The Perception of the English Stresses by Japanese Learners with the Bodysonic Vibrations

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1. Introduction

In this research I made the investigations on the effect of the use of the Bodysonic system to learners' aural ability.   I investigated how the Bodysonic system affects the learners to perceive the stress pattern of English.   The perceptions of the English stresses by Japanese learners are investigated through the tests.

In addition to that, the priority among auditory sense, somatic sense and the both of them on language learning is clarified.   The sentences of the various stress patterns are sent to the subjects through the plural ways of information simultaneously.   The data are gathered on what is the prior way in certain situations and how these sources of information operate each other.   The predictable phenomena to be found through these tests are in the following;

(a) The Bodysonic system makes it easy for learners to acquire the rhythm of the target language.

(b) Visual, auditory, and somatic stimuli work supplementary, although the strength
of those stimuli varied in the situations.

(c) In certain situations visual information and somatic information interfere the learners to receive auditory information.

I set these as the hypotheses for the tests.

In pursuit of the ideal learning methodology, the optimal condition for Japanese learners to use the Bodysonic system for acquiring rhythm of target language will be found out.

2. The Test on Learner's Stress Perception of the Sentences and the Priority between Auditory and Somatic Sense

The test is focused on the stress pattern perception of a sentence. First, the subjects find the most stressed place, the nucleus, then count the number of stressed points in the sentences. There are 25 samples (See APPENDIX). The subjects receive the tests three times, with the sound, with the Bodysonic vibrations (BV) and with the both of them.

2.1 The Perception of the Nuclear Stress in the Sentence

The subjects find the nuclear stress in the sentences in the three kinds of situations, that is, tape listening with the sound, with the Bodysonic vibrations only, and with both of them.

2.1.1. The Comparison of Sound+BV, Sound, and BV in the Perception of the Nuclear Stress in the Sentence

TABLE 1   The Comparison of Sound+BV, Sound, and BV in the Perception of the Nuclear Stress in Sentence

	Correct Response Rate	Number of Subjects
Sound	75.7%	202
BV	43.9%	206
Sound+BV	66.6%	199

As you can see in TABLE 1, in the cognition of the most stressed place there is the difference between the sound only and sound+BV. The score of sound+BV is not as good as that of sound. In the case of sound+BV, the Bodysonic vibrations seem to interfere the sound perception. In this situation the plural ways of information confuse the subjects and disperse their concentration.
The perceptivity is, " Sound＞Sound+BV＞BV."

2.1.2   The Effect of Presentation Order in the Perception of the Nuclear
Stress in Sentence

The effect of presentation order of sound and BV in the perception of the
most stressed place in the sentence is found as you see in TABLE 2.
Concerning to the score of BV, the group of Sound→BV order is better than
that of BV→Sound order. On the contrary, there is no significant difference in
the score of sound.   Consequently, there is the effect of Sound→BV
presentation also in this case.

TABLE 2   The Effect of Presentation Order in the Perception of the Nuclear
Stress in the Sentence

	Sound→BV		BV→Sound	
	Correct Response Rate	Number of Subjects	Correct Response Rate	Number of Subjects
Sound	76.0%	106	75.4%	96
BV	47.4%	105	40.5%	101

2.2 The Perception of the Number of Stresses
The subjects count the number of stressed places in the sentence in the three
kinds of situations, that is, tape listening with the sound only, with the
Bodysonic vibrations only, and with both of them.

2.2.1 The Comparison of Sound+BV, Sound, and BV in the Perception of
the Number of Stresses

There is no significant difference among sound, BV and sound+BV.   In
TABLE 1 and TABLE 2, the scores of BV apparently are lower than those of
the others.   However, in this comparison they are almost the same as the
others.

TABLE 3. The Comparison of Sound+BV, Sound, and BV
in the Perception of the Number of Stresses (1)

	Correct Response Rate	Number of Subjects
Sound	33.4%	202
BV	32.5%	206
Sound+BV	34.2%	199

As TABLE 3 is the surface analysis, it doesn't take the number of the
stresses into consideration. I analyze it minutely in TABLE 4.
The results are various depend on the number of the stressed places.
In the one-stressed sentence, the order in the perceptivity is " Sound>
Sound+BV>BV." This is the same as in the perception of the nuclear stress
in sentences (TABLE 1).
In the two-stressed sentence, both BV and Sound+BV show the higher figures
than those in the one-stressed sentence. Moreover, Sound+BV surpasses
Sound. BV works as positive information with the sound, that is, it works as
the supplementary source of information.
In the three-stressed sentence and the four-stressed sentence, the scores of
BV are the highest and the order in the perceptivity is reversed.

TABLE 4 The Comparison of Sound+BV, Sound, and BV
           in the Perception of the Number of Stresses (2)

Number of stresses	1 Correct Response Rate	2 Correct Response Rate	3 Correct Response Rate	4 Correct Response Rate
Sound	54.1%	55.9%	27.0%	9.1%
BV	40.9%	50.7%	29.6%	14.0%
Sound+BV	46.4%	59.1%	27.4%	11.3%

2.2.2 The Effect of Presentation Order in the Perception of the Number of Stresses

The effect of Sound→BV presentation is not found in TABLE 5. TABLE 5 is also the surface analysis because the number of the stresses is not taken into consideration like the analysis in 2.2.1.

