# RECEPTION-PRODUCTION CORRESPONDENCE

## in Japanese Speakers of English

by Wesley RICHARD

The purposes of this study are 1) to determine what percentage of error may be expected in audio discrimination tests for Japanese speakers of English and 2) to investigate the extent to which the difficulty of reception corresponds to that of production.

In order to carry out this study, seventy-four second-year college students were tested in two ways. The first was by the use of an aural perception test consisting of sixty problems. The second was a speech production test in which the students were asked to read sentences selected to correspond with the results of the perception test. The results of these two tests form the basis for this paper.

Obviously, in an investigation of this type, one wishes for a completely controlled situation so that extraneous factors do not influence the results. Unfortunately, such an ideal situation was not available. The 74 students who were tested came from various educational and environmental backgrounds (all from Northern Japan) and therefore achievement levels differ considerably. Nevertheless, despite its limitations, an analysis of this type should be valuable for determining problem areas and pointing up necessary curriculum emphases.

## CONTRASTIVE ANALYSIS AND ERROR PREDICTION

Many studies contrasting English and Japanese phonology have been made, upon which predictions of error have been based.[1],[2] Our interest here is not to discuss the merits of any of these studies in particular, but rather to use the results of one as a basis of comparison with the results of an error analysis. Error analyses can serve as valid checks on the accuracy of predictions. As James Ney states, "contrastive studies themselves do not provide any means for quantifying the amount of difficulty encountered."[3] Contrastive analyses and their resulting predictions of error can point up nothing more than error probability areas. They say nothing about the extent to which a certain item will be a

problem. It appears that certain pronunciation problems can be overcome early in the learning process while others may persist through later stages. Therefore, it seems likely that specific problem areas change throughout the learning process. Further, it appears that, considering the evidence one has to work with in a contrastive analysis, unless error analysis is employed in conjunction with it, any specific percentage prediction would be hazardous.

For the purposes of this study, an analysis such as that of Charles Scott's will serve well. At the conclusion of his study, several items are pointed out as potential points of difficulty. These are listed in two groups. The first constitutes "certain specific learning problems for the Japanese speaker which are wholly explainable in terms of inventory contrasts."[4] These contrasts are as follows:

1. / s - θ /
2. / z - ð /
3. / b - v /
4. / r - l /
5. / i - I /
6. / e - ɛ /
7. / u - U /
8. / o - ɔ /
9. / a - æ - ʌ /

The second is "points of difficulty which require statements of either alloponic structure or of phoneme distribution, or of both, for their full explanation."[5]

1. / t - ts / medially before /u/
2. / t - č / before /u/
3. / ǰ - ž / medially
4. / g - ŋ / medially
5. / f - h /
6. / f - h - š / before high front vowels/iI/
7. / z - dz / medial and final
8. /m - n - ŋ/ before non-homorganic consonants
9. /m - n - ŋ/ in final position

While the second list also constitutes "specfic learning problems," the application of this list is limited to specific environments. The

former list is more general in that respect.

For purposes of this study, attention will be focused on the more general first list. Following is an analysis of two tests from which we can ascertain to what extent these problems persist for at least one group of students.

## PERCEPTION TEST

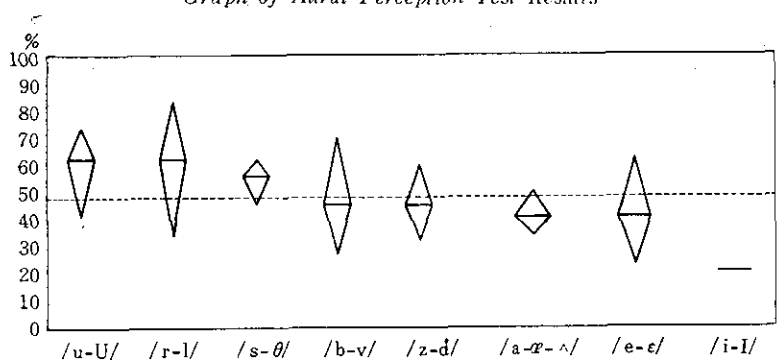
This test is of the type commonly used for testing ability in discriminating so-called minimal sound differences. Three sentences form a "set" and the task of the student is to determine whether the sentences he hears are different, all the same, or if one is different-which one. Accordingly, he circles corresponding numbers on his answer sheet. The tape was one prepared by ELEC containing 60 problems in two parts.

Facilities used for the test included a hearing room (in which the students had studied the previous year and thus were not in a strange environment) and individual earphones connected to a master taperecorder (Sony 777). All the students had completed a one-year course in pronunciation using the same facilities.

