

# Suprasegmentals Centered Instruction with Digital Contents

## —— A Study on the Improvement of English Listening Comprehension ——

Michiaki Azami

Abstract: This study used original, suprasegmental-based digital contents as a pedagogical device for improving listening comprehension, and examined their effects on the comprehensive listening comprehension of Japanese high school students. In one school, students studied with a teacher in a class. In another, students studied individually at home. Results indicated that after having studied with the contents individually at home, participants performed significantly better on the listening comprehension test than those who had studied with the contents in a class. These findings also provide empirical support for current pedagogical practices that emphasize suprasegmentals in teaching listening comprehension.

### Introduction

This is a pilot study and homogeneity of variance was not established between the classes at two different schools.

A test of English listening comprehension has recently been added to the National Center University Entrance Examinations in Japan. Many Japanese high school English teachers are looking for effective ways of improving students' listening comprehension.

Worldwide, there have been three major stages in the development of pedagogy for helping students cope with the problems they have in understanding the spoken form of a foreign language.

The first stage consisted of a focus on discriminating between segment types, which gave rise to drills in which students were required to discriminate between 'minimal pairs' of vowels and consonants like those in bet/bat and seize/seethe. There were also exercises requiring identification of the stressed syllable in polysyllabic words. An obvious problem with this approach was that it prepared students to understand words only when spoken slowly and clearly in isolation.

The second stage consisted of a rather different approach. Researchers took the view that students would benefit from regular practice in listening to extended discourse. But this new

approach brought with it some problems. Students listened to a spoken text which lasted for as much as seven minutes. They were also required to memorize the discourse to answer the questions about it. That memorization is not a goal of the skill.

The final stage consists of a quite different approach. Few training extracts last longer than three minutes and many last no more than one minute. In order to meet the requirement that students should listen selectively to discourse, the discourse is presented to them in the context of a pre-specified task which puts them very much in the position of native speakers, where the point of listening is to put the information to use. In such circumstances it does not matter whether or not they have understood all the details of what was said. (Gillian Brown 1990)

However, in Japanese English textbooks we see only exercises where students are required to discriminate between segment types, a quite out-moded view of listening comprehension education. This is why a team of English teachers in Tochigi Prefecture decided to develop digital contents centering on the suprasegmentals of English pronunciation as a pedagogical device for listening comprehension. The digital contents were made for both class use and individual use.

## Literature Review

Many researchers support pedagogical practices that emphasize suprasegmentals in teaching pronunciation. Suprasegmentals consist of stress, rhythm, intonation, etc (Joan Morley, 1991).

Judy Gilbert (1995) claims:

Word stress is important because English speakers tend to store vocabulary items according to their stress patterns... English speakers help their listeners to follow by grouping words so that they can be more easily processed... in spoken English... listeners must rely entirely on the intonational marks in order to know what words are grouped together. Each thought group has a "focus word" that will receive a pitch peak... The current problem of teaching pronunciation is that learners are unable to process important grammatical or discourse cohesion signals because of lack of training in the way spoken English systematically uses such mechanisms as reduction and intonation marking for emphasis and thought groupings. Traditional pronunciation teaching concentrates on drilling difficult sound distinctions, but both listening comprehension and speech clarity could be better served by using class time for training students to hear and use English signals of rhythm and melody.

Laura D. Hahn advocates teaching nonnative speakers suprasegmentals to improve the

intelligibility of their speech. She especially emphasizes the importance of teaching primary stress because it signals new and contrastive information in English discourse (2004).

Michael Rost (1990) suggests listening model as follows:

The notion of metrical patterning is useful for understanding speech perception. Indeed, the metrical pattern of an utterance, which is brought about by the interplay of stressed and de-stressed syllables, has been termed the 'grid against which listeners match their perceptions.' Any utterance can be mapped onto a metrical tree. By using this type of mental map, a listener can employ the concept of stress hierarchy to make sense of an utterance. The listener can rely more on the stable information in the stressed segments, which is relatively unchanged by phonological context. Considering these hierarchically more stable segments first, the listener constructs a metrical template of the utterance. Listeners who were sure of hearing only the segmental forms for the stressed syllables might still be able to infer the unstressed segments with this type of cognitive template. Activating a metrical template in short-term memory might allow for a delayed decoding of unstressed segments.

Japanese researchers studied the effects of teaching suprasegmentals (sound change, intonation and rhythm) on listening comprehension. However, little empirical support exists.

