (Japanese: The Spoken Language - Interactive DVD-ROM Program for Parts 2 And 3) to review the basic pitch accent and intonation rules and functions, how they are used and why they are so important in Japanese. Participants were allowed to ask questions and discuss the materials they had learned from the DVD. Because of time constraints, the first training session did not involve the study session.

3.3.2 Contents of Second Training Session

The second training session included an individual coaching session and a study session. In the individual coaching session, the experimental group participants were first asked to read the review sheet silently. The review sheet contained the review of mora, pitch accent, and intonation based on JSL's introduction with some exercises, such as marking a Japanese word or a sentence (marked by JSL pitch accent symbols) with H or L to represent a high pitch or a low pitch to increase their awareness of the concept of high and low pitch. The review materials presented in the review sheet were similar to what they have learned in the DVD during the first training session. They formed a basic summary of the JSL Introduction to mora, pitch accent, and intonation. The experimental group participants read these review materials in order to synthesize what they have learned in the DVD and from their course work to re-organize their thought of what they learned about mora, pitch accent, and intonation.
The review sheet included quick exercises to check their understanding on mora, pitch accent, and intonation. For the mora exercise, they were asked to count the number of mora presented in the review sheet. For a pitch accent exercise, their task was to mark phrases with H for high pitch and L for low pitch. For the intonation exercise, they were asked to say the phrases with appropriate intonation. The review sheet also included questions regarding pitch accent. The experimental group participants were asked to answer questions regarding what they had learned from the review sheet regarding pitch accent. They answered in English for the technical explanation and answered in Japanese for accurate production. They were able to ask questions and discuss with the trainer.

After the individual coaching session, the participants then practiced a dialogue from their recent CC on SE and recorded their utterances during the study session in the second training session. The CCs used in the study session were the same CCs they had learned in the most recent ACT class, which was immediately before the training session. Due to scheduling difficulties, there were two different CCs for the second training session. Four participants worked on one CC that was the most recent for their scheduled training session and five participants worked on another CC that was the most recent for them.

3.3.3 Contents of Third Training Session

The third training session involved oral exercises, perception/recognition checks, and production checks. The oral exercises involved repeating the minimally different words after the trainer. The experimental group listened to the trainer and repeated the minimal or near minimal pair words/sentences that differed only in one or two criteria of
mora, pitch accent, and/or intonation. They were able to see the written representation with the pitch accent and intonation marks, so they could rely both on visual and auditory cues. For the recognition check, the experimental group participants were asked to listen to the trainer and identify the words with correct mora and accurate symbols for pitch accent or intonation. Next, they were asked to mark the pitch accent and intonation symbols on the words after they listened to the trainer twice. For the production check, they were asked to say all the words according to the pitch accent and intonation symbols that they marked, and they reviewed and compared their response with the correct answer for each question with the trainer. The trainer gave oral feedback and corrections on their errors.

The experimental group participants then practiced and recorded CC on SE in the third training session. All experimental group participants worked on the same CC for the third session because the CC of their daily oral assignment immediately before their scheduled third training session was the same for all experimental group participants due to their preferred scheduling time.

3.3.4 Contents of Fourth Training Session

The fourth training session consisted of oral exercises, the study session, a post-training assessment, and a quick review of answers at the very end of the session. The experimental group participants were asked to produce the minimal pair speech samples with the correct mora, pitch accent, and intonation for the exercises in the fourth training session. The participants then practiced a dialogue on SE and recorded their utterances
during the study session. All experimental group participants did the same CC that they had learned immediately before the fourth training session.

In addition, they took the post-training assessment, which was exactly the same as the pre-training assessment, and at the end of the session they quickly reviewed and practiced the answers to the assessment. The content of pre- and post-training assessments were the same in order to see the clear distinction between their perception and production skills before and after training. Even though the content was the same, the answers were never revealed until after they took the post-training assessment; thus, there would be no problem with giving the same questions to the participants. On the post-training assessment, the experimental group participants were to first choose the word from two or three options that represent the correct mora, pitch accent, and intonation as they listened to the trainer. Next, they produced each word (all two or three options) for each question with the correct mora, pitch accent, and intonation.

During the training, including pre- and post-training assessment, the experimental group participants were allowed to listen to the trainer only once for the perception section. However, for the production section, they were able to self-correct their utterances as many times as they wanted, as they do in their ACT class. The answer they produced after making self-corrections was recorded as their final answer. After each training session, participants in the experimental group were given a package of snacks as an appreciation gift.
Chapter 4: Results and Discussion

4.1 Changes in Awareness from Pre- to Post- to After- Intervention

4.1.1 Results on Awareness

The data from the survey responses, training assessments, speech productions, and their errors are available in Appendices G, H, I, and J. Data concerning the reported awareness of Japanese pitch accent is listed in Appendix J. The data was extracted from the survey forms, given at three different times (the pre-survey, which was collected immediately before the experimental group began their training, the post-survey, which was collected immediately after the experimental group completed their training, and the later-survey, which was collected a month after the experimental group completed their training). The results of the survey for the multiple-choice answers were collected three times, all of which are available in Appendix J.

As shown in Table 2 below, the result of the answers for multiple questions on the pre-survey suggests that all participants except one from both the experimental group and the control group paid attention to pitch accent or intonation throughout the research duration. At the time the post-survey was administered, students of both groups had started paying more attention to pitch accent or intonation in preparation for their ACT class. All participants from both groups reported on the later-survey that they paid attention to pitch accent or intonation when they were given feedback by instructors.
Table 2. Survey Results on Awareness of Pitch Accent or Intonation

<table>
<thead>
<tr>
<th>% on survey answers on when they are paying attention to pitch accent or intonation</th>
<th>Pre-survey (before the training)</th>
<th>Post-survey (after the training)</th>
<th>Later-survey (1 month after)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp.</td>
<td>Control</td>
<td>Exp.</td>
</tr>
<tr>
<td>Do you pay attention to the pitch-accent or the intonation in Japanese?</td>
<td>88.89</td>
<td>90.91</td>
<td>100</td>
</tr>
<tr>
<td>a) when preparing yourself for class</td>
<td>44.44</td>
<td>54.55</td>
<td>77.78</td>
</tr>
<tr>
<td>b) while speaking</td>
<td>66.67</td>
<td>63.64</td>
<td>77.78</td>
</tr>
<tr>
<td>c) after realizing making error</td>
<td>77.78</td>
<td>90.91</td>
<td>77.78</td>
</tr>
<tr>
<td>d) while listening to audio/watching video</td>
<td>77.78</td>
<td>63.64</td>
<td>88.89</td>
</tr>
<tr>
<td>e) while reading the textbook</td>
<td>55.56</td>
<td>45.45</td>
<td>66.67</td>
</tr>
<tr>
<td>f) when corrected by others</td>
<td>66.67</td>
<td>54.55</td>
<td>100</td>
</tr>
<tr>
<td>g) when given feedback</td>
<td>88.89</td>
<td>63.64</td>
<td>88.89</td>
</tr>
</tbody>
</table>

(Experimental [Exp.]: N=9, Control: N=11)

Table 2 shows that in the post-survey, 88.89% of the experimental group (8 out of 9 participants) and 36.36% of the control group (4 out of 11 participants) reported that they paid attention to pitch accent or intonation while using the audio/video materials. As will be mentioned in section 4.3.1, in the post-survey, 88.89% of the experimental group (8 of 9 students) and 63.64% of the control group (7 of 11 students) reported using the media materials (listened to the video, watched the video or both) when preparing for their ACT class. On the post-survey, while all eight experimental group participants who reported using the media materials said they paid attention to pitch accent or intonation
(100%), only four control participants out of seven participants in the control group (57.14%) who used the media materials said they paid attention to pitch accent. The detail will be discussed in the section 4.3.1.

The written survey results of the open-ended question asking whether or not they have started paying more attention to pitch accent since the last time they took the survey indicate that everyone in the experimental group was more aware of its importance after the training, and many indicated that it became easier for them to hear and recognize the pitch accent. Table 3 below presents the percentage of participants who responded yes to the question on it. Excluding one student, who indicated that he had always paid attention to pitch accent since the beginning, and another student who did not respond to the question on the post-survey collected, all of the experimental group participants stated that they paid more attention to pitch accent after the training in the open-ended portion of the survey. Seven participants out of nine (77.78%) reported paying more attention to pitch accent on the post-survey collected, and eight participants (88.89%) reported paying more attention on the later-survey collected.

Table 3. Written Survey Response on Paying More Attention to Pitch Accent

<table>
<thead>
<tr>
<th></th>
<th>Immediately after the training</th>
<th>1 month after the training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>77.8%</td>
<td>88.89%</td>
</tr>
<tr>
<td>Control</td>
<td>72.72%</td>
<td>27.27%</td>
</tr>
</tbody>
</table>

(Experimental: N=9, Control: N=11
This is percentage of participants who responded yes to the question "Have you started paying more attention to pitch accent since last time you took the survey?")
Participants with training indicated that they realized the importance of pitch accent in speaking Japanese. Some stated that they realized that their pitch was off before and that the meaning could change depending on the pitch, and some noted that they realized how pitch accent could affect the ability to speak the language properly. A student noted that his understanding of pitch accent and intonation had improved, and his study habits had improved as well. Another student indicated that she grew more confident in her listening ability (in distinguishing low from high pitch moras) with increased use/repeated listening to audio materials. The repeated exposure to pitch accent and intonation patterns made her feel more comfortable in her attempt to produce the same sounds.

As for the control group, on the post-survey, collected immediately after the training, for the open-ended question asking whether or not they had started paying more attention to pitch accent since the last time they took the survey, two students (18%) out of eleven in the control group reported paying the same amount of attention since the pre-survey (a month before the training), and one did not respond. Eight students out of eleven (72.72%) reported paying more attention. Some control participants wrote that they became more aware of pitch accent because they are corrected by instructors in their ACT class. One student in the control group indicated that the survey led him to be more aware of pitch accent. One control student, however, indicated that he gave up on getting the pitch right since there are too many variations without enough predictability to consciously memorize. He most likely knew about pitch variations but failed to notice the regulation of pitch accent in standard Japanese.
On the later-survey collected for the third time (1 month after the training), seven out of eleven students (63.63%) of the control group reported that they did not pay more attention to pitch accent, or they paid approximately the same amount since the last time they took the survey. One did not respond to the question, and only three (27.27%) wrote that they paid more attention to pitch accent. One reported paying more attention because she stated getting used to pitch accent. One wished to be more fluent, and another indicated that she was paying more attention since she was making a lot of pitch accent errors.

