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A Pedagogical Choice for Improving the Perception of English Intonation

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One of the learning difficulties for Korean learners of English is the intonation of English focused yes/no questions. Focused words in English yes/no questions are realized as low pitch accents which contrast with high pitch accents in Korean counterparts. In order to improve Korean students' intonation, direct and metalinguistic explanations on the intonation of English focused yes/no questions were given to Korean learners of English. In pre-tests and post-tests, students' perceptions on the target items were measured. The study results showed that phonetic explanation using intonation contour enhanced students' perception on English intonation. With respect to the position of focused words, sentence initial and medial focused questions were more difficult than sentence final focused questions. The perception was most improved in sentence initial focused questions. The study showed the immediate effects of the explicit instruction on perceptions of English intonation.

[explicit instruction/English intonation]

I. INTRODUCTION

Pronunciation teaching has been emphasized since pronunciation has greater roles in communication as a factor to influence speakers' success in conveying their meaning. Recent studies have illustrated a direct and positive effect of pronunciation instruction on intelligibility and comprehensibility (Derwing, Munro & Wiebe 1997, 1998). On the teaching method of pronunciation, de Bot(1983) demonstrated that audio-visual feedback

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provided by computers was helpful to L2 learners and was more effective in promoting intonation learning than auditory feedback alone (Chun, 2002). Chung(2005) and Min & Pak(2007) studied the audio-visual benefit for the perception of English phonemes using video presentation of talking face and acoustic displays of speech respectively. The results show the positive effect only for the acoustic displays.

Based on the previous studies, this experimental research investigates the effect of explicit audio-visual instruction on intonation perception. This study chose focused yes/no questions as the target item for the instruction. The intonation of English focused yes/no questions is one of the learning problems for Korean learners of English. Instead of the whole statement being asked, in English focused yes/no questions, one of the specific components is asked and contrastive stress is used to mark the focused elements. Jeon, Oh and Kim (2004) found that Korean learners of English had difficulties in acquiring the intonation of English focused yes/no questions. In their study, Korean learners of English were not able to produce and perceive correct intonational patterns of English focused yes/no questions. In English, focused words of statements have high pitch accents, like H*, L+H*. However, in yes/no questions, focused words are given low pitch accents, like L*.[1]

In (1b) that is the answer to the question (1a), focused word *Susan* can have a high pitch accent (uppercase letters in the example sentences are the words with a pitch accent).

(1) a. Who loaned the roller blades to Robin?
b. SUSAN loaned her roller blades to Robin.
(L+)H* L-L%

In contrast, in English yes/no questions, focused words are produced with a low pitch accent like L*, which is implemented in low fundamental frequency. In (2), a yes/no question follows a wh-question and the wh-question leads the yes-no question to have focus on 'Emily'.

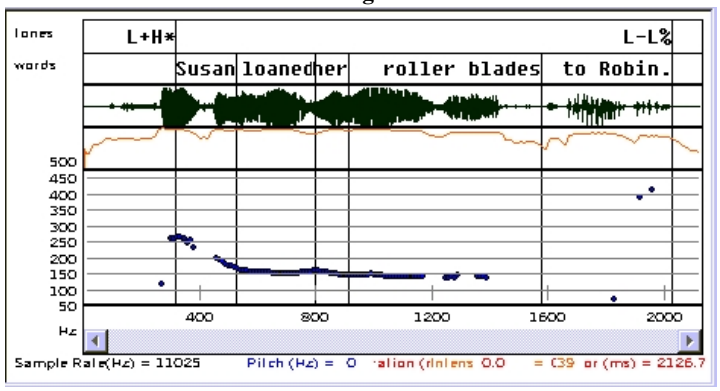
(2) a. Who loaned the roller blades to Robin?
Did EMILY loan her roller blades to Robin?
L* H-H%

[1] English intonation phonetically correlates to fundamental frequency contour. According to intonational phonology (Pierrehumbert, 1980), the highest intonational unit is Intonation Phrase(IP). And IP is marked by a boundary tone, L% or H% at the end. An IP can contain one or more Intermediate Phrases(ip), which is marked by a phrase accent (L- or H-). An ip can contain at least one pitch accent (e.g., H*, L*, L+H*, L*+H,!H*). Motivated by the Intonational Phonology, ToBI (Tones and Break Indices) convention was developed. TOBI is a system for transcribing the intonation patterns and other aspects of the prosody of English utterances (Beckman & Ayers 1994).

