
The Effect of Rate Alteration vs. Repetition on ESL Listening Comprehension: A Pilot Study

by T. Edward Harvey

Psychologists define listening as the apprehending of meaning from a continuous stream of verbal symbols. The more general theory of communication holds that listening is the receiving, decoding, and interpreting of a verbal message. In the practitioner's world of second-language teaching it is one of the "four skills" which previously was thought to develop by osmosis, i.e., "would develop of itself if we taught our students to speak" (Pimsleur, Hancock, and Furey, 1977). More recently the second-language teaching profession has begun to place greater emphasis on the teaching and testing of listening as an integral part of the language-learning process.

When tests of listening are mentioned, they usually have to do with comprehending messages or conversations in the second language, and one may assume a standard format: recorded spoken material played back through earphones to students either in class or in a language laboratory. Based on what is heard, s/he must answer a number of questions of the type used in objective tests, i.e., multiple choice, true-false, fill in, etc. Some tests try to isolate the listening skill and to present only hearing situations (i.e., where the student listens to a radio, to a record, to a conversation behind a door, or to what is said over a telephone). Others choose a hybrid situation with aural and visual stimuli. Plaister (1967, 1968) opted for a hybrid situation which featured a hearing/visual format and would avoid "culture static." In this format, an aural question which had reference to simple geometric line drawings was recorded and presented to the students. The avoidance of using questions which required elaborate artistry allowed them to have visual access to the culturally neutral stimuli in the test booklet. Results of research by Taggart (1974), Tardy (1975), and Omaggio (1979)

suggest the desirability of using visual referents in aural testing situations.

Since comprehension during listening is dependent upon more than just the introduction of visual referents presented in a culturally neutral hybrid format, other factors such as velocity, and "field" figure strongly in students' aural comprehension fluency. Friedman and Johnson (1971) along with Jarvis (1972) have hypothesized that students of a second language are in a position analogous to that of persons listening to compressed speech in their native tongue. In both cases, even though the transmission is clear, and lexical and syntactic features are known, the speech is too rapid to be processed efficiently. Research by Sticht (1970) has suggested that application of rate-alteration technology to native language—specifically expanded—speech tends to negate the cognitive overloading that results from the mere velocity of the message. The few studies dealing directly with foreign or second-language testing reinforce Sticht's findings: Littell (1976) reports unpublished research in which the reduction of "phonic rate of native speakers" resulted in improved student performance. Flaherty (1975) tested second-year, second-language learners' listening comprehension in a parochial school setting. She used a completion/rejoinder test in a multiple-choice format and expansion rates of 135% and 170% of normal. Her results indicate that at 135% expansion, significant improvement occurred on the completion portion of the test, but at 170%, improvement, while present, was not significant. She suggested that a rate between the two employed might serve to further improve comprehension, a suggestion that was supported by two studies using children acquiring their native language. McCrosky and Thompson

(1973) found that for their youngest group, 140% expansion produced a significant effect on comprehension, while McCrosky and Nelson (1975) reported that normal and language-disordered children experienced decrements in comprehension at 180% expansions but did not do so at 140%.

Besides the information-processing time factor, the perceptive acuity factor of "field" carries important weight in the totality of listening comprehension. Some second-language learners have difficulty separating the message from the speech medium or any accompanying noise even in their native tongue. Because of this phenomenon they are inefficient listeners in any and all languages. When they are confronted with a rapid string of speech sounds they panic. M.D. Steer (1945) found that inefficient listeners attended too much to the number of elements coming at them; they were overwhelmed by the number of words they heard and missed the message. They became so overly tense and preoccupied with the lost portion of the message that they became hopelessly lost and miscomprehended the entire message. Apparently those who can listen efficiently are also field independent.

Field independency is a theoretical construct based on the ability to keep things apart in a perceptual field, to see patterns, and to respond without stress in novel situations. Field dependent people are unable to disregard the more superficial aspects of a perceptual experience so as to detect order in the unfamiliar (H.A. Witkin, et. al., 1962). Applying this same construct to listening, Carver, Johnson and Friedman (1972) tested listeners who tended to concentrate more on the rate and less on the content. They used speeded speech in conjunction with measures of field dependency and found that the ability to comprehend highly speeded speech probably involves being field independent. In studying the effects of expanded speech, Flaherty (1975) and Littell (1976) have shown that for second language learners, slowing down the second language speech cues on listening tests significantly helps listening performance in aural testing situations.

The literature seems to suggest that slowing down the taped message will be a significant help to the learner. At the same time there exists the common classroom practice of repeating an aural cue during a listening test to make sure the students heard what they were supposed to. The basis for such a practice has been pragmatic and intuitive rather than theoretical. If the effects of merely repeating the aural cue were equal to or greater than the effects of an expansion condition, then curricula could be changed in favor of the preferable procedure and money could be saved by avoiding unnecessary hardware purchases. A study was thus conceived to test what effect the application of rate-alteration technology to recorded listening materials might have on the comprehension fluency of Asians and Polynesians learning an Indo-European language such as English (all previous studies listed above have dealt exclusively with Indo-European speakers either listening to their native language or learning to listen to a second Indo-European tongue). The effects of repetition of the aural cue were also considered and the resulting null hypotheses were formulated: H_{01} : there is no significant difference in listening test scores across four different listening abilities when rate-alteration technology is applied to recorded second-language testing materials; and H_{02} : there is no significant difference in listening test scores across listening ability levels when aural test cues are repeated twice.