As shown in Table 4, the percentage of students in the experimental group who could identify their errors improved somewhat after the training and was higher than in the control group immediately after the training; however, it seems like there was not a big difference between the two groups a month after the training, as the control group improved.

Table 4. Survey Result on Error Types Participants Could Identify

<table>
<thead>
<tr>
<th>% on survey answers on what types of errors they could identify</th>
<th>Pre-survey (before the training)</th>
<th>Post-survey (after the training)</th>
<th>Later-survey (1 month after)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exp.</td>
<td>Control</td>
<td>Exp.</td>
</tr>
<tr>
<td>a) Segmental</td>
<td>77.78</td>
<td>63.64</td>
<td>88.89</td>
</tr>
<tr>
<td>b) Pitch accent</td>
<td>44.44</td>
<td>45.45</td>
<td>66.67</td>
</tr>
<tr>
<td>c) Intonation</td>
<td>11.11</td>
<td>9.09</td>
<td>55.56</td>
</tr>
<tr>
<td>d) Grammar</td>
<td>77.78</td>
<td>54.55</td>
<td>77.78</td>
</tr>
</tbody>
</table>

(Experimental [Exp.]: N=9, Control: N=11)
4.1.2 Discussion on Awareness

Overall, the results suggest that pitch accent awareness training can increase awareness among Japanese language learners. This finding support previous studies. For instance, Nakazawa (2012) argued that learners' awareness could be improved even with small numbers of pronunciation training workshops. She argued that the face-to-face workshops as well as the computer-assisted training could be helpful. The samples used in her study were intermediate and advanced level Japanese language learners at an Australian university. The present study suggests that the training is effective and the use of computer programs is helpful for beginning-level Japanese language learners at an American university as well. The explicit instruction and the explicit representation in the awareness training helped learners to think about Japanese pitch accent consciously.

All participants reported that they paid attention to pitch accent or intonation on the post-survey and the later-survey. If we look at "pitch accent" specifically, as oppose to "pitch accent or intonation," the result shows that 88.89% of students with training reported paying more attention to pitch accent a month after the training compared to the last time they took the survey, while only 27.27% of students with no training paid more attention to pitch accent. The percentage of students paying more attention to pitch accent was similar in the post-survey for both groups (77.8% of the experimental group and 72.72% of the control group) most likely because of the emphasis that their Japanese program made to all participants. Also, even though the control group did not receive any training, the survey, which had an emphasis on pitch accent questions, might have led some students to pay more attention to pitch, as one student specified about it in the
written survey. It is clear that students with no training pay attention to pitch accent as well, but students with training kept paying more attention than the control group, as shown in the result of the later-survey a month after the training.

The number of students paying attention to pitch accent or intonation while preparing for their ACT class increased rather dramatically for both groups on the post-survey collected for the second time, but it decreased somewhat a month later. The percentage in the later-survey is higher than the pre-survey but lower than the post-survey. For the experimental group specifically, the percentage was not as high as expected in the later-survey, especially considering that all participants in the experimental group except one, who reported that he always paid attention, indicated that they were more aware of pitch accent than before in the short answer portion of the post- and the later-survey (please refer back to section 4.2.1 Table 2 for the data).

There are many possible reasons for why the percentage of those who paid attention to pitch accent or intonation while preparing for their ACT class decreased, one of which could be the timing of the survey collected. The later-survey was collected near the students’ final exams. Students might have focused more on grammar or reviewing vocabulary than oral skills to prepare for their written exam, or they might had less time to prepare for their ACT class in order to prepare for their other courses. It could be that because they were busy preparing for exams, they overlooked some of the questions on the survey and not responded to them, while they responded on the written question asking whether they paid more attention to pitch accent. It could alternatively be that the survey data was accurate, and the experimental group indeed paid more attention to pitch
accent at the time of the later-survey than they did the month before, but they paid more
attention in other situations than when preparing for their ACT class. These situations
might include during class, when they were corrected, or during reviewing rather than
preparing/previewing.

4.2 Relationship Between Awareness and Performance of Pitch Accent

4.2.1 Improvement on Oral Skills

4.2.1.1 Oral Skills of Pre- and Post-Intervention

A pre-training and post-training assessment was given to the experimental group
only; therefore, the result for perception scores and production scores are only available
for experimental group participants. There was no assessment a month after the training.
Data of the experimental group's assessment scores and errors are presented in Appendix
G.

Table 5. Experimental Group's Average Production Score (out of 33 points)

<table>
<thead>
<tr>
<th>Production</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.67 (59.60%)</td>
<td>24.89 (75.42%)</td>
</tr>
</tbody>
</table>

The average score on the production section (segmental, mora, pitch accent, and
intonation) for experimental group improved from 19.67 (59.60%) to 24.89 (75.42%) out
of 33 after the one-month training as you can find in the above Table 5. To compare the
experimental group's scores before and after the training on perception and production, a
paired samples t-test was conducted with a 95% confidence interval (an alpha level of
0.05). According to a paired samples t-test, there was a significant difference in the scores for pre-training (M= 19.67, SD = 3.77) and post-training (M= 24.89, SD = 3.72) conditions; t(8) = -3.86, p = 0.00 (p <0.05). These results suggest that experimental group had significantly better oral skills in production in their post-training assessment than in their pre-training assessment before training began.

For production, participants were asked to produce each of the tokens from the previous set of pairs/triplets; as they were graded on their ability to pronounce each individual token, the production score was calculated out of 33 (the total number of tokens). To calculate the production scores, whether an experimental participant made only one error or multiple errors on segmental, mora, pitch, and/or intonation within the same token, the score was only subtracted by one (thus out of 33 scores); however, all errors were counted and analyzed and shown separately as well. A single type of error repeated throughout the performance of a given minimal pair/triplet counted as an error for each token (e.g. subtract by one each for all tokens when they made a pattern error of mispronouncing in the same way). Even though the training did not emphasize segmental, segmental errors, such as mispronouncing a sound (not related to pitch accent and intonation) were also counted and subtracted from students' scores. Participants were also given oral feedback on segmental during training except during the pre-training and post-training assessments.

In order to investigate the frequency of each type of error (segmental, mora, pitch accent and intonation) that experimental group made, all kinds of production errors were counted and sorted as well. Their errors are presented in Appendix H. Perception errors
were also counted to see which type of words/sentences the participants frequently had problems with. If experimental group made multiple errors on the same word/sentence while speaking, all the errors of mora, accent and/or intonation were counted as errors regardless of what the minimal/near minimal pairs were focusing on (e.g. minimal pair that differs only in pitch accent). For example, if participant said *Isógási* instead of *Isógásii* on a minimal pair *Isógásii*/*Isógásii*? (which differ only in intonation), it was counted as both a moraic error and a pitch accent error even though the intonation was correct.

If experimental group participants added a different feature on top of another criterion that was accurately produced, the extra feature that was added was counted as an error of that criterion (i.e. if it was right accent pattern but rising into was added, then it was considered as intonation error). For example, it was counted as an intonation error if someone added an intonation to the token that was not marked by that intonation marker (ex. adding intonation and saying *mukoo* for *mukoo* (no intonation mark) if it was not supposed be followed by rising intonation).

The pre-training assessment's total number of errors, which included each participant's all-inclusive errors, (covering segmental, mora, pitch accent, and intonation) were 136. Of the 136 errors found in the pre-training assessment, the total numbers of errors summing up all of the participants mistakes for the pre-training assessment was 9 for segmental, 12 for mora, 106 for pitch accent, and intonation error was 9. The number of post-training assessment's total errors, on the other hand, was 79. Of the 79 errors, moraic error made up 4, pitch accent errors made up 68 of the errors, and intonation
errors comprised 7 of the errors. No segmental errors were found in the post-training assessment (please refer to Table 6 and Figure 1 below).

Table 6. Total Production Errors of Experimental Group

<table>
<thead>
<tr>
<th></th>
<th>Pre-training assessment</th>
<th>Post-training assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (each)</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Total (all)</td>
<td>136 errors</td>
<td></td>
</tr>
</tbody>
</table>

(N=9)

Figure 1: Table Graph of Numbers and Types of Errors
Many participants had problems with unaccented words, which were not marked with any accent symbols, and they tended to give accent on the first mora for the unaccented words. For instance, half participants mistakenly said kónna (HLL) instead of konna (LHH/unaccented) in the pre-training assessment. This is reflective of Nakagawa (1996)'s study that native English speakers stress the first syllable with a high pitch.

Many struggled to maintain the accent pattern when saying a question Isóğasii? Some participants skipped the long vowel /i/ in the end and started raising the intonation from /si/, or changed the accent pattern. For instance, one participant said Isóğási? and another student said Isóğásii? and couple others said Isóğasi? rather than Isóğasi? Some of them did fine with the statement "Isóghasii." but they changed their accent pattern or dropped vowel /i/ for the question "Isóghasii?" Even though many struggled with Soré o kiru kara. vs. Soré o kirù kara. for the perception section, students were generally able to produce the sentences with accurate pitch accent after a couple tries.

4.2.1.2 Oral Skills Observed during Study Sessions

Study sessions were also only available to the experimental group; therefore, the data analyzed from study sessions are from the experimental group only. Their speech production samples are available in Appendix I.

<table>
<thead>
<tr>
<th>Table 7. Experimental Group's Average Speech Sample Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average score</td>
</tr>
<tr>
<td>(out of 4)</td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Session 1 (2nd training)</td>
</tr>
<tr>
<td>Session 2 (3rd training)</td>
</tr>
<tr>
<td>Session 3 (4th training)</td>
</tr>
<tr>
<td>(N=9)</td>
</tr>
</tbody>
</table>
The average score of study session 1 was 3.67 (91.8%) based on the 4 point scale, and it increased to 3.72 (93%) for both study sessions 2 and 3 (see Table 9 above). The score of final speech samples, which experimental group participants submitted on SE, was based on a scoring system of daily performance used in the participants' Japanese program, which is on a four-point grading scale as follows:

4.0: Performance is fully culturally coherent, that is, would present no difficulty, discomfort, or puzzlement in interaction with a native. Repair (restating or correcting yourself, requesting clarification, etc.) is self-managed.

3.5: Performance is superior, for the most part culturally coherent. There is little about it to create difficulties, discomfort, or puzzlement in interaction with a native. However, there is some aspect of the performance to make interaction less than maximally coherent for a native. Most repair is self-managed.