The intonation contours of the statement sentence (1b) and yes/no question in (2) are shown in Figure 1 and Figure 2 respectively. In the figure 1, the focused word has the high pitch accent L+H* followed by phrasal accent L- and boundary tone L%. In the figure 2, the focused word has a pitch accent L* followed by phrasal accent H- and boundary tone H%.

FIGURE 1

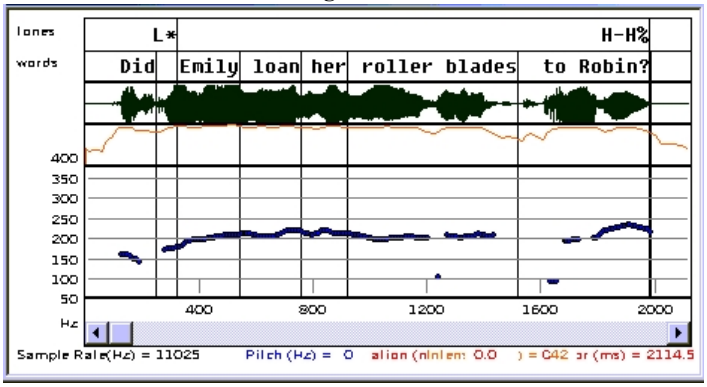
Intonation Contour of English Focused Statement



SUSAN loaned her roller blades to Robin.
L+H* L-L%

FIGURE 2

Intonation Contour of English Focused Yes/no Question



Did EMILY loan her roller blades to Robin?
L* H-H%

As shown in Figure 1 and 2, the different pitch accents on the focused words distinguish whether the sentence is a focused statement or a focused yes/no question. A focused word

in a statement has a high pitch accent and a focused word of a yes/no question has a low pitch accent. In addition, the intonation contours of a statement and a question are different with regard to boundary tones. In a statement, the intonational boundary is L-L% and in a yes/no question, the intonational boundary is H-H%. Intonation of a statement maintains the low fundamental frequency in the rest part of the sentence after the implementation of high pitch accent on the focused word. However, a yes/no question has a high plateau of fundamental frequency to the end of the sentence that increased drastically after the low pitch accent of the focused word.

Three yes/no questions in (3) show a question has three different meanings depending on the positions of focused word, which are on the sentence initial, medial, and final position.

(3) a. Whom did Emily loan her roller blades to? Did Emily loan her roller blades to ROBIN?
b. What did Emily loan Robin? Did Emily loan her ROLLER BLADES to Robin?
c. Who loaned the roller blades to Robin? Did EMILY loan her roller blades to Robin?

When the answer to a focused yes/no question is not affirmative, simply responding to the focused yes/no questions by saying "No" is not appropriate because the response does not provide the necessary information for the interlocutor. For example, in (3a), if Emily didn't loan her roller blades to ROBIN, it is required to say who Emily loaned her roller blades to. (4) gives examples of possible proper answers when the answer is negative to the questions in (3).[2]