The test includes most of the inventory listed above in group one. Unfortunately, the test was not constructed to include all nine items in the list, thus the /o－ɔ/ contrast was not tested. Results of the test will be listed in order of error frequency (in percentage). In cases where more than one test problem per inventory item was given, results were averaged and extremes indicated as shown on the following graph.

**Figure** 1

*Graph of Aural Perception Test Results*



The graph as it stands says something about the relative difficulty of the various items in the test when averages are compared. It will be observed, for instance, that the /u-U/ contrast is a much greater problem than the /i-I/ contrast. And we may note that the /r-l/ problem stands at the head of the consonant list.

But an even more significant observation may be the fact that within each particular contrast problem there is a wide spread between the percentage poles. This is, no doubt, due to more than one reason. The most obvious reason would be the different environments in which each item occurs. For instance, the /s-θ/ sounds in initial position resulted in 49 percent error but the same sounds in final position resulted in 65 percent error. Another reason may simply be that of natural inconsistency of response, and in cases of uncertainty, the result of chance.

The following table lists the percentages represented above as well as the number of test items available for each problem.

**Figure 2**

*Table of Aural Perception Test Results*

| Problem | Average % Error | Occurrence | Lowest % | Highest % |
|---|---|---|---|---|
| 1. /u-U/ | 61.5 | 2 | 44.6 | 78.4 |
| 2. /r-l/ | 61.5 | 4 | 36.5 | 86.5 |
| 3. /s-θ/ | 59.5 | 3 | 48.6 | 64.9 |
| 4. /b-v/ | 48.6 | 4 | 29.7 | 72.9 |
| 5. /z-ð/ | 47.3 | 2 | 32.4 | 62.2 |
| 6. /a-æ-ʌ/ | 42.5 | 2 | 35.1 | 50.0 |
| 7. /e-ɛ/ | 42.6 | 2 | 23.0 | 62.2 |
| 8. /i-I/ | 21.6 | 1 | — | — |

Before turning to a comparison of these results with those of a speech production test, it may be of interest to note the differences of response in various invironments. The /s-θ/ problem has already been mentioned. The /b-v/ contrast shows a similar result with the initial position receiving the low percentage and the medial position the high. The /r-l/ problem occurred in three different environments or, to be more precise, only these three environments were chosen as targets for investigation. These were *:white-light-right* contrast, (high error), *lock-rock* (next in line), and /r-l/ following /p/ and /f/ (lowest error).

Further comment will be made with respect to these areas in the following section.

## SPEECH PRODUCTION TEST

A preliminary analysis of the above results was made, upon the basis of which sentences which included those error items were selected. These sentehces were then duplicated and handed to students as they entered the language laboratory. The students were instructed to read the sentences onto a tape. The tapes were then checked and analyzed later.

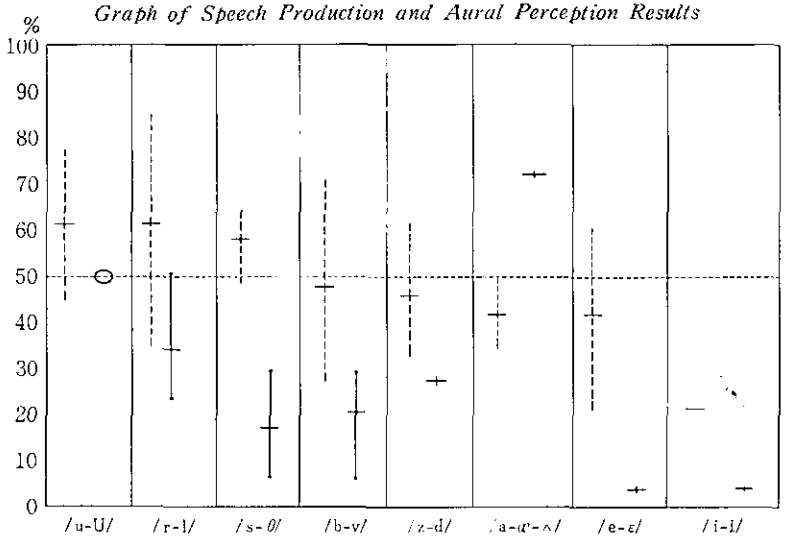
Two problems can be identified at this point with regard to procedure. One is that the reading ability of the student is also at stake in this test. We can not necessarily be certain that the student pronounces what he sees or, in fact, that he sees correctly. If his sound and sight images are in any way distorted, this can have an effect on the results. But since there is no way to have a student produce minimal pairs naturally, it would seem to be a necessary hazard inherent in the method.