3.0: Performance is good: few aspects of it create difficulties, discomfort, or puzzlement in communicating with a native. Self-managed repair alone, however, is not sufficient; you also require occasional repair/correction from another (= instructor, classmate, etc.).

2.5: Performance enables communication, but also presents several clear-cut sources of difficulty, discomfort, or puzzlement in communicating with a native. Repair is largely a matter of correcting problems, and correction comes mostly from others.
2.0: Performance creates definite obstacles to communication, which usually involve more than simple discomfort. Utterances would cause puzzlement that the native is at a loss to resolve ("What is s/he trying to say?"). Repair requires multiple, often repeated, correction and guidance from another.

1.5: Performance shows many problems that would create difficulties, discomfort, and puzzlement in communicating with a native. Communication is achieved only with repeated correction and guidance from another. Clearly not in control of assigned material.

1.0: Attended class, but either (1) chose not to participate (for this option, notify your instructor before class begins), or (2) failed to perform with any culturally viable degree of competence.

0: Absent. ("Grading Policy," n.d., p.1)

The primary focus for grading their oral skills for these speech samples in the present study was on participants' mora, pitch accent, intonation, and fluency. Many students made an accent error on "asita" and mistakenly said ásita (HLL) instead of asita (LHH [unaccented]). Also, two of students made moraic errors on donna no. They pronounced it as do(o)nano instead of do.na.no\(^{10}\). All of the students did very well on intonation.

\(^{10}\) Period "." indicates the mora boundary.
4.2.2 Receptive Skills

Table 8. Experimental Group Average Perception Score (out of 15 points)

<table>
<thead>
<tr>
<th>Perception</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Post</td>
<td></td>
</tr>
<tr>
<td>12 (80.00%)</td>
<td>12.56 (83.70%)</td>
<td></td>
</tr>
<tr>
<td>N=9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The experimental group participants’ perception score was relatively high to begin with, and the average score slightly improved from 12 to 12.56 out of 15 (80% to 83.70%) on perception from before training began to after it ended (refer to Table 8). For the perception portion of the assessment, students in the experimental group were presented with 15 problems, each of which presented minimal/near minimal pairs or triplets (e.g. Kâre da./Kâree da./Karée dâ.). For each pair or triplet, the student was asked to pick the token (word/sentence) that matched what the instructor said. This assessment was graded on a scale of 0 to 15, with 15 being a perfect score.

According to a paired samples t-test that was conducted to compare the perception score of experimental group before and after the training, there was no significant difference in the scores for pre-training (M= 12, SD = 2.65) and post-training (M= 12.56, SD = 3) conditions; t(8) = -0.92, p = 0.38 (p >0.05). These results suggest that experimental group participants did not significantly improve their perception skills.

Following Table 9 is provided to show how many experimental group participants pronounced a token inaccurately for each question to illustrate which tokens they struggled more frequently before and after training. The details can be found in Appendix
G. All experimental group participants did a fairly good job distinguishing short/long vowel/nasal moraic patterns and various intonation patterns. In both pre-training and post-training assessment, most of the participants (7 out of 9 participants in both assessments) failed to perceive the question #11 *Soré o kiru kara* vs. *Soré o kirù kara*. That differ in the position of pitch fall. Many students chose the option of *Soré o kiru kara* instead of the correct answer, *Soré o kirù kara*.

Table 9. Total Number of Experimental Group with Wrong Answers

<table>
<thead>
<tr>
<th>Q #</th>
<th>Pre-training</th>
<th>Post-training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>5)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11)</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>12)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>13)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>15)</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

(N=9)

About half the participants in the experimental group (5 participants in pre-training and 4 participants in the post-training) also had trouble with #4. *Masao* vs. *maşsào* that differ in both mora and pitch accent pattern. They chose the answer *Masao* instead of the correct answer *maşsào*. Question #1. *obasañ/obásañ*, #7. *konna/konã* and #8. *múko/mukoo* also differ in both pitch accent and mora, but no one made an error on
#1, #7, or #8. Hence, this indicates that they had trouble with long consonants in this particular question and failed to distinguish the long consonants (i.e. /s/ in /maśsão/).

In the pre-training, nearly half the experimental group (4 participants) had some trouble with #15 Kâre da./Kâree da./Karée dà., which had three options including both minimal pairs that differ in mora and accent. Except one student who selected Kâre da. rather than Kâree da., students mistakenly selected Karée dà. instead of the correct answer Kâree da in which the mora length and types are the same, but pitch patterns are different. Everyone except one student was able to perceive this question #15 in the post-training assessment, however. The one student who got the answer wrong chose Karée dà. instead of the correct answer Kâree da. This was the same student who chose Kâre da. instead of Kâree da. in the pre-training assessment. This shows that in the post-training assessment he was able to perceive the mora type correctly, but not pitch accent pattern.

### 4.2.3 Improvement of Self-reported Speaking Proficiency

Table 10 is provided to present the percentage of participants for each multiple-choice answer on speaking proficiency. Table 11 is provided to reflect the average response on speaking proficiency. The average response of both groups was between "Not so good but not too bad" and "Average" at first, but it moved up to "Average" after training, and then between "Average" and "Good" in the end. Both groups improved over time as shown in Figure 2. More rapid improvement is seen for the experimental group immediately after the training.
### Table 10. Survey Results on Self-reported Speaking Proficiency

<table>
<thead>
<tr>
<th>% on survey answers on Speaking Proficiency</th>
<th>Pre-survey (before the training)</th>
<th>Post-survey (after the training)</th>
<th>Later-survey (1 month after)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment</td>
<td>Control</td>
<td>Experiment</td>
</tr>
<tr>
<td>a) very poor</td>
<td>11.11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b) Poor</td>
<td>11.11</td>
<td>9.09</td>
<td>11.11</td>
</tr>
<tr>
<td>c) Not so good but not too bad</td>
<td>22.22</td>
<td>27.27</td>
<td>11.11</td>
</tr>
<tr>
<td>d) Average</td>
<td>33.33</td>
<td>54.55</td>
<td>44.44</td>
</tr>
<tr>
<td>e) Good</td>
<td>22.22</td>
<td>18.18</td>
<td>33.33</td>
</tr>
<tr>
<td>f) Very good</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g) Perfect</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

(Experimental: N=9, Control: N=11)

### Table 11. Average Survey Response on Speaking Proficiency

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>3.4444</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>3.7727</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>3.6250</td>
<td>20</td>
</tr>
<tr>
<td>Post-survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>4.0000</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>4.0909</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>4.0500</td>
<td>20</td>
</tr>
<tr>
<td>Later-survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>4.1111</td>
<td>9</td>
</tr>
<tr>
<td>Control</td>
<td>4.4545</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>4.3000</td>
<td>20</td>
</tr>
</tbody>
</table>

(Note: 1= Very poor, 2= Poor, 3= Not so good but not too bad, 4= Average, 5= Good, 6=Very good, and 7= Perfect)
A two-way analysis of variance (ANOVA) has revealed that there was no statistically significant main effect for the group (the experimental group and the control group) \( F(1,18) = 0.47, p=0.5 \text{ (p>0.05)} \); however, it showed that there was an overall significant difference in speaking proficiency over two month of study in their Japanese course \( F = 8.36, p=0.001 \text{ (p<0.05)} \). These results suggest that there was a significant increase in self-reported speaking proficiency in Japanese over time.
A two-way ANOVA was run with an alpha level of 0.05 on the data of self-reported speaking proficiency. The data was for both the experimental group and the control group over the course of the approximately two months of research through the survey data. This two-way ANOVA test was a 2 x 3 ANOVA that tested between-subjects of two independent groups (experimental and control) and within-subjects of the survey responses (three times), which took the form of repeated measures. The survey responses took the form of repeated measures since they came from the same survey question three times. The survey’s responses came from a questionnaire asking "What do you think of your speaking proficiency right now?" and the multiple-choice answers were as follows: a) Very poor, b) Poor, c) Not so good, but not too bad, d) Average, e) Good, f) Very good, and g) Perfect. Their answers were converted into numbers 1 to 7 in the ANOVA test (1= Very poor, 2= Poor, 3= Not so good, but not too bad, 4= Average, 5= Good, 6=Very good, and 7= Perfect). No specific definition of speaking proficiency was given.

4.2.4 Discussion on Oral Skills

The results suggest that there may be a relationship between awareness and learners' oral skills in Japanese. The experimental group considerably improved in their oral skills in segmental, mora, pitch accent and intonation after the training. These findings support previous studies such as those conducted by Hirano-Cook (2011) and Hirata (1999). As Hirano-Cook (2011) and Hirata (1999) stated, production training is effective for their production skills. However, in contrast to their argument that perceptual training can improve receptive skills, they did not significantly improve in the
present study. Hirata (1999) argued that production training can be effective in improving both perceptual and production skills, but this was not the case for the current study. The pre-test scores of their studies were much lower than the pre-training assessment scores of the present study. The present study's perception scores did not improve significantly because they were high in the pre-training from the beginning and only slightly improved in the post-training assessment. This may be due to the difference in complexity of the perception test in their studies and in the present study.

According to the data regarding the training assessment of the experimental group in the present study, the results suggest that the improvement of production skills was significant but not for perception skills. The experimental group's receptive skills were higher than their production skills (before and after training), but their production skills improvement much better (59.60% to 75.42%) than their receptive skills (80.00% to 83.70%). Overall, we can conclude that there was improvement in language learners' oral skills after one month training and one month of studying in the Japanese course.

Hirano-Cook concluded that perceptual training could improve perceptual skills, but this was not the case for the present study. It may be because Hirano-Cook's (2011) perception test was more complex, and her experimental group's overall perception scores were low in the pre-test, while the present study's pre-training assessment scores for the experimental group were high to begin with. In her identification test (perception test), participants were asked to mark the location of the pitch accent, while the present study required the experimental group to simply circle the word they heard from two or three (near) minimal pairs and triplets.
Hirano-Cook (2011) was examining accuracy rates for different types of pitch accent: type 0/LHHH ("has no accent"), type 1/HLLL ("an accent on the first mora"), type 2/LHLL ("an accent on the second mora," and type 3/LHHL ("an accent on the third mora") (Hirano-Cook, 2012, p.30). In contrast, the present study's perception test examined whether the experimental group participants can perceive mora, pitch accent, and intonation on the words/sentences that were marked by pitch accent and intonation. Near minimal pairs/triplets were pairs/triplets that differ in one feature of mora, pitch accent, and/or intonation. It is hard to determine whether participants were not able to perceive because of difficulties with pitch accent or due to another feature (mora or intonation).