Eshima and Sato confirmed the suitability of teaching sound change such as contraction, elision, assimilation, liaison, and reduction as an aid to improve the listening comprehension of Japanese high school students (1990). However, their tests included only dictations of simple sentences. Listening comprehension skills include identifying 'pragmatic units', connecting linguistic cues to paralinguistic cues and to nonlinguistic cues in order to construct meaning, using background knowledge and context to predict and then to confirm meaning. (Michael Rost 1991) In terms of test materials, their study was not enough.

Takefuta, Shiina, and Takahashi proved that intonation can be the weak point of Japanese English learners (1988). However, their subjects were only university students.

## **The Current Study**

A group of English teachers in Tochigi Prefecture designed the digital contents according to the component skills of listening comprehension shown by Michael Rost. Michael Rost (1991) defined them as follows:

### Perception Skills

1. discriminating between sounds
2. recognizing words

### Analysis Skills

3. identifying grammatical groupings of words
4. identifying 'pragmatic units' —expressions and sets of utterances which function as whole units to create meaning

### Synthesis Skills

5. connecting linguistic cues to paralinguistic cues (intonation and stress) and to nonlinguistic cues (gestures and relevant objects in the situation) in order to construct meaning
6. using background knowledge (what we already know about the content and the form) and context (what has already been said) to predict and then to confirm meaning,
7. recalling important words and ideas

The items that the digital contents dealt with are consonants, vowels, rhythm, stress, sound changes (assimilation, liaison, elision, reduction), intonation, content words, function words, world Englishes (Brazil, Germany, Norway, Thailand, USA), and English in specific situations (telephone message, airplane announcements, airports, tour guide explanations, train announcements).

Seven teachers wrote the manuscripts for the digital contents (See Appendix 1), recorded and videotaped native speakers' performances, and programmed them. The digital contents are available at <http://www.edusight.net/>

Each section starts with a video clip in which a native English speaker and a Japanese have a short conversation in which the Japanese makes a mistake. A Japanese teacher then explains how such a mistake is made in terms of English phonology. For example, in the assimilation section, when a native English speaker says, "I'll miss you," the Japanese thinks she says "Misshu" (crowded).

Then the program shows typical phonological patterns. After some practice, learners take down dictations of some English sentences. Finally, they listen to a discourse and answer comprehension questions.

English teachers at two high schools used these digital contents with their students. In one school, students studied with a teacher in a class. In the other, students studied individually at home. We then must ask: Are these digital contents really effective in improving Japanese high school students' listening abilities? In order to answer the question, two research

questions were investigated: Are suprasegmental-based contents effective in improving the comprehensive listening comprehension of Japanese high school students? In which case are the suprasegmental-based contents effective when used in English classes with a teacher or when used individually outside English classes?

## Method

An experimental study was designed using the above-mentioned digital contents. In one school, students used the contents individually outside the class (Class 1). In a different school, students used the contents with a teacher in classes (Class 2). The students of both schools were asked to take listening comprehension tests before and after the study. The students in Class 1 took the pretest on Jan. 16, 2006 and the post test on March 13, 2006. The students in Class 2 took the pretest on Jan. 27, 2006 and the post test on March 17, 2006. Table 1 shows when the students in Class 1 studied the digital contents individually. Table 2 shows when the students studied the digital contents in classes.

Table 1 The dates of Class 1 students' contents usage

Students Contents	1	2	3	4	5	6	7	8	9	10
Rhythm 1	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	1/23
Rhythm 2	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9
Stress	3/10	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9
Assimilation	1/23	3/9	1/23	3/9	3/9	1/23	3/9	3/9	1/23	3/9
Linking	3/10	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9
Elision 1	3/10	3/9	3/9	3/9	3/9	3/9	3/9	3/9		3/9
Elision 2	3/10	3/9	3/9	3/9	3/9	3/9	3/9	3/9		3/9
Reduction	3/9	3/9	3/9	3/9	3/9	3/9	3/9			3/9
Intonation 1	3/10	3/9	3/9	3/9	3/9	3/9	3/9			3/9
Content words	3/10					3/9				3/9
Function words	3/10					3/9				3/9
Intonation 2	3/10					3/9				3/9

Students contents	11	12	13	14	15	16	17
Rhythm 1	3/9	3/9	3/9	1/23	1/25	3/9	3/9
Rhythm 2	3/9	3/9	3/9	3/9	1/25	3/9	3/9
Stress	3/9		3/9	3/9	3/9	3/9	3/9
Assimilation	1/23	1/23	3/9	3/9	1/23	1/23	3/9
Linking	3/9		3/10	3/9	3/9	3/9	3/9
Elision 1	3/9		3/10	3/9	3/9	3/9	3/9
Elision 2	3/9		3/10	3/9	3/9	3/9	3/9
Reduction	3/9		3/10	3/9	3/9	3/9	3/9
Intonation 1	3/9	1/23	3/10	3/9	3/9	3/9	3/9
Content words	3/9						3/10
Function words	3/9						3/10
Intonation 2	3/9						3/10