Procedure

Fifty-six Polynesian and Asian students in the BYU-HC English Language Institute took the 1971 version of the Plaister Aural Comprehension Test (P.A.C.T.). The test recording had previously been duplicated to produce the four treatment conditions: (1) Repetition I—where the students heard the master recording with each question pronounced only once; (2) Repetition II—where the students listened to each question spoken twice; (3) Expansion I—where students were exposed to an electromechanically altered, master recording with the question spoken a single time but presented at a rate of 135 w.p.m. (0.8 times normal—165 w.p.m.); and (4) Expansion II—the master tape

slowed to 115 w.p.m., or 0.7 times native speed. Students from four levels of listening proficiency (101-104) were randomly selected and randomly assigned to one of the four treatment groups in order to isolate main effects.

Results

Table 1 presents the results of the 4 (Listening Proficiency Level) x 4 (Treatment Condition) factorial design which was used to determine main effects and first-order interaction effects. The *F* ratios for

TABLE 1

**A 4x4 Factorial Analysis of Variance
(Nonparametric) for Aural Comprehension
Scores Between Levels as
Compared to Treatment**

Source	df	SS	F
Between Levels	3	526.94	4.64**
Between Treatments	3	430.27	3.79*
Interaction:			
Level X Treatment	9	860.21	2.52*

*p .05

**p .01

Listening Proficiency Level and Treatment Condition were found to be statistically significant at the .05 level or better. However, given the non-equal cell sizes and the extremely small *N* for some treatment groups, this significance must be discounted.

Examination of the mean performance scores presented in Table 2 yields a clearer picture of actual results. These means show no clear linear relationship by proficiency level and in some cases present inverse relationships from those formerly expected and therefore will be considered by treatment condition.

As expected, for the control condition (zero repetition), the highest mean was produced by the group most proficient in listening ability and the lowest scores were recorded by those least proficient in the listening skill. However, this trend was not apparent across treatment conditions.

TABLE 2

**Mean Performance Scores on the
Plaister Aural Comprehension Test
Under the Two Treatment Conditions**

Level	N	Repetition		Expansion	
		Zero	Once	0.8	0.7
101	16	(n=4) 31.5	(n=4) 29.5	(n=4) 27.8	(n=4) 28.3
102	10	(n=3) 38.7	(n=2) 39.0	(n=2) 14	(n=3) 35.7
103	15	(n=4) 34.5	(n=4) 36.3	(n=3) 32.3	(n=4) 38.7
104	15	(n=3) 40.3	(n=4) 38.3	(n=4) 33.3	(n=4) 35.3

The students at the 102-level responded more strongly to the experimental repetition condition than to any other treatments, but only three tenths of a point higher than the control condition.

An interesting inverse result occurred between levels for the 0.7 expansion condition. The 102-level groups recorded the highest mean score across levels, causing the null hypothesis of no significant difference across levels for the greatest expansion condition to be retained. The null hypothesis of no significant difference across levels for the repetition condition is also retained for levels 101 and 104. However, for levels 102 and 103, the inverse appears to be true. The mid-level proficiency groups benefited more from repetition than any other treatment.

While the attained means across treatments tended to support the control condition as being the better procedure, a close examination of means between specific expansion treatments reveals a slight increase across levels for the 0.7 condition. This would suggest the possibility of rejecting the null hypothesis for expansion.

Discussion

The decrement in performance for the 101, 102 and 104 proficiency levels is probably due to the novelty of expanded speech and the distortion of clear syllabication which results from the electronic alteration of the recorded message. (No provision was made for introducing the subjects to

expanded speech.) This may account for the fact that the majority of subjects responded more strongly to the faster but more familiar native-speed, control condition. Similar subject reactions occurred under similar expansion conditions during an experiment by Flowers (1974). He tested sighted and blind subjects at three expansion conditions—0, 30, and 50 percent. He found that blind subjects performed significantly better than sighted subjects under varying conditions of expansion. He suggested the possibility that the blind performed better than the sighted subjects due to the phenomenon of habituation. The results of the present study seem to suggest the same. That is, that the slow monotonous characteristics of the expanded-speech stimuli could cause sighted subjects to lose interest in the stimuli being presented through their headsets. The tendency to seek stimulation through another sensory modality (namely vision) is a possible cause for the higher means being achieved for the control condition. More definitive research seems to be called for where the effects of a greater variety of expansion conditions are tested with enough subjects to increase statistical power so significant differences will appear where they actually do exist. This writer believes that the findings of this pilot study imply the need for further research in the effects of rate-alteration technology on listening comprehension in second-language learning.

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