In Hirano-Cook's (2011) study, the experimental group with training had improved in perceiving all types of accentual pattern, especially on type 1. The experimental group's sum of perceived accentual pattern rate improved from 70% in the pretest to 77% in the posttest for type 0, 16% to 49% for type 1, 40% to 55% for type 2, and 48% to 65% for type 3. She noted that "for some accentual patterns, the sum of the perceived accentual pattern rate did not add up to 100% due to the participants' mistakes, such as leaving an answer blank" (Hirano-Cook, 2011, p. 80). Overall, the perceived accentual pattern rate that she found were much lower compared to the present study (80% in the pre-training assessment and 83.7% in the post-training assessment). The findings might have been different if the present test also required participants to mark the stimulus instead of simply circling what they heard.
Hirata (1999) argued that perceptual training can improve perceptual skills, and production training can also improve perceptual skills as well as production skills. In her perception test in the Experiment III, she asked her participants to choose one answer from 9 choices. The 9 choices were 9 pitch patterns for 2- to 4- mora words: "(1) HL, (2) LH, (3) HLL, (4) LHL, (5) LHH, (6) HLL, (7) LHLL, (8) LHHL, and (9) LHHH" (Hirata, 1999, p.105). Similar to Hirano-Cook's, this task is more complex than the present study.

In the present study, the participants were able to pick one answer from two or three words/sentences. They were able to look at the mora, pitch accent symbols, and intonation symbols. In the case of near minimal pairs that differ in a pitch accent pattern or a mora pattern, even if they were not able to detect and distinguish one feature (e.g. pitch accent or mora), they were able to answer correctly, as long as they knew the other criteria. For instance, even if participants could not identify the pitch accent pattern, if they could identify mora length, they can still get the right answer for a near minimal pair such as obasaï vs. obâasaï, which differs in pitch pattern and a mora length.

Hirata (1999) did not specify the actual numbers, but she provided figures to show the overall effects of training and word type for her “Experiment III.” According to the figures, it seems that in the perception pre-test, the experimental group's total scores for word and sentence combined was roughly 40%, and it improved to approximately 55% in the post-test. Word scores improved from approximately 45% to 60%. Sentence scores improved from approximately 30% to 50%. Now, let's look at her results regarding the effects of word type (easy vs. difficult items). The difficult items contained either long vowels, germinate consonants, or both of these elements, while easy items did not contain
any of those. For easy items, participants only needed to focus on pitch patterns, while for
difficult items, they needed to pay close attention to both pitch patterns and durations.
The experimental group's perception word scores in the pretest for easy words was
roughly 52%, and it improved to approximately 68% in the post-test. Word scores for
difficult words improved from approximately 42% to 55%. Sentence scores for easy
words improved from approximately 42% to 65%. Sentence scores for difficult words
improved from approximately 25% to 48%. As in Hirano Cook’s study, perception scores
of the pre-test in Hirata's study were lower than the scores in the present study (80% in
the pre-training assessment).

Alternatively, it is also possible that the participants in the current study had better
receptive skills than subjects in the other studies because their Japanese program
emphasized oral skills. It is possible that because they were encouraged to use the media
materials and their pronunciation was frequently corrected by instructors, their receptive
skills were high even before the training.

In the present study, some students in the experimental group were able to
produce the stimuli in the production test even when they couldn't perceive them. This
may be because they were only allowed to listen to the trainer once, while they were
permitted to take time and correct themselves when they were speaking for production. In
Hirano-Cook's (2011) study, participants were able to listen to the stimulus twice, so this
may be another reason why the present study did not show a significant improvement in
the receptive skills.
In the post-training assessment's production test in the present study, self-managed repairs or the self-corrections were frequently seen. This shows that learners were able to monitor and identify their pitch accent errors. Occasionally they were unable to repair their errors, but they were still able to identify them. The awareness training enhanced their self-monitoring ability, which led to better pitch accent skills.

The speech production score of SE during the study session was very high for all training sessions because the experimental group participants were able to listen to themselves and submit when they are satisfied. Because the Core Conversation dialogue used in the SE recording activity was a CC of the ACT that they had just completed, and also because they practiced right before the recording with the investigator, students rarely made any mistakes on grammar since they had memorized the lines already. Nevertheless, some errors were still seen because some did not even attempt to fix their errors, while some noticed them and tried to correct themselves but still couldn’t say them accurately.

Even though many participants who received training complained about voice recording activities using Speak Everywhere in the study sessions, everyone was satisfied with the activities according to their survey response. They indicated that the recording was embarrassing and somewhat uncomfortable to them; however, they acknowledged that it was a great way to self-check and improve pronunciation. It was helpful for them to be able to pause and critique themselves by locating errors they did not hear while they were speaking.
Self-reported speaking proficiency has improved over time in both the experimental group and the control group. As Figure 2 in section 4.2.3 clearly shows, while the control group improved gradually, the experimental group's self-reported speaking proficiency improved more rapidly immediately after the training. One month after the training, the overall gap between the two groups was about the same as the pre-training. There may have been more gaps between these groups in the end if the training continued for a second month.

One thing to keep in mind is that because this was self-reported, their answers may not be accurate. For instance, some students who showed strong speaking proficiency in the experimental group indicated that their speaking proficiency was poor or not so good, but not too bad while their speaking proficiency was actually very good. It could be that some participants were being humble and rated themselves lower than their actual speaking proficiency. Alternatively, it could just mean that they were not confident or happy with their proficiency although their speaking proficiency level was high. Another possible variable is that students had different ideas about "Speaking Proficiency" since no definition of speaking proficiency was given. Some might have thought of it as overall speaking proficiency while others might have thought it was only specific to pitch accent or other prosodic features. However, whatever the circumstance it is, it still displays an improvement in what they perceived to be "Speaking Proficiency."
4.3 Relationship Between Awareness and Study Habits

4.3.1 Reported Study Activities

Data was extracted from the survey to examine students' class preparation methods outside of the training. All of the data collected from the survey is presented in Appendix J.

Table 11. Survey Response on Study Preparation Method

<table>
<thead>
<tr>
<th>% of participants on how they prepare for the class</th>
<th>Pre-survey (before the training)</th>
<th>Post-survey (after the training)</th>
<th>Later- survey (1 month later)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment</td>
<td>Control</td>
<td>Experiment</td>
</tr>
<tr>
<td>Listen to the audio</td>
<td>77.78</td>
<td>90.91</td>
<td>66.67</td>
</tr>
<tr>
<td>Watch the video</td>
<td>55.56</td>
<td>54.55</td>
<td>66.67</td>
</tr>
<tr>
<td>Record yourself</td>
<td>0</td>
<td>0</td>
<td>11.11</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>9.09</td>
<td>11.11</td>
</tr>
</tbody>
</table>

Table 11 provides the total number of participants and percentage of participants who responded to the questions about using the audio files and to the question about using the video files to prepare for their ACT class. It does not show the individual responses to questions asking whether the individuals used audio files or video files only, used both media materials, or used neither of them. Table 12 is provided to identify what percentage of individuals used only the audio files, only the video files, both of them, or neither of them. As shown in Table 12, the pre-survey indicated high usage of audio files
or video files for both groups. On the post-survey, the number of students using the audio and/or the video files stayed high for the experimental group, but it dropped for the control group. On the later-survey, the number was low compared to the pre-survey for both groups.

Table 12. Survey Response on the Use of Media Materials

<table>
<thead>
<tr>
<th>% of participants using the media materials to study</th>
<th>Pre-survey (before the training)</th>
<th>Post-survey (after the training)</th>
<th>Later-survey (1 month after)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment</td>
<td>Control</td>
<td>Experiment</td>
</tr>
<tr>
<td>Audio Only</td>
<td>33.33</td>
<td>36.36</td>
<td>22.22</td>
</tr>
<tr>
<td>Video Only</td>
<td>11.11</td>
<td>0</td>
<td>22.22</td>
</tr>
<tr>
<td>Both</td>
<td>44.44</td>
<td>54.55</td>
<td>44.44</td>
</tr>
<tr>
<td>Neither</td>
<td>11.11</td>
<td>9.09</td>
<td>11.11</td>
</tr>
</tbody>
</table>

(Experimental: N=9, Control: N=11)

In the post-survey given to the experimental group, eight students (out of 9) (88.89%) indicated either that they watched the video, listened to the audio, or used both in preparation for their ACT class. Two participants (22.2%) indicated that they listened to the audio only, two indicated watching the video only, and four indicated both listening to the audio and watching the video. On the other hand, in the post-survey administered to the control group, four participants (out of 11) indicated that they did not listen to the audio nor watch the video in preparation for their ACT class. Only seven participants (63.63%) reported that they listened to the audio files, and of those, four (36.36%)

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reported that they watched the video files as well (none reported that they only watched the video but did not listen to the audio).

There were seven participants (63.63%) in the control group who listened to the video, watched the video, or both. Of the seven, only four participants paid attention to pitch accent (57.14%), while all experimental group participants who watched the video/listened to the audio (8 out of 8) paid attention to pitch accent (100%). The number of the experimental group who listened to the audio and/or watched the video dropped a month after the training ended. In both the experimental and the control group, three participants indicated in the later-survey that they did not listen to the audio or watch the video.

One participant in the experimental group indicated that he recorded himself in preparation for ACT class on the post-survey; however, there was no student who did the self-recording on the later-survey even though all of the experimental group participants said that the recording activity was very helpful. None of the control group participants reported that they recorded themselves in preparation for their class. In response to a question asking "Other (please specify)" in preparation for their class, one student from the experimental group reported that she practiced speaking CCs in front of her dog on the post- and later-survey. For the control group, there was one student who reported using a third party source called Rosetta Stone in the pre-survey, and another participant reported using "jisho.org" in the post-survey.
4.3.2 Observed Study Behaviors during Training

Because the experimental group participated in the training, this group had additional study resources (the training) in addition to their normal study requirements. In the training, the experimental group reviewed and practiced Japanese prosodic features with their trainer (a native Japanese speaker), with a focus on pitch accent. They practiced the CCs (Core Conversations) with their trainer and practiced repeating after the model and recording themselves using SE.

