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The Effect of Syntax, Speed, and Pauses on Listening Comprehension

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■ Whether or not we fully accept Krashen's theory of second language acquisition (SLA), few would deny that comprehensible input (CI), in conjunction with other factors, is an essential ingredient for SLA. Acquisition is fueled by exposure to input that is somehow rendered comprehensible either by the opportunity for negotiation of meaning via interaction or through the aid of characteristics of the input itself (Long, 1983; Snow as cited in Bohannon & Warren-Leubecker, 1985). In one-way input, i.e., lectures or a listening lab, the characteristics of the input itself are important. Long (1985) found that nonnative speakers (NNS) comprehended a foreigner-talk (FT) version of a lecture significantly better than an unmodified version. The FT version included rephrasings and restatements, was syntactically slightly less complex, and was delivered at a somewhat slower rate. However, it is not possible to determine which of the modifications (or combination of modifications) is responsible for the positive effect.

Along with rephrasings, restatements, and simplification, the notion that slowing down the flow of speech is one of the characteristics of input that

facilitates comprehension for NNSs has always been intuitively attractive. However, studies that manipulate the velocity of speech, either mechanically with variable-speed tape recorders or naturally, have yielded varied results. Smith (1980) and Dwyer (1987) found that reducing the rate of speech did not significantly aid language learners, while Flaherty (1979) and Kelch (1985) did find support for reduced speed. Unfortunately, these researchers used different rates as the norm, making it difficult to compare findings and draw conclusions.

The studies reported below represent an attempt to determine which of several alterations to the input directed to second language learners affect comprehensibility. The first study manipulated both speed and syntax, and the second study examined the introduction of pauses into the input.

STUDY 1

Study 1 was conducted with samples from two populations: 72 first-year English institute students at a university in Poland and 100 students taking a required English as a second language course at a university in Puerto Rico. The three versions of the 18 brief passages used in Blau (1982) to examine the effect of syntax on reading comprehension were recorded at normal speed (approximately 170 wpm) and then slowed to 85% of normal (approximately 145 wpm) on a VSC Soundpacer tape recorder. Within each sample, six existing classes were randomly assigned (by drawing numbers from a hat) to one of the six treatments: Version 1 (simple sentences) at slow and normal speeds, Version 2 (complex sentences with clues to underlying structure left intact) at slow and normal speeds, and Version 3 (complex sentences without optional surface clues to underlying structure) at slow and normal speeds. All groups heard the same passages in a language lab and answered the same written multiple-choice comprehension questions in English immediately after hearing each passage. There were a total of 24 comprehension questions. Comprehension was measured as the percent of correct responses out of the total of 24 questions.

Results of Study 1

A regression approach to analysis of covariance (ANCOVA) was used with English institute entrance exam scores as the covariate for the Polish sample and English as a Second Language Achievement Test (ESLAT) scores as the covariate for the Puerto Rican sample. ANCOVA was chosen in order to control for varying levels of proficiency among subjects while testing for the effect of speed and syntax on listening comprehension. By using ANCOVA to eliminate the variation due to level of proficiency, the effects of speed and sentence structure can be seen more clearly. ABSTAT (IBM Personal Computer) was used to analyze the data for the Polish sample, and Statview (Macintosh Apple Computer) was used to analyze the data for the Puerto Rican sample. Mean scores on the comprehension

questions for the two samples are presented in Table 1. In answer to the research question on speed and syntax, there appear to be no differences across treatments except that within the Puerto Rican sample, the group that heard Version 1/slow had higher comprehension scores than the other groups.

TABLE 1
Group Means of Comprehension Scores (in %):
Study 1

Version	Speed	Mean Score Polish Sample	Mean Score Puerto Rican Sample
1	Slow	65.08	45.83
	Normal	62.58	36.25
2	Slow	68.58	39.17
	Normal	66.08	39.58
3	Slow	65.13	39.17
	Normal	62.58	34.58

Although the overall regressions were significant ($F[4,67] = 6.34$, $p < .0002$ for the Polish sample and $F[4,95] = 8.275$, $p < .0001$ for the Puerto Rican sample), there was no significant effect for speed ($F[1,69] = 0.673$, $p > .05$ for the Polish sample and $F[1,97] = 0.022$, $p > .05$ for the Puerto Rican sample) or for sentence structure ($F[2,68] = 1.071$, $p > .05$ for the Polish sample and $F[2,96] = 1.839$, $p > .05$ for the Puerto Rican sample). The only significant variable in each case was the covariate which measures level of proficiency ($F[1,67] = 23.898$, $p < .0001$ for the Polish sample and ($F[1,95] = 24.275$, $p < .0001$ for the Puerto Rican sample).