Table 2

The dates of contents usage in Class 2

Stress	3/13
Assimilation	3/14
Linking	1/15
Elision 1	3/15
Elision 2	3/16
Content words	1/16
Function words	3/17

## Subjects

The study comprised of 56 Japanese high school students. 17 of them were first year students from a Japanese private high school and 39 of them were first year students from a Japanese public high school. The students in the private school used the contents individually at home (Class 1) and those in the public school used them in classes with a teacher (Class 2).

## Materials

The digital contents centering suprasegmentals were rhythm, stress, sound changes (assimilation,

liaison, elision, and reduction), intonation, content words, and function words. In the private high school, students studied rhythm, stress, sound changes (assimilation, liaison, elision, and reduction), intonation, content words, and function words. In the public high school, students studied stress, sound changes (assimilation, liaison, elision, and reduction), content words, and function words.

In order to examine the improvement of students' listening comprehension, the Global Test of English Communication (GTEC) was used (See Appendix 2). It was developed by Benesse Corporation, which analyzes the data from more than 5 million tests every year, and Berlitz International, which is famous for its English education. Its reliability is already proved. This test consists of three parts—listening comprehension, reading comprehension, and writing. In this study, only results from the listening comprehension part are utilized. The pretest (the 5th GTEC) and the post test (the 6th GTEC) are parallel.

## Data Analysis

The mean of the pretest in Class 1 was 8.59 and the mean of the post test was 9.47. The Wilcoxon signed rank test yielded a statistically significant difference between the pretest and the post test at the private high school [ $z=-2.047$ ,  $p<.05$ ]. Table 1 contains the Wilcoxon signed rank statistic for the GTEC results in Class 1.

The mean of the pretest in Class 2 was 6.33 and the mean of the post test was 6.87. The t-test did not yield a statistically significant difference between the pretest and the post test in Class 2 [ $t=1.474$ ,  $p=.149$ ]. Table 2 contains descriptive statistics for the GTEC results in Class 2.

TABLE 1 Wilcoxon signed rank statistic for the GTEC results in Class 1

GTEC Version	N	Z	P (two-tailed)
5th GTEC-6th GTEC	17	-2.047	.041

TABLE 2 Descriptive statistics for the GTEC results in Class 2

Variable	N	Mean	SD	SE of Mean
5th GTEC	39	6.3333	2.70801	.43363
6th GTEC	39	6.8718	2.46213	.39426

## Discussion

In this study, subjects who studied using the digital contents individually outside the class performed significantly better in the post test than in the pretest. However, subjects who studied using the digital contents in a class with a teacher did not perform significantly better in the post test. Although most of the subjects who studied individually outside the class did their studies for only one or two days, they still performed significantly better in the post test than in the pretest, which means we can expect a greater effect of the digital contents when they are studied individually outside the class for a longer time. Thus, the suprasegmental-based digital contents are effective in improving Japanese high school students' listening comprehension when used individually outside the class.

## Conclusion

Judy Gilbert tells us that both listening comprehension and speech clarity could be better served by using class time for training students to hear and use English signals of rhythm and melody. Likewise, the suprasegmental-based digital contents are effective in teaching Japanese high school students listening comprehension when students study with the contents individually at home. These findings also provide empirical support for current pedagogical practices that emphasize suprasegmentals in teaching listening comprehension.

The difference between the mean scores of the 5th and the 6th GTECs was small. This means that GTEC might not be able to evaluate students' listening ability properly. Or that the difference of English proficiency between the two high schools was a factor. These two facets need to be studied further.

## References

- Brown, G. (1990) *Listening to Spoken English Second Edition*
- Eshima, T and Sato, Y. (1990) The sound change centered instruction: A study on the improvement of English listening ability. *Language Laboratory*, 27, pp.117-131
- Gilbert, J. (1995) Pronunciation Practice as an Aid to Listening Comprehension. *A Guide for the Teaching of Second Language Listening* pp.97-112
- Hahn, L. (2004) Primary stress and intelligibility: research to motivate the teaching of suprasegmentals. *TESOL Quarterly*, vol. 38, No. 2, Summer 2004
- Matsuzaka, H. (1986) *Introductory English Phonetics*
- Morley, J. (1991) The pronunciation component in teaching English to speakers of other languages.