During the study sessions, there were many individual variations in how students in the experimental group approached the recording activities. While some students kept repeating until they were satisfied with their speech samples, some did not. A few students did not resubmit their speech to correct their errors after they heard themselves on SE, because they either did not attempt to correct their errors or could not identify their errors. Many students generally tried to fix their errors when they heard themselves mispronouncing words, and usually succeeded correcting themselves, but occasionally they were unable to correct themselves even though they could identify their errors.

4.3.3 Discussion on Study Habits

The findings suggest that there may be a relationship between awareness of pitch accent and study habits, but the collected data is not conclusive to this end. The experimental group had extra study time spent practicing their oral skills during the training. It seems that the training influenced their attitudes towards pitch accent, which led them to pay attention to it when studying. The experimental group used more media materials to prepare for their ACT class than the control group immediately after the
training. The media materials help students to listen to the actual sound and rhythm of Japanese, and they can repeat after the model to practice speaking. Even though the data of the survey by itself may not be sufficient to conclude that there is a relationship between an awareness of pitch accent and its integration into study habits, it seems that the experimental group's study behavior or attitudes have been influenced by the training. Additional study may be required to further explore this possible effect.

All experimental group participants changed their study habits during the training due to their time spent practicing and studying Japanese prosodic features with a focus on pitch accent. In spite of efforts to introduce the use of self-recording activity during the study session, only one student in the experimental group reported self-recording to prepare for the ACT class on the post-survey and none reported using it in the later-survey. The idea of self-recording was very popular among the experimental group participants, but students still did not record themselves to prepare for their ACT class. This was most likely due to a lack of time. If students acknowledged that it was helpful, but were still not motivated to do it on their own, we may need to require self-recording for class preparation.

According to the survey collected before, immediately after, and a month after the training, the study methods of students in both the experimental and control groups were similar. One thing to note is that, in comparison to the control group, a higher percentage of the experimental group reported in the post-survey that they used media materials (the audio and/or the video files that their Japanese program provided for them for normal classwork). This difference was not observed in the later-survey. The percentage of the
experimental group that reported using the media materials in the post-survey are the same as with the pre-survey, as compared to the control group, which reported a decline in the use of these materials in the post-survey. This may indicate that the training encouraged the continued use of these materials through the use of model pronunciation audio files.

As mentioned in section 4.1.1, 88.89% of participants (8 out of 9 participants) in the experimental group responded affirmatively to a question asking whether they paid attention to pitch accent or intonation while using the audio/video materials, whereas only 36.36% of participants (4 out of 11 participants) in the control group gave this response (as shown in Table 2 in section 4.2.1 and Appendix J). The question asked whether students paid attention to pitch accent or intonation while they listened to the media materials (audio or video). Because the number of students in the control group who used the media materials dropped in the post-survey, the number who paid attention while they were using the media materials naturally also decreased.

4.3.4 Desired Intervention Activities

In response to the survey question asking what sorts of workshops they wished to have available, many participants from both the control and experimental groups responded that they would like to have tutoring, discussion tables, and a conversation club specifically for level one students. While there is a Japanese conversation club at OSU, many beginning-level students were hesitant to attend since they were not confident in their speaking ability, so they wished for a way to practice outside the classroom at their level. Many participants from the experimental group stated that they
would like to have more of the pitch accent awareness training or a self-recording workshop, which was part of the training. They expressed an interesting in getting help from instructors who could point out their errors and aid them in correcting those errors. This suggests that the awareness training influenced their desire of possible workshops related to the training.
Chapter 5: Conclusions

5.1 Awareness, Performance, and Study Habits

A study was carried out in the hope of giving students who learn Japanese a better understanding of Japanese phonological features such as pitch accent, so that they can practice speaking Japanese more effectively and competently. The study aimed to address the following research questions: 1) Does the pitch accent awareness training increase beginning level Japanese learners' awareness of pitch accent? 2) Is there a relationship between students’ awareness of pitch accent and their oral skills? 3) Is there a relationship between this awareness and their study habits?

In response to the first research question, a survey was conducted to investigate learners' awareness of pitch accent. Overall, the survey responses suggest that the training provided positive outcomes to the participants of the experimental group in terms of the awareness of their Japanese pitch accent. Although both the experimental and the control groups of students reported paying attention to pitch accent or intonation, a larger percentage of the participants of the experimental group reported paying more attention to pitch accent each time they took the survey than the participants of the control group.

The present study revealed that training can improve the awareness for the beginning-level learners. Nakazawa's (2012) study showed that the training could improve awareness of intermediate and advanced level Japanese language learners. Both
the training of the present study and Nakazawa's (2012) study involved coaching sessions, such as Nakazawa's face-to-face workshops and practicing with a computer program, such as Nakazawa's computer-assisted training. These findings suggest that Japanese language learners of all level can benefit from the training.

In response to the second research question, pre- and post- training assessment scores were analyzed to examine the experimental group's oral skills. Students who received training significantly improved in their production ability in the post-training assessment compared to before the training. Compared to the pre-training assessment, students, after the training were more likely to make self-corrections. Occasionally, these corrections were inaccurate, but this still means that they were more aware of their own speech production, even if they were not always aware of how to correct their error. Students were paying more attention to their speech and were thus able to identify their errors.

Survey responses on speaking proficiency were also sorted to compare the change of the experimental group's self-reported speaking proficiency and to compare this with the control group. Both the experimental group and the control group’s self-reported speaking proficiency improved with time. This means that students who didn’t receive training can also improve their speaking proficiency through regular course work. One thing to note, however, is that the experimental group's improvement was more rapid than the control group on the post-survey. This suggests that their speaking proficiency might have increased during and immediately after the training, but it did not keep increasing rapidly after the training.
Self-awareness allows people to reflect what they have learned implicitly to produce better outcomes (Ellis, 2008). The awareness training resulted in increased awareness. Self-awareness of pitch accent helped the learners with the training to reflect their implicit or explicit learning and be able to manage their production. Their increased self-monitoring skills resulted in the better production.

To answer the third research question, the survey responses on study methods and study habits were examined. According to the post-survey, a high percentage of the experimental group kept using the media materials as a study resource compared to the pre-survey, while the percentage dropped for the control group. The training included listening to the model and repeating after the model for some tasks of the coaching sessions and Speak Everywhere. The training sessions might have motivated learners to be exposed to inputs from Japanese native speakers’ speech/models. In the later-survey, the percentage dropped for the experimental group as well. This suggests that the training should be ongoing in order to keep the learners constantly motivated.

The data from the survey seem to suggest that that the training has influenced the study attitude of the experimental group towards Japanese pitch accent. The learners with the training acknowledged the importance of Japanese pitch accent. They showed appreciation to the individual coaching sessions and recording tasks. The data collected in the present study cannot be used to conclude whether there is a relationship between awareness and study habits, but it seems that it would be worthwhile topic for the further investigation.
5.2 Limitations and Areas for Future Research

There are several limitations in this study, including the short training period, small number of participants, lack of the pre-/post-training assessments in the control group, lack of the training assessment a month later for the experimental group, possible variation for the perception test, lack of the study sessions for the control group, and the lack of the study sessions before and after training. The first limitation to note is the training duration. The length of the training was only 15 minutes each. The intention of the individualized training was to closely assist each experimental participant with the area they needed the most help with. Each participant has different strength and weakness. Some may do well with certain words/sentences while others may have problems with them. This individualized training enables the trainer to listen to each individual closely, give immediate feedback for their errors and coach them on what they need to work on, such as specific areas of segmental, mora, pitch accent, intonation.

Another limitation is the number of participants. There were only nine participants in the experimental group and eleven participants in the control group. Two sections of the first semester of the Japanese course were randomly chosen for the study. Not all students in the two sections volunteered to participate and several students dropped out from the study, or did not complete the survey or the training. Considering the possibility of participants dropping out or not completing the study, it would have been better if more sections were invited to increase overall participation.

Because no assessments were given to the control group, we cannot conclude that the training was the sole cause of the experimental group' improved production skills.
The pre-/post-training assessments were given to the experimental group only. The assessment scores were examined to see the improvement on perception and production of the experimental group. The training is most likely one of the factors that caused the experimental group to improve their production skills significantly, but other factors might have affected their oral skills. Possible other factors include: their Japanese program curriculum, instructor feedback, or an increase in time spent studying. Some control participants reported that they spent more time studying for their ACT class or getting assistance from their instructor on their open-ended questions of the survey.

Future research study should include pre-/post-training assessments for the control group as well to compare and contrast the oral skills of the experimental group and the control group. If the assessments were given to the control group as well, then the study can determine the effectiveness of the training in regards to the oral skills by comparing the assessment scores of the two groups.

The study revealed that the experimental group significantly improved their oral production skills immediately after the training, but it cannot tell if their improved oral production skills were maintained after the training. Because no assessment was given to the experimental group a month later, it is unknown whether they needed ongoing training to maintain or improve their production skills or effectiveness.

Possible variations might have occurred on the perception test for the pre-assessment and post-assessment as trainer was reading out the stimuli for each participant. The pacing and clarity might have differed for some participants. Using an audio recording may be better for future study for the perception test.
The present study's data was not sufficient to determine whether there is a relationship between awareness and study habits. It was not the intention of the present study to use the study sessions as an instrument to investigate the effectiveness of the training, but rather the study sessions were part of the training. However, it would have been efficient if the research provided study sessions for both the experimental group and the control group to examine students' study behaviors during the study sessions to compare the two groups in order to investigate the effectiveness of the training. The experimental group should still receive the training, and the control group should not.

The study sessions may be removed from the training, but rather provided to examine their study behaviors and study habits. Study sessions should be held immediately before training and immediately after training to examine the effectiveness of awareness training on learners' study habits. Another study session should be held a month later as well to investigate if their change of study habits lasts a month later or if there is any change.

5.3 Pedagogical Implications

Almost all participants who received training stated that they paid more attention to pitch accent. Nevertheless, some students with no training also suggested that they paid more attention to pitch accent due to the fact that their instructors emphasized or gave feedback on pitch accent. This suggests that explicitly emphasizing and giving feedback on pitch accent helps students to be more conscious about their pitch accent.

Almost all experimental group participants showed a positive response towards self-recording activities during their study sessions, during which they were able to listen to the model and compare the model with their speech products. They also noted that they
felt uncomfortable listening to themselves; however, it was most likely because they were not familiar with this sort of activity. Once they get used to and feel more comfortable with this task, it can be expected that self-recording activities could be an effective resource.

