

Rate of Speech of Health Care Providers During Interactions
with Aphasic and Nonaphasic Individuals

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The literature in aphasia is well-seasoned with reports of people who have recovered from aphasia and described their impressions of that experience. A consistent theme in these reports is that people around them seemed to be speaking too fast. "Slow down!" is a common suggestion from people recovering from aphasia.

The impression that slowing speech rate can facilitate comprehension has been supported not only by clinical experience and patient report, but by about 15 experimental studies, many of them reported at this conference in the past (Albert and Bear, 1974; Weidner and Lasky, 1976; Liles and Brookshire, 1975).

Research also has shown that some speakers spontaneously reduce their rate of speech following a communication breakdown during normal discourse (Longhurst and Siegel, 1973). However, we are not aware of any published research on rate of speech to aphasic individuals. Since health care providers can be assumed to provide information that is crucial to recovery and care, it seems particularly important that health care providers should do as much as they can to facilitate maximal understanding on the part of their aphasic patients.

The purpose of this study, therefore, was to measure speakers' rates of speech to aphasic individuals with auditory comprehension impairments, and to assess adaptation of speech rate to aphasic and nonaphasic persons.

The experimental questions we addressed are as follows:

1. Do health care providers reduce their rate of speech when speaking to an aphasic person who has an auditory comprehension deficit?
2. Do the speakers' speech rates differ with respect to the auditory comprehension level of the aphasic person?
3. Do speech rates vary with respect to the health care providers' fields of specialty?
4. Do speech rates vary with respect to health care providers' experience and frequency of contact with aphasic individuals?

METHOD

In order to answer these questions, we arranged conversational interactions where speech rates of health care providers to aphasic and nonaphasic individuals could be measured.

First, assistants were chosen to represent three levels of auditory comprehension; normal, mild to moderate disorder, and moderate to severe disorder. In this study (for once) the aphasic persons were not the subjects, but instead we termed them our "research assistants."

The 50 subjects in the study were health care providers, and represented these groups of people:

Practical nurses and nursing assistants	(N=8)
Occupational therapists	(N=10)
Physical therapists	(N=1)
Physicians	(N=5)
Registered nurses	(N=8)
Speech and language pathologists	(N=10)

and a control group of eight people who were not health care providers.

Each subject (i.e., health care provider) participated in a five-minute conversational interaction with each of the three assistants. Therefore, each assistant participated in 50 conversations. For that reason, we attempted no limitation or definition of conversational topic.

Each health care provider was informed of the auditory comprehension status of each assistant just prior to their introduction to that assistant. For example, we might say, "The person you will talk to next has aphasia with mild to moderate problems in auditory comprehension. He might have some trouble understanding you." After subjects completed conversations with the three assistants, they answered a brief questionnaire to elicit information regarding their experience with aphasia.

Each conversation was tape recorded. Beginning with the second minute of the interaction, 200 consecutive words spoken by the subject were transcribed. The intrasentence speaking rate, that is, articulation rate and within-sentence pause time, of each sample was analyzed for rate of speech in words per minute. These speaking rates provided the data by which we could make across-condition comparisons. Though this method of calculation resulted in speech rates that are somewhat faster than some previously reported rates, our primary research question was unaffected, because a consistent measurement system was used across conditions.

RESULTS

Mean rate of speech for all subjects to all assistants (both aphasic and nonaphasic) was 238 wpm. The 50 subjects spoke to nonaphasic assistants at a mean speech rate of 235 wpm. When these people spoke to aphasic assistants, the mean rate of speech was 240 wpm.

The health care providers as a group spoke to all assistants at a mean rate of speech of 241 wpm. They spoke to nonaphasic assistants at a mean rate of 238 wpm and to aphasic assistants at 243 wpm; an increase of five words per minute in the face of aphasia. Our subjects spoke faster to aphasic than to nonaphasic individuals, but these differences were not statistically significant. Therefore, in this study, health care providers did not systemically reduce their rate of speech in interactions with aphasic individuals who had auditory comprehension disorders. Our first hypothesis was not supported.

Second, the degree of the aphasic individual's auditory comprehension impairments did not appear to affect health care providers' rates of speech. Health care providers spoke to assistants who had mild to moderate auditory comprehension impairments at a mean rate of 238 wpm and to assistants with moderate to severe auditory comprehension impairments 10 words faster (248 wpm), though the difference was not significant. Our second hypothesis, that health care providers would slow speech rate relative to severity of comprehension impairment, also was not supported.

Third, we found no differences with respect to health care providers' field of specialty. Table 1 shows speech rates according to field of specialty. Change refers to speech rate increase or decrease from non-aphasic to aphasic individuals. Physicians spoke at an overall rate of speech that was significantly faster than that of other health care provider groups, with the exception of physical therapists. The rate of speech of all health care providers to all assistants ranged from 173-386 wpm with a mean of 241 wpm. The physicians in this study spoke at a mean rate of 282 wpm.

Table 1. Speech rate by specialty.

Specialty	\bar{X} WPM	Change
Physicians	282*	+10
P.T.	248	+26
R.N.'s	243	+ 6
O.T.'s	237	- 6
L.P.N.'s	232	+15
Speechies	231	+ 3
Controls	221	+ 5

Range = 173-386 wpm

Mean = 241 wpm

*Anova Stat. Sig. P = <.05

Finally, no significant correlations were found between health care providers' experience with aphasia and rate of speech. Experience measurements included number of years professional experience, number of aphasic individuals known, frequency of contact with aphasic individuals, and self-ratings of experience with aphasic individuals. These measures of experience were compared with the average rate of speech to aphasic assistants for each subject. In all cases the correlations were small and none were significant. For example, the r value for overall experience with aphasia (number of contacts, frequency of contact, and self-rating) and rate of speech to aphasic individuals was .08.

The speech and language pathologists in this study had an average of eleven years professional experience and moderate experience with aphasia. Their mean rate of speech to the assistants as a group was the slowest of all health care providers (231 wpm--not as slow as the control group of non-health care providers) but even those in our own profession, who have primary access to the literature on the facilitating affect of speech rate, did not reduce their rate of speech when speaking to aphasic individuals.

In summary, health care providers did not reduce their speech rate to facilitate communication with individuals who had auditory comprehension impairments. Speech rates were not affected by severity of the patient's auditory comprehension impairment, health care providers' area of specialty, or reported experience with aphasic individuals. Physicians spoke at a rate of speech that was significantly faster than that of five of the other subject groups.

If these findings are replicable and generalizable, several implications are obvious. Speech and language pathologists have the primary

responsibility for maximizing communication for their aphasic patients. But first it appears that we must educate ourselves and begin to use techniques that already have been shown to facilitate understanding for aphasic people with auditory comprehension impairments.

Speech and language pathologists also have the responsibility to spread the word on the strategies that facilitate communication in aphasia; particularly communication that emanates from people dispensing vital information on health care. Perhaps training programs for members of the health care team would aid us in this task. Speech and language pathologists in general and aphasiologists in particular have the opportunity and the responsibility to manipulate the communicative environment in ways that may significantly enhance the quality of health care and therefore the quality of life of our aphasic patients. To fail to do so may relegate our patients to the confused world of comprehension suggested by Mrs. Stilson in Arthur Kopit's Wings who lamented, "The radio is broken...or rather it picks up only Bucharest."

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