The second problem is that of the discriminatory power of the checker. A hearing test can be graded rather objectively since the results are clearly written on the answer sheet. (That is not to say that the student chose that answer with conscious deliberation.) However, a test of the type where the researcher must decide how nearly correct a specific sound is made clearly has its disadvantages. The line between acceptability and inacceptability is not always easily discernable and it must be admitted that a certain amount of subjectivity is called into play. One way to overcome this problem would be to involve more than one "checker," but that option was not taken for this study. Therefore, the results cannot be viewed as anything more than tentative, but, nevertheless, they can be seen as a general indicator of problem areas. This in itself can be quite useful to one engaged in teaching as a check on the progress of his students.

Following is a graph showing the results of the speech production test in contrast with those of the hearing test.

**Figure 3**

*Graph of Speech Production and Aural Perception Results*




KEY : Hearing results on left ; Production on right.

The average for each production problem falls below that of hearing, except for the three way vowel distinction /a-æ-ʌ/. One reason for the overwhelming difficulty with this distinction may be the heavy load on the low-central vowel. In Japanese only one such vowel is available, but in English, there are three, thus causing an overload on the "distinction factor." This may be further complicated by the fact that in English spelling, both the /a/ and /æ/ are represented by English *a*. Since English study in Japan is primarily eye-oriented, there is plenty of room for confusion in pronunciation. At any rate, here is one problem which occurs with fairly high frequency in both hearing and production.

One problem encountered in the production test was with the /u-U/ contrast. An oversight in sentence selection resulted in an untestable combination of words. This involves the words *soot* and *suit*. Unfortunately, some students were evidently not well acquainted with the pronunciation of *soot* even though it had been taught previously in contrast with *suit*. Therefore the results were not usable. The projection on the graph is simply a guess.

A table listing percentages for both reception and production tests follows.

**Figure 4**

TABLE OF PRODUCTION AND AURAL PERCEPTION RESULTS

| Problem | *Reception* Occurrence | Aver. % | *Production* Occurrence | Aver. % | *Differential* (in percent) |
|---|---|---|---|---|---|
| 1. /u-U/ | 2 | 61.5 | 1 | 50 (projection) | |
| 2. /r-l/ | 4 | 61.5 | 3 | 34.2 | −27.3 |
| 3. /s-θ/ | 3 | 59.5 | 2 | 18.2 | −41.2 |
| 4. /b-v/ | 4 | 48.6 | 2 | 21.6 | −27.0 |
| 5. /z-ð/ | 2 | 47.3 | 1 | 28.4 | −18.9 |
| 6. /a-æ-ʌ/ | 2 | 42.5 | 1 | 73.0 | +30.5 |
| 7. /e-ɛ/ | 2 | 42.6 | 1 | 4.1 | −38.5 |
| 8. /i-I/ | 1 | 21.6 | 1 | 4.1 | −17.6 |

The table indicates the average percent of error both for reception and production of the sounds listed at the left (percentages rounded off to the nearest tenth). The percentages range from 4 to 73 for production or a 69 point spread compared with a 40 point spread in reception. The very low error percentage on the two front vowel contrasts indicates that almost complete production mastery has been achieved at this stage of study. With regard to the central and back vowels, the data would indicate, in general, less control and therefore more difficulty in correct production of those sounds than those produced in the front area.

On the average, it can be said that for these students, production of English sounds results in 20% fewer errors than the reception of those same sounds. We need not search far for a reason if we consider the nature of the two tasks. In hearing, one can exercise no control over the incoming sound; it is completely an involuntary process. In producing sounds, however, one can voluntarily control those factors that make up the sound if sufficient training has been available. There is then, it would seem, a voluntary-involuntary principle at work-voluntary with respect to production but involuntary with respect to reception. Research of a broad range of students at various stages of learning would yield figures to indicate at what stage, if ever, the aspects of this principle meet.

If the above principle is at work in the reception-production process

with respect to the production of front and back vowels, it is conceivable that this same principle is operative in other types of environments as well. The three areas for which data from this study is available are listed below.