Many learners showed interest in practicing their Japanese outside the classroom. It is recommended that instructors use self-learning tools such as Speak Everywhere to give feedback to students or offer optional weekly workshops to work on the areas students need assistance with. Hirata (1999) suggests that having a variability of natural speech in length, rate, and pitch assists learners to acquire difficult L2 contrasts. Thus, if a computer program or workshop is implemented in the course work, it is suggested that the model/audio or trainers should be composed of multiple people.

In order to avoid discomfort, students should be given the option to record themselves wherever they want if self-recording assignment are given, so that they have the option to record themselves at home, where they may feel more comfortable. Having said this, it is important to provide feedback, as they may be unable to identify their errors. Instructors can give feedback through online services such as Speak Everywhere. Computer programs such as this can be very powerful and useful tools for students as they can improve their oral proficiency skills by giving them the opportunity to be exposed to Japanese inputs, compare them with their own speech, and to be able to identify their errors on their own or with the instructor's help or feedback.

Alternatively, the use of other tools such as Noda and Itomitsu's (2008) *Japanese: The Spoken Language - Interactive DVD-ROM Program for Parts 2 and 3* is also
recommended as it also involves exercises where you can listen to the model, record yourself and compare your production with the model. Although students cannot get feedback of their production from their instructors with this DVD-ROM program, they can still practice on their own, and it is a great way to develop self-monitoring.

Tools such as DVDs, Speak Everywhere, and Pronunciation Check may be useful, but they should be used as supplements and not as the primary material. Nakazawa (2012) agrees with this viewpoint and states that technology should be supplementary to assist a good teaching program rather than treating it as a sole solution. Additionally, it may be required for learners to attend weekly workshops in order to use the supplementary tools. That would require an additional time commitment from the teacher and learner, which may not be ideal. One possible way to reduce the learner’s large workload could be to incorporate this activity as part of a class assignment, and ask students to record their assigned dialogues using one of the above-mentioned supplementary tools. Another possibility is to offer optional weekly workshops at varying times, thus providing the opportunity for more students to attend them.

In conclusion, the data from the present study reveals that pitch accent awareness training outside the classroom can help students learning Japanese pay more attention to pitch accent. This therefore provides them the ability to identify their own pitch accent errors and correct their speech more frequently. The study also suggested that the emphasis of phonological features in the classroom and through providing feedback encourages students to pay attention to pitch accent and improve their oral skills as well. Many participants expressed that they would like to have opportunities to practice
Japanese outside the classroom. It would be ideal if Japanese language programs emphasize the importance of pitch accent as well as provide workshops or supplemental tools outside the classroom.
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Appendix A: First Training Session Materials

Initials: ____________

1st Training

Pre-training assessment

Directions: For each question, please listen to the word that your trainer says and choose the word from two (or three) options that represents the correct mora, pitch accent, and intonation. You will hear each word only ONCE.

1. obasaņ obâasaņ
2. Sâtoo desu. Satôo desu.
3. Sôo desu ka . Sôo desu ka ✓
4. Masao maõsâo
6. Isôgasii. Isôgasii?
7. konna konâ
8. mûko mukoo
12. Ikimåsu ne ś Ikimåsu ne!
13. yôka yooka yokka

Directions: Now, please go back to the words listed above and say each word for each question with the correct mora, pitch accent, and intonation.

(watch JSL DVD)
Appendix B: Second Training Session Materials

Your initial: __________

2nd Training

Let's review the JSL Introduction!

Mora: The syllable-like units of Japanese that represent one beat.
  - Single vowel (Example: a, i, u, e, o)
  - Consonant + vowel (Example: ka, mi)
  - Consonant + y + vowel (Example: nya)
  - Single consonant (Examples: /t/ between the /a/ and /ta/ in katta)

Mora check:
Directions: Please count the number of morae as you repeat after your trainer for each word listed below.
  o.ba.sa.î (aunt/woman)/o.bâ.a.sa.î (grandmother/old woman)
  yô.ka (leisure)/yo.o.ka (the eighth)/ yo.k.ka (the fourth)

Accent: Each mora has a high or low pitch.
For the purpose of the awareness training, today we will use L for low pitch and H for high pitch in addition to the pitch accent symbols used in JSL (/\, /\, or /\).

Accent rules and notation:
  1. The accent is considered to be on the mora where the pitch drops, not where it rises. Therefore, only a word which contains /\ or /\ is said to be accented. The accent is on the mora where these accent marks occur, and the pitch drops after the mora marked by /\ or /\.

Let's practice!

mâiniti (every day)/ Mainiti (the name of a Japanese newspaper)
Q: Which word is accented and which one isn't accented?

(A: māiniti (every day) is accented and Mainiti (the name of a Japanese newspaper) is not accented.)

2. The mark that indicates the rising pitch, /\/, does not indicate the location of the accent. Unless the first mora is accented, the rise in pitch is automatic in standard Japanese. The rise always occurs on the second mora of the accent phrase, which consists of the rise and the drop in pitch. A word in isolation is either accented or unaccented. If there is no drop in pitch, then the word is considered unaccented and will not be marked in JSL. Ex.) sore by itself is unaccented (i.e., there is no drop in pitch), but the first mora so is lower pitch and the second mora re automatically goes up in pitch (sore: LH).

An accented word or an accented phrase has the drop in pitch. If the drop occurs on the second mora, the first mora is accented. This is shown by the /\ accent mark above the vowel of the first mora. Ex.) ìi, dôre, sôo (HL).

When the drop in pitch occurs after the first mora, the accented mora is marked with the /\ accent mark. There is the drop in pitch in the mora immediately following the /\-marked mora. The automatic rise in pitch in the second mora of an accented word or an accent phrase is marked with the rising pitch /\ mark on the second mora. Ex) soré dèsu. Notice that the word sore is unaccented and therefore has a low-high pitch and shown with no accent markings, while the sentence soré dèsu is an accented phrase with a rise in pitch on re and accent on (i.e., fall in pitch after) de (soré dèsu: LH HL).

Let's practice!

hâi (yes)/hai (ash)

Q: Which morae have high pitch (H) and which have low pitch (L) for each word?

(A: hâi (HL) (yes)/hai (LH) (ash))

Q: Can you explain why hai (ash) is not marked by /\?
It is not marked because *hai* (ash) is unaccented and the rise in pitch is automatic unless the first mora is accented.

3. Accented words or elements (i.e. *dësu*) that regularly combine with unaccented words (i.e. *sore*) to form a single high sequence will be marked with the */* only. Thus, *dësu* indicates that */sore + dësu /* will be spoken as *soré dësu* (LH HL). *dà* also forms the accented phrase as in */sore + dà/* that becomes *soré dà* (LH H).

Although it seems as if it is unaccented in isolation, it is accented because it will drop in pitch when followed by low mora as in *soré dàta* (LH HLL). However, *dësu* (as well as *dà*) loses its accent when following an accented nominal. Thus, */Kyôoto + dësu /* becomes *Kyôoto desu* (HLL LL).

Let’s look at the word *Yokohama*.

Since it does not have an accent, which is the abrupt drop from high pitch to low pitch, the initial mora is low pitch followed by three high pitch morae. Since there is no drop in pitch, it is considered to be unaccented and *Yokohama* is written without any pitch-accent marks. Seeing the Romanization at first glance, it seems as if all the morae in this word are at the same pitch; however, *Yo* is actually lower pitch and the rest are at a relatively higher pitch.

We can clearly see the pitch-accent of every mora using *L* for low pitch and *H* for high pitch. For example, the word *Yokohama* is *Yokohama* and this represents LHHH pitch-accent pattern. When *Yokohama* is followed by accented words or elements such as *dësu* (HL), */Yokohama + dësu /* becomes *Yokóhama dësu* (LHHH HL).

Let’s practice!

*hâsi* (chopsticks)/*hasî* (edge)/*hasî* (bridge)

Q: Can you identify which morae get high pitch and which ones get low pitch?
(A: hāsi (HL) (chopstics) hasi (LH) (edge) and hasī (LH) (bridge))

Note: hasi (LH) (edge) and hasī (LH) (bridge) have the same pitch-accent when said by themselves, but the different accent patterns become clear when followed by dēsu, phrase-particles, or other words.

Hasī dēsu. (It’s the edge.) vs. Hasī desu. (It’s a bridge.)

L H H L  L H L L

(Note: Again, dēsu loses its accent when following an accented nominal.)

Pitch-accent check:

Directions: Please listen to your trainer and write H (high pitch) or L (low pitch) for each mora. For example, if the word given was amê, write LH under the word or next to it to indicate low pitch for a and high pitch for me. You will hear each word only once.

1. tābi
2. Tadaima
3. siro
4. Sirō dēsu.
5. Hasī desu.

Intonation: the change in pitch on the final mora of a sentence or fragment.

/. indicates that the final mora and all unaccented mora that are immediately preceding the final mora are pronounced with low pitch level.

/?!/ indicate a slight rise in the pitch on the final mora, and it usually occurs with the lengthening of that mora for the relaxed (direct) style.

/✓!/ is very similar to /?!/ but it occurs without lengthening of that mora, and it usually comes with certain sentence particles.

/✓/ occurs only in combination with sentence-particle ne. This intonation is very similar to /✓/; however, /✓/ represents a high-pitched start.

/!/ indicates that the final mora starts high and has slightly falling pitch. There is no significant lengthening of the final mora for this intonation.

/./ means the final mora has neuratal pitch and is often lengthened as it will fade into silence gradually.
**Intonation check:**

Directions: Please say the following words with the appropriate intonation.

Sore desu.  Sore desu ka✓  Sore desu ne✓  Sore desu!  Sore desu ka..

**Speak Everywhere**

Please practice the CC before you record on Speak Everywhere.

**Lesson 3B CC 5 (p. 75)**

(N)  
- a. Kaímásu ka✓
- b. Takál desu ka✓
- c. Yappári takái desu née.

(J)  
- a. Atárasii no desu ka✓  Kaímasën yo✓

**Lesson 4A CC 1 (p. 84)**

(N)  
- a. Sore, náñ desu ka✓
- b. Hurosiki?

(J)  
- b. Èe. Totémo bèñri desu yo✓
Appendix C: Third Training Session Materials

Your initials: __________

3rd Training

Exercises

Directions: Please listen and repeat the following words after your trainer with the correct mora, pitch accent, and intonation.