Reduced velocity, although usually yielding slightly higher comprehension scores, was not a significant aid in these studies. Sentence structure, which made more of a difference in the reading comprehension study (Blau, 1982) conducted with a similar sample of Puerto Rican students, seems to be a less salient modification when the input is aural rather than written.

STUDY 2

Because of the insignificant effect on the comprehension of mechanically slowed aural input and sentence structure modifications obtained in Study 1, it seemed logical to investigate an additional input modification-pausing. Chamot (1977), Crow (1984), Flaherty (1979), Hatch (1983), Rivers (1980), and Stevick (1976) support the notion of allowing additional

processing time without disturbing the natural features of the normal flow of speech through the use of pauses. But the actual effect of this modification to aural input has not, to my knowledge, been empirically tested.

The second study compared the effect of speed and pauses. Because the passages used in Study 1 were deemed too brief to measure the effect of pauses, three longer monologues from *Listening in and Speaking Out* (Bode, Whitley, & James, 1981) were recorded three times: at normal speed (which this time turned out to be approximately 200 wpm), slowed on the VSC Soundpacer to approximately 185 wpm, and with 3-second pauses inserted at selected sentence, clause, and phrase boundaries which, in effect, slowed the rate of delivery to approximately 150 wpm. Pauses were inserted, on the average, every 23 words.

Samples of 36 Polish and 70 Puerto Rican students were drawn from the same two populations as in the previous study. Three existing classes within each sample were randomly assigned to each of the three treatments. All students heard the three texts in a language lab. Comprehension of each monologue was measured by *wh*-questions immediately after hearing the monologue. The questions for the Puerto Rican sample were in Spanish and were more specific and therefore more numerous than the questions for the Polish sample. However, in both cases the questions allowed for display of as much recall as possible. Subjects were also asked to indicate what percentage of the monologues they thought they understood.

Results and Discussion of Study 2

Data were analyzed using a regression approach to analysis of covariance with the same covariates as in Study 1. Mean scores on the comprehension questions are presented in Table 2, which shows higher comprehension on the version with pauses. The overall regression for the

TABLE 2

Group Means of Comprehension Scores (in %):
Study 2

	Slow	Pauses	Normal
Polish Sample	55	71	59
Puerto Rican Sample	55	69	58

Polish sample, analyzed using ABSTAT (IBM-PC), was significant ($F[3,32] = 3.12$, $p < .05$), and the version with pauses did in fact yield significantly higher comprehension than both other versions ($t[32] = 1.776$, $p < .05$). The overall regression for the Puerto Rican

sample, analyzed using Statview (Macintosh Apple Computer), was also significant $(F[3,66] = 14.347, p < .0001)$. As with the Polish sample, pauses yielded significantly higher comprehension than the other versions $(t[66] = 1.966, p < .05)$. The covariate was significant for the Puerto Rican sample $(F[1,66] = 36.192, p < .0001)$ but was not significant for the Polish sample.

The significantly higher comprehension scores for the version with pauses parallels the students' assessment of the percentage they thought they understood (See Table 3). Though the differences are more dramatic for the Polish sample, the results indicate that the version with pauses is consistently the most comprehensible, whereas the mechanically slowed version is the least comprehensible.

TABLE 3
Self-Assessment (in %):
Study 2

	Slow	Pauses	Normal
Polish Sample	43	84	65
Puerto Rican Sample	54	62	58

The problem of the lack of a standard "normal rate" has already been noted. In this study the normal rate was actually relatively rapid (200 wpm). In spite of this, the effect of mechanically reducing velocity yielded a negative effect both in comprehension and self-assessment of quantity understood, making the case against mechanical reduction of speed even stronger.

The graphs in Figures 1 and 2 allow viewing of the results across proficiency levels. Unfortunately, the measures of proficiency for each sample (on the x-axis) are different, making it impossible to compare formally the proficiency levels of the two groups. Furthermore, the Polish students studied are specializing in English and are among the best English students in a country where English is a foreign language. The Puerto Rican students, on the other hand, are not English majors and are enrolled in an ESL course as a requirement. The role of English in Puerto Rico, a U.S. commonwealth where students take ESL throughout their schooling, is quite different from its role in Poland.