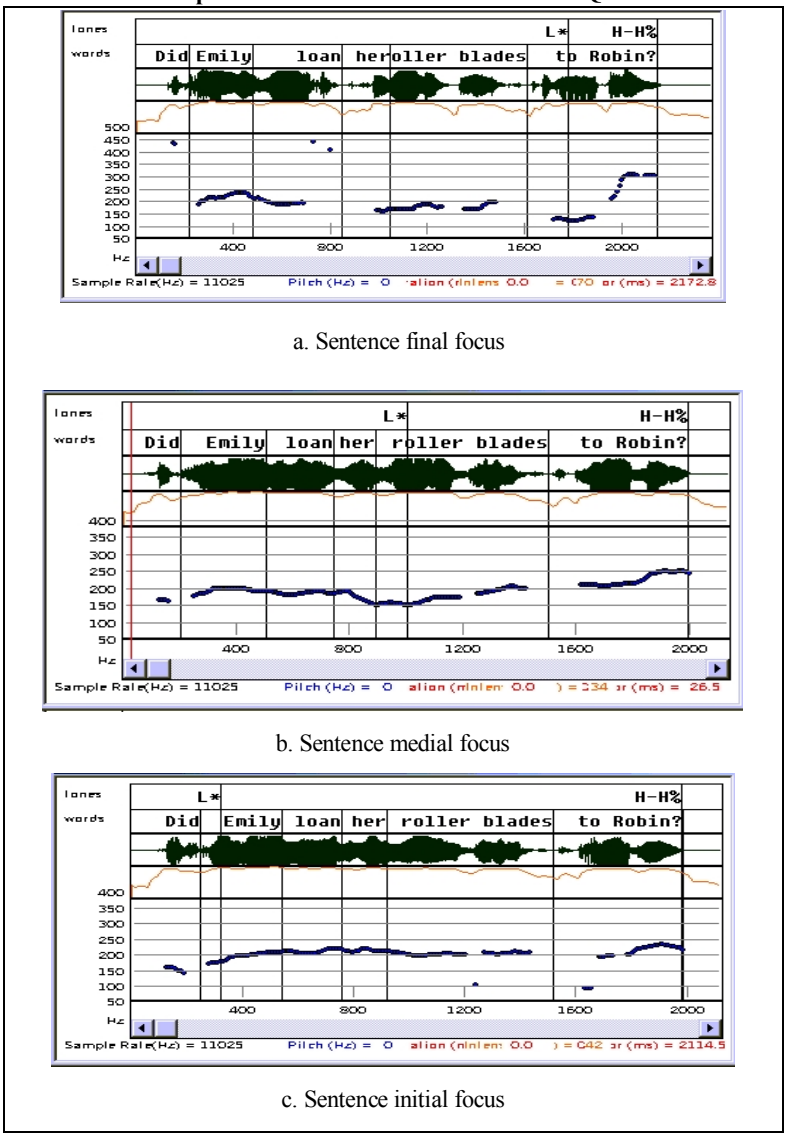
(4) a. A: Did Emily loan her roller blades to ROBIN?
B: No, she loaned her roller blades to JOEL.
b. A: Did Emily loan her ROLLER BLADES to Robin?
B: No, she loaned her BIKE to Robin.
c. A: Did EMILY loan her roller blades to Robin?
B: No, SUSAN loaned her roller blades to Robin.

In (4), the focused words (uppercase words) of the yes/no questions are given L* pitch accents. The discourse meaning of a question changes depending on the location of the L* pitch accent in the question. The following Figure 3 shows the correct intonation of the focused yes/no questions produced by the native speakers.

[2] The actual perception test sheet doesn't have uppercase words. The uppercase words in (4) are the focused words that have L* pitch accent, and that is for the convenience of the readers of this paper.

FIGURE 3

Native Speakers' Intonation in Focused Yes/no Question



a. Sentence final focus

b. Sentence medial focus

c. Sentence initial focus

Since focused words in Korean in both statements and questions have a high fundamental frequency[3], it is predicted that Korean learners might have difficulties in

[3] According to Choe et al. (1999) and Kim (2000), focused words are phonetically realized in high fundamental frequency, syllable lengthening and phrasing differences in statements and interrogative sentences.

acquiring low pitch accents implemented in a low fundamental frequency on focused words of English yes/no questions. The main purpose of the study is to investigate if the explicit instruction of intonation is effective on Korean students' perception of low pitch accents in the focused yes/ no questions.

II. RESEARCH DESIGN

1. Subjects

Thirty two university students participated in this study. The subject group consisted of 24 female and 8 male students. All of them were in their twenties. According to the survey on their English proficiency, TOEIC test scores of nineteen students were between 750 and 895 and seven students' scores were beyond 900.[4] Twenty one students have been abroad to study English. The length of residence for two students was less than 3 months. The other nineteen students stayed in Canada or the U.S. from 6 months to 12 months. The self-rated listening ability of the subjects ranged from the low intermediate to the high intermediate level. The following table shows information on the students' background.