1. Masao: maśào
2. mūko: mukoo
3. tābi: tabī
5. Tuyū: Tūyu desu.
6. Âme da: Amē đa.
8. Sore!: Sore?
9. Tiğáimāsu yo: Tiğāimāsu yo✓
10. Ikímåsu ne: Ikímåsu ne!

Recognition Quiz

Directions: Listen to your trainer, and please choose the word from two options that you hear with the correct mora, pitch accent, and intonation. You will hear each word only once.

1. kâre: kâree
2. Tyōtto.: Tyōtto..
4. hai: hai
5. Sōo desu ka: Sōo desu ka✓
Accent symbol check
Directions: Please listen to your trainer and mark the pitch accent symbols above each word. Each word will be repeated TWICE after the pause. Please say each word with the appropriate pitch accent after marking the symbols.

1. siro
2. Ima desu.
3. Mainiti desu.

Intonation symbol check
Directions: Please listen to your trainer and mark the intonation symbols after each word. Each word will be repeated TWICE after the pause. Please say each word with the appropriate intonation after marking the symbols.

1. Isōgashii
2. Onázi dēsu yo
3. Tyōtto

Accent & Intonation symbol check
Directions: Please listen to your trainer and mark the pitch accent and intonation symbols for each word. Each word will be repeated TWICE after the pause. Please say each word with the appropriate pitch accent and intonation after marking the symbols.

1. Dekiru
2. Karee da
3. Yonde kudasai

(Participants were asked to say each words after they have done marking the symbols, and the trainer and they compared and practiced the appropriate words)

Speak Everywhere
Please practice the CC before you record on Speak Everywhere.

Lesson 4A CC 3 (p. 84)
(N) a. Kyōo wa dāre desu ka✓ (J) a. Tanāka-saņ ō ga kimāsu yo ✓
Appendix D: Fourth Training Session Materials

Your initials: __________

4th training Exercises

Directions: For each question, please say the following words with the correct mora, pitch accent, and intonation.

1. konna konâ
2. Dekîru. Dekîru?
5. kyôo koo
7. Âme da. Amê dâ.

Review

Please review the answers for this assessment as well as the previous training materials with the trainer.

Lesson 4B CC4 (p.)

Please practice before you record on Speak Everywhere.

(J) a. Kamî arimâsu ka✓
   b. Oôkii no onéïai-simâsu.
(N) a. Dôîna no desu ka✓
   b. Hâi.

Post-training assessment

(Same as pre-training assessment)
Appendix E: Answer Keys for the Training Materials

Answer keys

1st and 4th Training

Pre-/post-training assessment

Directions: For each question, please listen to the word that your trainer says and choose the word from two (or three) options that represents the correct mora, pitch accent, and intonation. You will hear each word only ONCE.

1. obasañ obâasañ
2. Sâtoo desu. Satôo desu.
3. Sôo desu ka . Sôo desu ka ✓
4. Masao maâsåo
6. Isôgasii. Isôgasii?
7. konna konâ
8. mûko mukoo
12. Ikîmåsu ne ✓ Ikîmåsu ne!
13. yôka yooka yokka

Directions: Now, please go back to the words listed above and say each word for each question with the correct mora, pitch accent, and intonation.
3rd Training

Exercises
Directions: Please listen and repeat the following words after your trainer with the correct mora, pitch accent, and intonation.
1. Masao maśsào
2. muko mukoo
3. tābi tabī
tâbi
5. Tuyū dēsu. Tūyu desu.
6. Âme da. Amē dà.
8. Sore! Sore?
9. Tiģáimāsu yo Tiģáimāsu yo
10. Ikīmāsu ne!’ Ikīmāsu ne!’

Recognition Quiz
Directions: Listen to your trainer, and please choose the word from two options that you hear with the correct mora, pitch accent, and intonation. You will hear each word only once.
1. kāre kāree
2. Tyōtto. Tyōtto..
4. hái hai
5. Sōo desu ka! Sōo desu ka!

Accent symbol check
Directions: Please listen to your trainer and mark the pitch accent symbols above each word. Each word will be repeated TWICE after the pause.
1. siro
2. Imā desu.
3. Māiniti desu.
Intonation symbol check

Directions: Please listen to your trainer and mark the intonation symbols after each word. Each word will be repeated TWICE after the pause.

1. Isóğasìi?
2. Onázi dèsu yo ✓
3. Tyôttto..

Accent & Intonation symbol check

Directions: Please listen to your trainer and mark the pitch accent and intonation symbols for each word. Each word will be repeated TWICE after the pause.

1. Dekìru?
2. Karée dà.
3. Yoñde kudasàì.
Appendix F: Survey

Personal information

Initials of your first and last name: __________
Grade: Freshman Sophomore Junior Senior MA PhD
Age group: 18-24 25-30 31+ Gender: Male Female
Native language: ________________________
Length of stay in Japan: ________________________
The area you stayed: ________________________

Questionnaire:
Directions: For each question, please circle all that apply.

1. How do you prepare for your ACT classes?
   a) Read the textbook
      Please circle what you read:
      1) Core Conversations (CC) 2) English equivalents (EE)
      3) Breakdowns (BD)
      4) Miscellaneous notes (MN) 5) Structural patterns (SP) 6) Drills
      7) Application Exercises (AE) 8) Eavesdropping (ED) 9) Utilization
         (Util) 10) Check-up
   b) Listen to the audio
   c) Watch the video
   d) Focus on…
      Please circle what you focus on:
      1) Memorization 2) Pronunciation 3) Pitch-accent 4) Intonation
      5) Grammar 6) Context/meaning 7) English equivalents
   e) Record yourself
   f) Study by yourself
   g) Study with others
   h) Study with a native speaker
   i) Others (Please specify: ________________________)

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2. Do you pay attention to the pitch-accent or the intonation in Japanese?
   a) Yes
   b) No

   If you pay attention to the pitch-accent or intonation, in which situations do you pay attention?
   a) When preparing/studying yourself for the ACT session
   b) Before you start speaking
   c) While you are speaking
   d) After you realize you have made an error
   e) While listening to audio/watching video
   f) While reading the textbook (as you look at the pitch-accent and intonation symbols)
   g) When corrected by others
   h) When given feedbacks from your instructors
   i) When you notice that your classmates made errors
   j) When you listen to your own recording

3. Can you identify your errors while speaking?
   a) Yes
   b) No

   What types of errors can you identify yourself while speaking?
   a) Mispronunciation
   b) Pitch-accent error
   c) Intonation error
   d) Grammatical error (inflections, particles, word order etc.)
   e) Word choice

4. What do you think of your speaking proficiency right now?
   a) Very poor
   b) Poor
   c) Not so good, but not too bad
   d) Average
   e) Good.
   f) Very good
   g) Perfect

   If your answers have changed from the last time you took this survey, please explain why.
5. What is your average daily grade score so far?
   a) 1.0
   b) 2.0
   c) 2.5
   d) 3.0
   e) 3.5
   f) 4.0

6. Have you started paying more attention to pitch accent since last time you took the survey?
   If so, why?

7. What kinds of activities or workshops would you like to have available to you to supplement your Japanese language studies?
Appendix G: Data I Experimental Group's Assessment Scores and Errors

(N=9)

Table 12. Pre-/post-training Assessment Score on Perception and Production

<table>
<thead>
<tr>
<th>Participants</th>
<th>Perception (out of 15 points)</th>
<th>Production (out of 33 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre (points)</td>
<td>Post (points)</td>
</tr>
<tr>
<td>Participant 1</td>
<td>6 (40%)</td>
<td>5 (33.33%)</td>
</tr>
<tr>
<td>Participant 2</td>
<td>13 (86.67%)</td>
<td>15 (100%)</td>
</tr>
<tr>
<td>Participant 3</td>
<td>14 (93.33%)</td>
<td>12 (80%)</td>
</tr>
<tr>
<td>Participant 4</td>
<td>13 (86.67%)</td>
<td>14 (93.33%)</td>
</tr>
<tr>
<td>Participant 5</td>
<td>13 (86.67%)</td>
<td>12 (80%)</td>
</tr>
<tr>
<td>Participant 6</td>
<td>14 (93.33%)</td>
<td>14 (93.33%)</td>
</tr>
<tr>
<td>Participant 7</td>
<td>14 (93.33%)</td>
<td>14 (93.33%)</td>
</tr>
<tr>
<td>Participant 8</td>
<td>11 (73.33%)</td>
<td>14 (93.33%)</td>
</tr>
<tr>
<td>Participant 9</td>
<td>10 (66.67%)</td>
<td>13 (86.67%)</td>
</tr>
<tr>
<td>Average</td>
<td>12 (80.00%)</td>
<td>12.56(83.70%)</td>
</tr>
</tbody>
</table>

Table 13. Perception Errors:

Note: #/# indicates number of wrong answers out of the total number for each participant. In parenthesis, you can find the question number they produced inaccurately (marked by *) with the wrong answer they choose followed by correct answer after the arrow.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pre-training assessment</th>
<th>Post-training assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/15</td>
<td>10/15</td>
</tr>
<tr>
<td></td>
<td>4. maássao → Masao</td>
<td>4. maássao → Masao</td>
</tr>
<tr>
<td></td>
<td>13. yooka → yokka</td>
<td>12. Ikîmaâsû ne! → Ikîmaâsû ne ʕ</td>
</tr>
<tr>
<td>Participants</td>
<td>2/15</td>
<td>0/15</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>(4. maṣṣāo → Masao</td>
<td>11. Soré o kiru kara. → Soré o kirù kara.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>1/15</th>
<th>3/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Soré o kiru kara. → Soré o kirù kara.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>2/15</th>
<th>1/15</th>
</tr>
</thead>
</table>

<table>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>1/15</th>
<th>1/15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>4/15</th>
<th>1/15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>5/15</th>
<th>2/15</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Total: Average:</th>
<th>27</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>27/9 =3</td>
<td>22/9=2.44</td>
<td></td>
</tr>
<tr>
<td>3/15= 20%</td>
<td>2.44/15 = 16.26%</td>
<td></td>
</tr>
</tbody>
</table>
Production Test:

Table 14. Total Error # for Production for Each Participant:

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-training assessment</th>
<th>Post-training assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Participant 2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Participant 3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Participant 4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Participant 5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Participant 6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Participant 7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Participant 8</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Participant 9</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

|                      | 136 | 79  |

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Appendix H: Data II Individual Errors for Production in Experimental Group

Note: All inaccurate speech that participants made (marked by *) and their question numbers are shown for each incorrect token. The accurate tokens are shown followed by allows.