*TESOL Quarterly*, vol. 25, No. 3, Autumn 1991

Rost, M. (1990) *Listening in Language Learning*

Rost, M. (1990) *Listening in Action*

Takebayashi, S. (1996) English Phonetics

Takefuta, Shiina, and Takahashi (1988d) The instruction of intonation. *Research on Language Behaviors* pp. 59-63

## Appendix 1

Item: Linking

Video Clip

Native Speaker: She worked in an office in New York.

Japanese: Inanofice? Ina? Is it a place in Ibaraki?

Native Speaker: No.

Explanation of the Mistake

Pronunciation Practices

It took half an hour... Keep it up... Take it easy... I met him at a restaurant...

Listening Comprehension Drills

Dictations

1. (in) (a) restaurant 2. looked (in) (the) newspaper 3. the names (of) new restaurants

Listening Comprehension Questions

1. Why did Jane often look in the newspaper for the names of new restaurants?

- Because she enjoyed visiting them and meeting new people.
- Because she enjoyed visiting them and eating new food.

2. Where did she go one day?  an French restaurant  an office

3. What did she find in her soup?  a waiter  a contact lens

4. Was the waiter angry or happy at the end?  angry  happy

Script: Jane worked in an office in New York City. At lunch time, she usually went out and ate lunch in a restaurant. She liked food from other countries and often looked in the newspaper for the names of new restaurants, because she enjoyed visiting them and eating new food.

One day she saw the name of a new French restaurant in her newspaper, and she went there.

It was small, but it was clean and people are kind, and especially the food was delicious.

But then Jane found something strange in her mouth. She took it out. It was a contact lens.

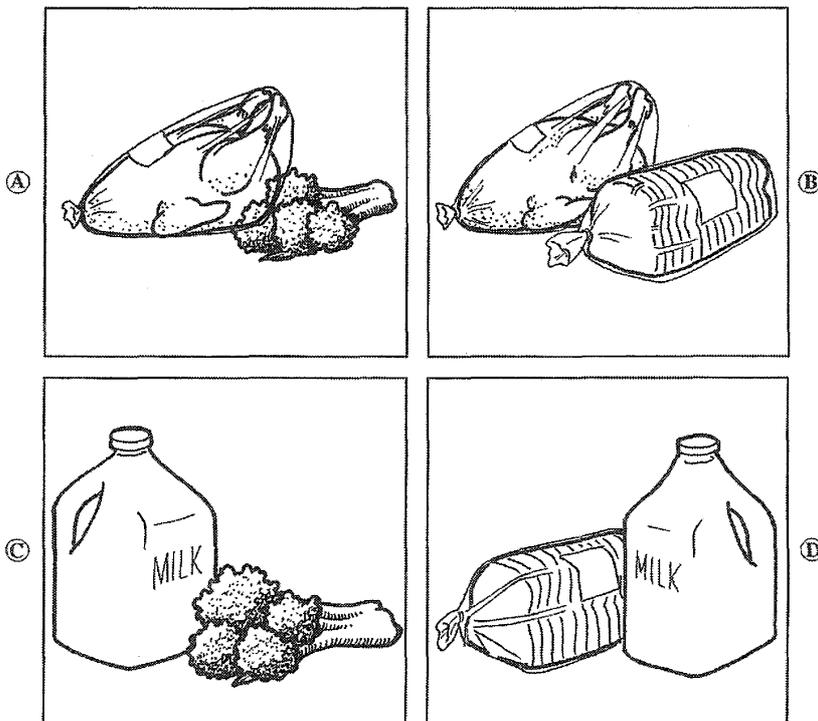
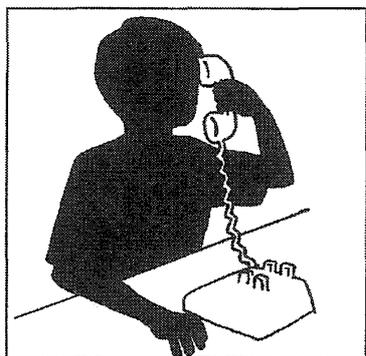
“Waiter!” she said. “I’ve found this contact lens in my soup.”

“Thank you, thank you” the waiter said happily. “I had been looking for it since this morning.”

## Appendix 2

### Questions 21 & 22

あなたはアメリカにホームステイ中です。ある日の午後、ホストマザーが仕事先からあなたに電話をかけてきて、あなたに何か頼み事をしています。まず、ホストマザーから話します。



21. What will you get at the store?

- [A]    Ⓐ
- [B]    Ⓑ
- [C]    Ⓒ
- [D]    Ⓓ