TABLE 1
Background Information of Students

Question	Number
Gender: Male/Female	8/24
Age	32 in their 20s
Number of Students studying in Canada or America	11
Length of residence of less than 3 months	2
Length of residence from 6 to 12 months	9
Less than 6 months of individual study on English conversation and listening	6
Self-evaluations on listening abilities: high-intermediate	2
Self-evaluations on listening abilities: intermediate	19
Self-evaluations on listening abilities: low intermediate	5

[4] Six students did not provide the scores of the English proficiency tests.

2. Test Materials

Test materials were collected from three female English teachers from America and Canada. They read 12 pairs of sentences twice. All 72 sentences were recorded using Sony Digital Audio Tape-Corder and a Sony ECM-MS980C microphone and were analyzed through the phonetic software program, *Pitch Works*. The following four yes/no questions with focused words in three different positions were used in pre-tests and post-tests.

(5) a. 1. Does John like MARY?
2. Does John LIKE Mary?
3. Does JOHN like Mary?
b. 1. Is David leaving for Beijing TOMORROW?
2. Is David leaving for BEIJING tomorrow?
3. Is DAVID leaving for Beijing tomorrow?
c. 1. Did Emily loan her roller-blades to ROBIN?
2. Did Emily loan her ROLLER-BLADES to Robin?
3. Did EMILY loan her roller-blades to Robin?
d. 1. Did Jean smoke in the CLASSROOM?
2. Did Jean SMOKE in the classroom?
3. Did JEAN smoke in the classroom?

3. Procedures

Pre-tests on perception of intonation were given to students. In the pre-tests, 6 sentences were tested. Before the pre-test, using an example question, the researcher explained to students that just saying 'No' is not sufficient when the answer to a yes-no question with a focused word is not affirmative and the answerer needs to give more information to the questioner. An example of the perception test is given in (6).

(6) a. Did Emily loan her roller blades to ROBIN?
1) No, she loaned her roller blades to Joel.
2) No, she loaned her bike to Robin.
3) No, Susan loaned her roller blades to Robin.
b. Did Emily loan her ROLLER BLADES to Robin?
1) No, she loaned her roller blades to Joel.
2) No, she loaned her bike to Robin.
3) No, Susan loaned her roller blades to Robin.
c. Did EMILY loan her roller blades to Robin?

1) No, she loaned her roller blades to Joel.
2) No, she loaned her bike to Robin.
3) No, Susan loaned her roller blades to Robin.

When the subject listens to the utterance with L* pitch accent on 'Robin' in (6a), the correct answer is the first answer choice. For the item (6b) the correct answer is the second answer choice. For (6c) the correct one is the third answer choice. The pre-tests included 6 different sentences, where focused words were in three different positions such as sentence initial, sentence medial, and sentence final positions.

After the pre-test, the researcher provided instruction on intonation of focused yes/no questions. This 30 minute instruction was given directly and explicitly once. First, the researcher explained how intonation of focused yes/no questions determined the meaning of the questions. Then, the subjects listened to the recorded utterances and then saw the transcribed fundamental frequency contours. The examples of the contours are like the figures in this paper. The researcher showed the intonation contours of English native speakers to students and gave instructions on English intonation using terms of phonetics such as 'fundamental frequency', 'pitch accents', etc. The explanation on the intonation contours displayed with a beam projector was that focused words should have low tones and then high pitch contour should be maintained to the end of the sentence. Then, students repeated the six sentences twice after listening to the recorded English native speakers' utterances while they were looking at the pitch contour. After the instruction and practice session, post-tests were given to the students. In the post-tests 12 question sentences were used including the same six sentences used in the pre-tests. After the two tests, students' responses were scored. In order to see if the test scores showed significant differences, paired-t tests were used.