Despite the different settings for the two samples used in this study, the different measures of proficiency used, and the different systems for measuring comprehension, some interesting preliminary findings may be noted. Comprehension of the version with pauses is generally higher than that of the normal version. For the Puerto Rican sample the benefit of pauses increases as proficiency increases within the range of this sample while the contrary seems to be the case for the Polish sample. It is likely

FIGURE 1
Polish Sample

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Polish Sample
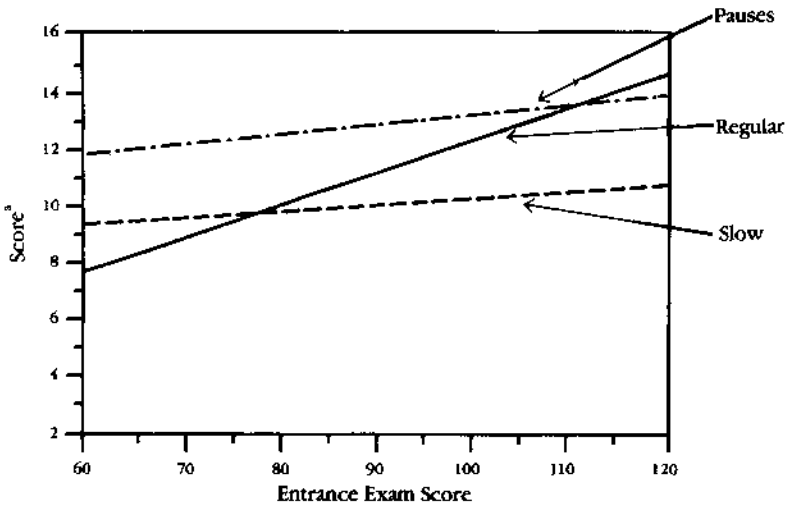
[a] Maximum score = 18.

FIGURE 2
Puerto Rican Sample
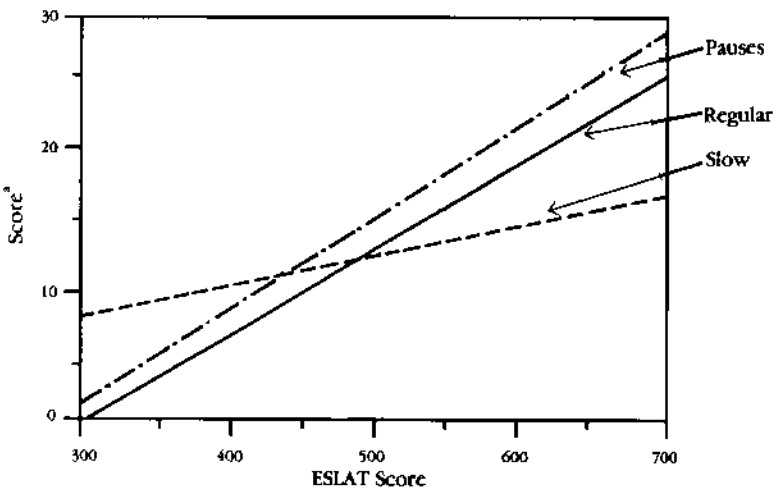
[a] Maximum score = 23.

that a certain threshold of proficiency is necessary to be able to take advantage of the extra processing time provided by the pauses. If the higher-level Polish students are more advanced than the higher-level Puerto Rican students, this would indicate that beyond a certain level, one can comprehend normal input better; a NNS at this level no longer needs the pauses and might even find them bothersome.

At the lowest levels of proficiency the effect of mechanical slowing is positive for the Puerto Rican sample, whereas for the Polish sample, reduced velocity yields slightly higher results than the normal version but lower than the version with pauses. For both samples, the higher the proficiency level, the more negative the effect of slowing.

At most levels of proficiency, then, pauses seem to aid auditory comprehension more than either mechanical slowing or "normal" rates of delivery. At the lowest levels, however, slowing may be of some assistance, whereas at the very highest levels neither slowing nor pausing modification is necessary. These findings suggest that, as Scarcella and Perkins (1987) have noted, input features might have different effects at different stages of SLA.

PEDAGOGICAL IMPLICATIONS

The results of these studies offer several suggestions for language teaching professionals as providers of comprehensible aural input, either prerecorded or live. First, we should not be overly concerned with sentence structure. Second, we should not be overly concerned with speed of speech. Even using a relatively rapid rate of delivery as the norm, mechanical slowing of speech did not enhance comprehension except at the lowest levels of L2 proficiency. Flaherty (1979) states that "too slow an input rate can impair comprehension by prolonging the time a pattern must be held in the short-term memory and allowing more time for memory traces to fade" (p. 275). Pauses at constituent boundaries, on the other hand, do enhance the comprehensibility of aural input significantly.

The use of pauses is a modification to input that is easy to implement and has the potential to significantly help NNSs receive the CI they need to successfully acquire a second language. This finding thus contributes to the gradually emerging picture of what constitutes comprehensible aural input.

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Evaluations of Essay Prompts by Nonnative Speakers of English

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■ For a nonnative speaker of English, full competency in a U.S. college or university includes the ability to take essay tests well. Such tests often require students to select one or several prompts. How do ESL students choose questions? Do they focus on the same features as native speakers? This study, part of a more extended analysis of affective responses to essay questions, finds that ESL students in an English I composition class are influenced by the length of a prompt and to a degree by its readability. Also, more important than the grade in choosing the prompt are such