**Figure 5**

*Table of Environmental Differences*

| Problem | Occurrence | Reception(%) | Occurrence | Production(%) |
|---|---|---|---|---|
| 1. /s-θ/ | | | | |
| Initial position | 1 | 48.6 | 1 | 6.8 |
| Final 〃 | 2 | 64.9 | 1 | 29.7 |
| 2. /r-l/ | | | | |
| white, light, right | 1 | 86.5 | 1 | 24.3 |
| /pr/pl/fr/fl/ | 2 | 50.0 | 1 | 27.0 |
| lock, rock | 1 | 59.4 | 1 | 51.3 |
| 3. /b-v/ | | | | |
| Initial | 2 | 37.6 | 1 | 5.4 |
| Medial | 2 | 60.1 | 1 | 37.8 |

In the case of /s-θ/ and /b-v/ contrasts, it is clear that in both reception and production initial occurrences of the particular sound are easier to negotiate than those in other positions. Production is nearly perfect, in fact. It would appear that even though the sound occurs mid-utterance, if it is in initial word position, production and reception both are considerably enhanced. For both the /θ/ and /v/ sounds, all that is necessary is the mastering of a tongue or lip position, a conscious, voluntary operation. This would quite likely be psychologically easier to accommodate in word initial position than in any other.

The /r-l/ problem appears not to have any particular pattern at first glance until it is observed that /r-l/ before the /ai/ diphthong has a markedly different response from that of /r-l/ in *lock-rock*. In reality, a large percentage of the students pronounced the latter vowel as /ɔ/ or even /o/. This leads to the tentative conclusion that /r-l/ before front vowels is easier to produce than the same sound before back vowels.

## CONCLUSIONS

From the above data, the following tentative conclusions can be stated.

1. Generally, production of English sounds results in fewer errors than reception of those same sounds. There was one exception to this general rule. On the whole, for this group of students, there were twenty percent fewer errors in production than in reception. The ratio for each sound is quite different, however.

The voluntary-involuntary principle proposed above would account for the difference between reception and production. The variations in percentage from one sound to another can be accounted for by either: 1) the inherent difficulties in physical co-ordination to produce a sound and/or 2) the amount of effort expended on the problem as a result of direct teaching.

2. With regard to vowels, front vowels appear to be more easily mastered than back ones. Speculation on this phenomenon leads to the possibility that manipulation of tongue and lips may be easier in the front than in the back for production. As for reception, perhaps the tenseness of front vowels has something to do with the relative ease or difficulty of reception. In light of the front-back vowel difference, the earlier projection for /u-U/ production is likely not far from correct (if not low). If so, this conclusion would be validated.

3. Consonants in initial position show fewer errors than those in medial or final positions. Concentration on correct production of sounds in initial word position would lead to this tendency.

4. While the conclusions here must be viewed as tentative, remedial work for this group of students should likely include further guided hearing practice to improve sound distinction ability in reception. Special concentration on back vowels and medial consonants would need to be encouraged.

5. Assuming that the method is valid, a study such as this, if carried out regularly, could give great help in determining the areas in which students are in need of the most help.

## FOOTNOTES

1. Kohmoto, Sutesaburo. *Phonemic and Sub-Phonemic Replacement of English Sounds by Speakers of Japanese.* University of Michigan Education Department, Ann Arbor, University Microfilms, Inc. 1960

2. Scott, Charles T. *Preliminaries to English Teaching.* The English Language Education Council, Inc. Tokyo, 1966.

3. Ney, James Walter. *A Morphological and Syntactical Analysis of English Compositions Written by Native Speakers of Japanese.* Ann Arbor, Ph. D. Thesis (University of Michigan) 1963. Page 2.
4. Scott, *op. cit.* page 97.
5. *Ibid.* Page 97. (problem list on pages 105, 106)

## THE INTERPLAY OF RHYTHM AND IMAGERY IN ROBERT BROWNING'S *SAUL*

Dorothy M. TAYLOR

This essay seeks to analyze variations from the normal anapestic pentameter in which the poem is written, such as the use of amphimacers and spondees, etcetera, together with other characteristics of the sound structure, including the extensive use of monosyllables. The latter are found to contribute to the sense of vigor which pervades the poem. Onomatopoetic effects and kinesthetic imagery are found to result from the matching of rhythm to sense. Thus it becomes apparent that rhythm and sound structure bear an integral relationship to the semantic sense and imagery in creating the total meaning of the poem.

## RECEPTION–PRODUCTION CORRESPONDENCE in Japanese Speakers of English

Wesley RICHARD

The purpose of this study is to determine the extent of error correspondence between reception and production of English pronunciation among native speakers of Japanese. Based on two tests, this study of 74 students indicates that errors in reception exceed those of production by an average of twenty percent. Consonants in initial position and front vowels are two specific areas that show a relatively low error frequency. Remedial work centering on guided hearing practice to improve sound distinction ability in specific areas is recommended in light of these results.

## Early Democratic Movement and Christianity in Japan
### —— The case of Naohiro SAKAMOTO ——

Yasuoki YAMASAKI