III. RESULTS

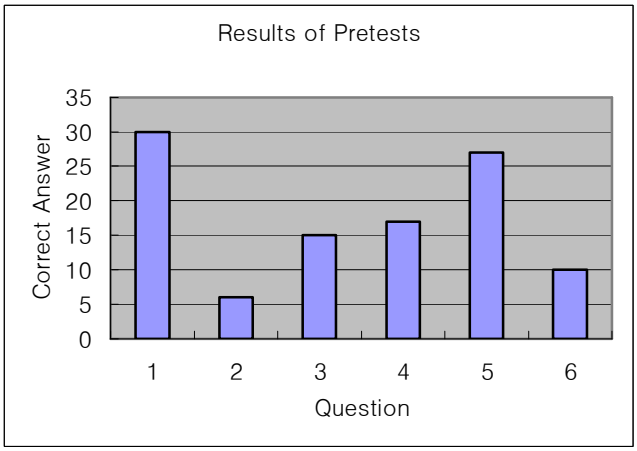
The results of the pre-test and the post-test showed that the explicit instruction influenced the students' perception of English intonation positively. The students chose 105 correct answers out of 192 in the pre-tests and 251 out of 384 in the post-test. The percentage of correct answers in pre-tests and post-tests is 55 % and 65 % respectively. Students' perception on the intonation of focused yes/no questions improved after instruction. The method of the instruction used in this experimental study was effective to facilitate the improvement of students' perception of English intonation.

The test results of pre-tests and post-tests for each question item are given in Figure 4 and Figure 5. Figure 6 shows the percentage of correct answers regarding the positions of

focused words in sentences. It shows that sentence initial and sentence medial focused yes/no questions are more difficult than sentence final focused yes/no questions both in the pre-tests and the post-tests. The students' perception abilities improved in sentence initial and sentence medial focused questions. In the pre-tests, the percentage of correct answers in sentence initial and medial focused questions was similar and much lower than the percentage of those in sentence final focused questions.

FIGURE 4

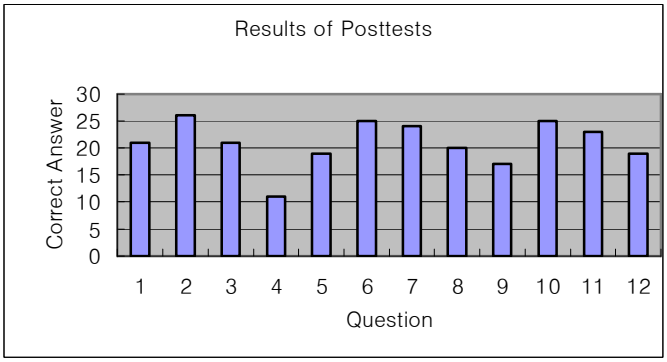
Pre-test Scores



* The position of the focused element: 1(F), 2(I), 3(M), 4(I), 5(F), 6(M)

FIGURE 5

Post-test Scores

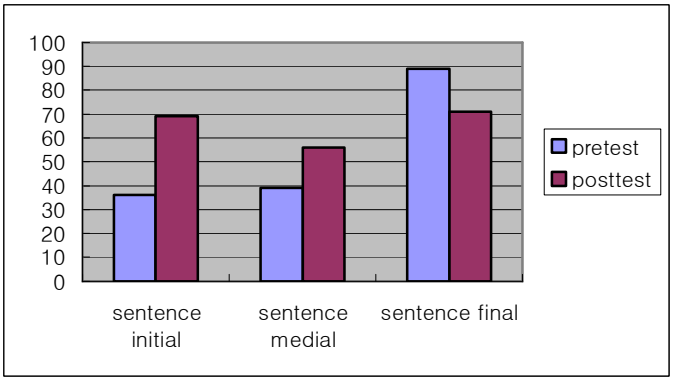


*The positions of the focused elements: 1(F), 2(F), 3(I), 4(M), 5(F), 6(M), 7(I), 8(I), 9(M), 10(F), 11(I), 12(M)

In the post-tests, the percentage of correct answers in sentence initial focused questions and sentence final focused questions were similar and the percentage of sentence medial questions were lowest among the three types of the focused questions. The highest percentage of correct responses in sentence final focused questions might be explained by the transfer of Korean tonal patterns. In Korean, H% IP final boundary is usually realized in question sentences. The pitch in this rising boundary tone begins to rise from the syllable near the end of the IP final syllable, and reaches its peak during the final syllable (Jun 2000). So the final word of Korean yes/no questions has a low fundamental frequency just before the H% boundary tone. The common intonation contour is largely similar to the combination of L* and H-H% when the final word is focused in English yes/no questions. Therefore, the sentence final position is likely to be the salient position for perception for Korean learners of English.