   S: segmental error
   M: moraic error
   A: pitch accent error
   I: intonation error

Pre-training Assessment

Participant 1
1. *obásañ (obasañ (A': wrong pitch)
7. *kōna  → konna (A':accent)
8. *muko  → múko (A':accent), *mukō  → mukoo (A)
   (hesit but ok for 11)
13. *yōka ✓ → yōka (I), *yōoka ✓ → yooka (A, I), *yō...kka..  → yokka (A)

Participant 2
1. *ôbasañ  → obasañ (A)
2. *Sāato desu.  → Sātoo desu.(A': stress rather than pitch),
4. *masāo  → maśsao (A': again stressed instead of controlling pitch and also used stress instead of long consonant (maśsāo)
5. *Sirō desu.  → Sirō dēsu. (A)

Participant 3

Participant 4
Participant 5
1. *obásaŋ → obasaŋ (A’: correct mora length, but wrong accent)
2. *massao → maśsao (A’: correct mora, wrong accent)
3. *Sıro desu. → Sıro dęsu. (A)
4. *Isıgasii? → Isıgasii? (A’: correct into but wrong accent)
5. *Tuyū desu. → Tuyū dęsu. (A)
7. Occasionally stressed rather than pitch accent for some words
8. *Isor o kir kara. → or o kir kara. (A’)
9. *Ikim su ne! → Ikim su ne! (A)
10. *Ma niti desu. → M initi desu. (A’), *
11. or ok ru kara. → or ok ru kara. (A’)

Participant 6
5. *Isyogāsi. → Isōgāsi. (S), *Isyogāsi. → Isōgāsi? (S, A, I: into length was not long enough)
6. *Koonna → konna (M: he lengthened vowel before the long consonant)
7. *yookka → yookka (M: same as #7)

Participant 7
1. *obāsāŋ → obasaŋ (A), *obāsāŋ → obāsāŋ (A’)
2. *Masaō → Masao (A)
3. *Sıro desu. → Sıro dęsu (A’).
5. *Mainiti desu. → Māiniti desu. (A’)
6. *Ikımāsu ne! → Ikımāsu ne! (A)
(Hası dęsu. was first pronounced as Hasi desu. first but she realized she made an error and self-corrected and it was fine.)
Participant 8: A lot of hesitant that made it harder to distinguish; some of them were not clearly distinguished but still used correct mora, accent, and intonation.

1. *obasān → obasaān (A: stress instead of pitch)
2. *Satōo desu. → Satōo desu. (A)
4. *maasāao → maasāo (M: long vowel → short vowel)
5. *Sirō desu. → Sīro desu. (A’)
8. *mukōo → mukoo (A)
12. *Ikimāsusun! → Ikimāsusu ne! (A)

Participant 9
1. *obāasaān → obāasaān (M: short/long vowel; it was more 1.5 mora rather than 2 mora (2 /a/))
4. *mā..ssao(?) → maasāo (A’ M: wrong pitch; the pitch decreased for each mora and rarely saying /o/, the final mora)
5. *Sirō desu. → Sīro desu. (A’)
12. *Ikimāsusu ne! → Ikimāsusu ne! (A’: wrong pitch)
13. *yōoka → yooka (A’: pitch)

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Post-training assessment production

Participant 1
1. *ôbasañ → obasañ (A)
3. *Sôo desu ka. → Sôo desu ka ✓ (I)
6. *Isôgâsi. → Isôgâsi? (I)
8. *mukoo ✓ → mukoo (I: added some rising into)
14. *Hasî dësu. → Hâsi desu. (A)

Participant 2
7. *konâ ✓ → konâ (I: adding raising into)

Participant 3
5. *Sîrô desu. → Sirô dësu. (A)
6. *Isôgâsi? → Isôgâsi? (A: Pitch never dropped; kept rising for the into)
7. *kôna → konna (A)
9. *Tuyû dësu. → Tuyû dësu. (A)
10. *Mainîti desu. → Mainîti dësu. (A)
(11 was ok after several try)
13. *yôoka → yooka (A), *yôkka → yokka (A)
15. *Karêe da. → Karêe dà. (A: He tried few times but couldn't get it right.)

Participant 4
1. *obâsañ → obasañ (A)
4. *Masão → Masao (A), *massao → maßaò (A: accent; maybe he focused on mora but not on accent?)
5. *Sirò desu. → Sirò dèsu. (A)
7. *kôna → konâ (A: used stress and on wrong place)
9. *Tuyû desu. → Tuyû dèsu. (A)

Participant 5
1. *obâsañ → obasañ (A)
4. *Másao → Masao (A), *masao → maśào(A)
9. *Tûyu desu. → Tuyû dèsu. (A)
11. *Soré o kirû kata. → Soré o kirû kata. (A: His answer was wrong after he made correction.)
13. *yôka → yôka (A: no pitch change involved)
15. *Karêe da. → Kâree da. (A), *Karêe da → Karêe då. (A: He tried many times but couldn't get it; he knew his pitch was wrong but still couldn't produce.)

Participant 6
3. *Sôô dèsu ka ✓ → Sôô desu ka ✓ (A: pitch (fine with /../ into so affected by /✓/? )
4. *masao → maśào(A)
6. *İsoğasi. → Isögasii. (A: accent, but accent was fine for question)
7. *kônna → konna (A)

Participant 7
6. *İsoğasıi. → Isögasii. (A)

Participant 8
1. *obaśañ → obasañ (A: pitch; sounded like American accent w/ stress)
2. *Satóô dèsu. → Satóô desu. (A)
4. *Masão → Masao (A: pitch), *mas(s)ão → maśào (A, M: it was more like 1.5 mora rather than 1 beat for the long consonant; she noticed she was saying it wrong and tried to correct but couldn't get it right.)
6. *Isoğasi. → Isögasii. (M: right pitch and accent but short vowel instead of long vowel in the end.; it was fine in the question form even though it was slightly shorter than long vowel and shorter rising into)
8. *mûkoo ✓ (?) → mukoo (A: accent; I: end with rising into)
12. *Ikimâsu ne! → Ikimâsu ne! (A: accent)
13. *yookâ → yooka (A)

Participant 9
4. *massao → maâsâo (A)
9. *Tuyû desu. → Tuyû dêsu. (A)
13. *yôoka → yooka (A)
Appendix I: Data III Experimental Group's Speech Productions on SE

(Note: Participant numbers do not equal to the number of the same participant used in the earlier data in perception and production.)

Training 1
No SE scores available (there was not study session).

Training 2 (Study session 1)
(*Since students were scheduled to meet on two different days, they were assigned different CC, so that they could perform whichever the most recent one for them.)

(Lesson 3 Sec. B CC5)
Participant 1: fluency in general, mora (kai as one beat instead of 2 beats ka.i/*yapparii->yappari), sounded little unnatural, relatively good accent and intonation, 3
Participant 2: some fluency (mora), relatively good accent and intonation 4-
Participant 3: A: 8manEN, other than that, perfect, 4
Participant 4: fluency/mora (kaimasen yo, kai (syllabic rather than moraic ka.i) etc.),
A: *yaPPARI->yaPPAri, 3?
Participant 5: fluency/mora on manen (almost sounded like でん instead of んえん though he did say わえん but too quick), A yappari (sounded monotone), other than that, pretty good. 3.5

(Lesson 4 Sec. A CC1)
Participant 6: very good, 4
Participant 7: very good accent and intonation, 4
Participant 8: very good (repeated many times), 4
Participant 9: P & A:* huruSIKI desu yo -> huROSIKI DEsu yo, fluency (mora), 3.5
Average: 33/9 = 3.67 = 92%

**Training 3 (Study session 2)**

(*Because of their scheduling, there were two different CCs for training 2; however, everybody did the same CC for training 3 and 4 because the schedule worked out to do the same one as the most recent one.)

(Lesson 4 Sec. A CC3)

Participant 1: fluency (*Taanaakaa san etc), A: *ZYAA->ZYAa, I: desu ka✓ asita wa-> asita wa?), 3
Participant 2: A: A_šiša wa (very off) -> aSITA wa, 3.5
Participant 3: Very good, 4
Participant 4: Fluency/mora on Asita wa? and Asita wa.. (sounds like assita wa), 3.5
Participant 5: Very good, 4
Participant 6: Minor/slightly: A: *Zyaa, Ashita wa?, other than that, pretty good, 4
Participant 7: very minor/slightly A: A_šhita wa? other than that, very good, 4
Participant 8: Very good, 4
Participant 9: fluency, mora, A: A_šhita wa? 3.5
Average: 33.5/9 = 3.72, 3.72/4=93%

**Training 4 (Study session 3)**

(Like training 3, all students worked on the same CC because the CC in the daily ACT assignment on the day or the most recent day was the same (because Thursday is FACT, so it was the same when they did it on Wed. and Thur.)

(Lesson 4 Sec. B CC4)

Participant 1: Mora: doonano-> do.n.na.no, (donna) noo->no, onegaisimaasu -> onegai simasu. 3
Participant 2: Very good!, 4
Participant 3: Mora: do(o)nano-> donnano, other than that, very good 4
Participant 4: good, 4

Participant 5: slightly A: *aRImasu ka✓ -> aRIMAsu ka✓ 3.5

Participant 6: Perfect, 4

Participant 7: A: *KAmi->kaMI, other than that, very good (but KAmi vs. kaMI could confuse listener, so still 3.5) 3.5

Participant 8: Good, 4

Participant 9: P: /ri/ (American pronunciation), A: *aRImasu ka✓->aRIMAsu ka✓ , 3.5

Average: 33.5/9=3.72 3.72/4=93%
Appendix J: Data IV Survey Response
Table 15. Experimental Group's Survey Response

<table>
<thead>
<tr>
<th>Experimental Group (N=9)</th>
<th>Pre-survey</th>
<th>Post-survey</th>
<th>Later-survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>1. How do you prepare?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Read textbook…</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CC</td>
<td>9</td>
<td>100</td>
<td>9</td>
</tr>
<tr>
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### 3. Can you identify your errors?

|     |                             | 8 | 88.89 | 8 | 88.89 | 8.5 | 94.44 |

### What types?

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<td>b) Poor</td>
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<td>d) Average</td>
<td>e) Good</td>
<td>f) Very good</td>
<td>g) Perfect</td>
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