TABLE 5 The Effect of Presentation Order in the Perception of the Number of Stresses (1)

	Sound→BV		BV→Sound	
	Correct Response Rate	Number of Subjects	Correct Response Rate	Number of Subjects
Sound	31.5%	106	35.5%	96
BV	32.4%	105	32.6%	101

Hence, I analyze it minutely in TABLE 6.

The effect of Sound→BV presentation is found in the score of BV in one-stressed sentence. However, that effect is not seen in the others. On the contrary, the effect of BV→Sound presentation is found in the score of sound in two or more stressed sentences. Interestingly, the scores of BV surpass that of sound in three-stressed sentence and four-stressed sentence.

TABLE 6 The Effect of Presentation Order in the Perception of the Number of Stresses (2)

Number of Stresses		Sound→BV Order Correct Response Rate	BV→Sound Order Correct Response Rate
1	Sound	59.1%	48.6%
	BV	49.2%	32.3%
2	Sound	53.1%	59.1%
	BV	52.8%	48.5%
3	Sound	23.9%	30.5%
	BV	27.3%	31.9%
4	Sound	6.6%	11.9%
	BV	10.8%	17.4%

3. The Discussion on the Results of the Tests

Here I examine the hypotheses for the tests.

(a) The Bodysonic system makes it easy for learners to acquire the rhythm of the target language.
(b) Visual, auditory, and somatic stimuli work supplementary, although the strength of those stimuli varied in the situations.
(c) In certain situations visual information and somatic information interfere the learners to receive auditory information.

As for (a) the Bodysonic system makes it easy for the subjects to perceive the stressed place especially in perceiving more than one stress in the sentences. Hence, in the perception of one stress in words and sentences, the scores of the sound exceed those of the Bodysonic vibrations.
Concerning to (b) the Bodysonic vibrations work supplementary with the sound in the perception of two stresses in the sentence.
Regarding (c) the somatic information become obstacle for the auditory information in the case of one stress. The plural ways of information seem to confuse the subjects therefore the subjects cannot control them and lose their concentration.
In addition to that it is found that Sound+BV is not as effective as BV only in the condition of more than two stresses. The order in the perceptivity is generally, " Sound>Sound+BV>BV," in the one stress perception. In the two stress perception the order is " Sound+BV>Sound>BV." Moreover, in the three or four stress perception it is " BV>Sound+BV≧Sound."
Therefore, the use of the Bodysonic vibrations with the sound is not always beneficial for learners.
Those results depend on the total amount of information. It seems to be difficult for us to proceed many sources of information and a lot of pieces of that simultaneously.
The voice contains many kinds of information, tone, length, strength, vowels, consonants, etc. The Bodysonic vibrations limit the information to length and strength, therefore, it has the advantage of perceiving the rhythm of the language, especially more than one stresses in the simple sentences. On the contrary the sound, the voice, has the superiority of perceiving the most

stressed place.   That is, the place of the strongest stress affects the meaning of word or sentence and it is more important information for the language. Therefore, the perception of the one stress or the nuclear stress with the sounds is better than that with the Bodysonic vibrations.

The effect of the presentation order is the interesting phenomenon in the connection with the teaching methodology.   The effect of Sound→BV presentation is found in the score of BV in one-stressed sentence.   In contrast, the reverse effect, the effect of BV→Sound presentation, is observed in more than one stress conditions.   These facts suggests that the superior source of information presented in advance affects the inferior one later.   That is, the previous learning through the superior source of information is beneficial in perceiving the inferior source of information.   I can't tell the reason for this effect, however, it is very important suggestion for the learning methodology in the rhythm education with the Bodysonic system.

APPENDEX   Test 1 2 3／S BS

  1) Ask John.   .... (   )
  2) Show me yours.   .... (   )
  3) He came with us.   .... (   )
  4) What is the time?   .... (   )
  5) I gave it to him.   .... (   )
  6) It's time for lunch.   .... (   )
  7) She wrote a letter soon.   .... (   )
  8) Do you want to go there?   .... (   )
  9) Do you prefer tea or coffee?   .... (   )
 10) There are some ladies in the hall.   .... (   )
 11) He is my younger brother.   .... (   )
 12) Is this your first visit to Seoul?   .... (   )
 13) There is a cat on the chair beside the table. .... (   )
 14) Each boy has his own watch.   .... (   )
 15) Can you dance?   .... (   )
 16) Yes, I can.   .... (   )
 17) I can't afford to buy a new one.   .... (   )
 18) Can you tell me the way to the bank?   .... (   )

19) We usually play baseball on Sunday.   .... (   )

20) What 's the date today?   .... (   )

21) Who went to the zoo yesterday?   .... (   )

22) What a gorgeous costume this is!   .... (   )

23) Look at that young man.   .... (   )

24) He doesn't attend the meeting.   .... (   )

25) I'm very glad to see you.   .... (   )

These sentences are selected from English Intonation Practice for College Students. English Phonetic Society of Japan eds., Asahi Shuppan, 1997.