FIGURE 6

Percentage of Correct Answers Regarding Position of Focused Words



In post-tests, 6 questions were the same as the questions in the pre-tests and 6 questions were new questions. Table 2 shows the percentage of correct answers to the same questions and the new questions. The percentage of correct responses on the sentence final focused questions decreased in post-tests. The students' perception was better in the same questions than in the new questions. In the new questions, the students performed best in sentence initial focused questions.

TABLE 2
Pre-tests and Post-tests Results (%)

Tests/positions	Initial	Medial	Final	Total
Pre-tests	36	59	89	55
Post-tests	69	56	71	65
Post-test /Same questions	64	69	80	71
Post-test/New questions	73	44	63	60

This suggests that grammar instruction increased the students' awareness on sentence initial focused questions greatly compared with the medial focused questions. And the decrease of the correct response in the case of final focus after the instruction might be explained by some interference of the subjects' awareness to other two answer choices, that is, the answer choices of the initial and the medial focused sentences.

Table 3 shows that students' perception scores between pre-tests and post-tests are significantly different. Students' perception on the intonation of focused yes/no questions was considerably enhanced after the grammar instruction. The direct explanation on the intonational pattern of focused question was effective to improve the students' perception of English intonation.

TABLE 3
Comparison of Pre-test Scores and Post-test Scores

	N	M	SD	df	paired-t value
pre-test	32	3.3	1.3	31	-10.716*
post-test		7.8	2.5		

(*p < .05)

IV. CONCLUSIONS

This study showed that explicit instruction had a positive effect on Korean learners' acquisition of English intonation. The students' awareness on the location of the focused word in the question sentence was improved, which indicates that they acquired the improved perception of L* pitch accent realized on the focused word.

Intonation affects the native speakers' understanding of English learners' speech greatly. But the instructional method to facilitate the learners' production and perception of intonation has little been studied. This study investigated Korean learners' perception of the intonation in English focused yes/no questions. In this study, it was assumed that Korean learners of English had difficulties in perceiving low tone of focused words in yes/no

questions due to the intonational implementation differences of the focused word between Korean and English question sentences.

According to the study results, the students' perception improved after a short session of explicit phonetic instruction. Even though it is said that intonation is likely to be an area hard to teach, this study found that the explanatory instruction was successful to direct learners' attention to the target item and lead them to perceive the pitch changes better than before the instruction. In particular, the students' perception was improved greatly in sentence initial focused yes/no questions and it was improved fairly in medial focused yes/no questions.

However, it has been witnessed that the effectiveness of pronunciation instruction has been very limited. The effect of pronunciation instruction does not last long as pointed by Munro and Derwing (1998, 2001) and the carryover of acquisition of pronunciation to real life situations is rarely possible as shown in Elliott (1997)'s study on American learners of Spanish. Despite all these negative results on the impact of pronunciation instruction in the previous researches, this study indicates that we can choose an effective method of instruction to facilitate Korean learners' improvement of their perception of English intonation by teaching with the aid of the acoustic phonetic materials like pitch contour and explicit instruction on the focus and pitch accent we used in this study.

A degree of explicitness is one of the pedagogical choices that need to be considered for success in language instruction. According to Doughty and Williams (1998), in explicit instruction, language learners are gaining rule-based knowledge through metalinguistic teaching intervention that directs learners' attention to formal aspects of language. Even though explicit instruction is not likely to be much valued in communicative language teaching due to its interruption to communication, it is a powerful language teaching technique for language learners that do not have enough opportunity to be exposed to the target language.

One of the practical issues in language teaching is to choose an appropriate technique according to grammatical points since the effects of language instruction are not consistent all the time. Grammar instruction cannot be applied to all forms in the same way. This study showed that even brief and direct explanations with speech materials and visual intonation contours can influence the students' perception of intonation. Given the result of this study, future studies should investigate the long term effects of pronunciation instruction in conversation situations as well as appropriate grammar instructions that might vary depending on the forms.

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Examples in: English
Applicable Language: English
Applicable Level: University

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