

Length and Redundancy in Health Care Providers' Speech during Interactions with Aphasic and Nonaphasic Individuals

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INTRODUCTION

Speech and language pathologists are familiar with the concept of manipulating their own verbal output in order to maximize their listener's auditory comprehension. A history of clinical experiences, experimental studies, and patient reports has led speech and language pathologists to recommend to other health care providers systematic manipulation of speech as a comprehension facilitator. Suggestions to use short, syntactically simple sentences, familiar words, gestures and visual cues, to repeat and rephrase, and to speak slowly can be found in aphasia-related medical literature. Speech and language pathologists rightly take the role of patient advocate in attempting to maximize the communication process that is a crucial part of our health care delivery system.

Have speech and language pathologists been effective in this task? An analysis of health care provider-patient interactions showed that health care providers, including speech and language pathologists, did not systematically reduce their speaking rates in conversations with aphasic individuals who had auditory comprehension disorders (Gravel and LaPointe, 1982). The findings did not change with regard to the severity of the auditory comprehension disorder, the health care provider's area of specialty, or providers' reported experience with aphasic individuals. Do health care providers systematically manipulate other characteristics of their speech? To paraphrase Audrey Holland in one of her questions at last year's CAC, did the speech and language pathologists do anything right?

The purpose of this study was to assess the adaptation of health care providers' utterances when speaking to nonaphasic persons and to aphasic persons with auditory comprehension impairments. The variables we measured were utterance length, message redundancy, and number of task-oriented utterances.

METHOD

Subjects. The subjects in this study were health care providers (n = 42), represented by practical nurses and nursing assistants (n = 8), occupational therapists (n = 10), a physical therapist (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. The subjects' average experience with aphasic patients was judged to be moderate (three on a four-point scale) based on number of aphasic individuals known, frequency of interaction with aphasic individuals, and self-rating of experience with aphasic individuals.

Conditions. Assistants were chosen to represent three levels of auditory comprehension disorders: normal, mild to moderate disorder, and moderate to severe disorder. Each subject (i.e., health care provider) participated in a five-minute conversational interaction with each of the three assistants. Subjects were informed of the auditory comprehension status of each assistant prior to the conversational interaction. Each conversation was audio tape recorded.

Table 2. Mean length of utterance to aphasic and nonaphasic assistants by health care providers (N = 42).

Assistants	Range	Mean # Words	S.D.
All	3.0-11.9	5.5	1.8
Nonaphasic	3.5-11.9	6.8	2.2
Aphasic	3.0-9.2	4.8	1.1
Mildly impaired	3.6-9.2	5.3	1.2
Severely impaired	3.0-6.0	4.4	0.8

*Statistically significant at $P < .05$.

Essentially all professional groups significantly reduced their MLU when speaking to aphasic versus nonaphasic assistants. There was a significant profession by condition interaction. The physical therapists' reduction was not statistically significant, but we believe this was because of the small N. Occupational therapists, registered nurses, and speech and language pathologists significantly reduced MLU to the severely impaired assistants (see Tables 3 and 4).

Message Redundancy. Message redundancy was analyzed for conversations between the three assistants and 10 speech and language pathologists, a group of 10 other health care providers representing a sample of each profession, and 8 control subjects. Message redundancy was divided into three categories; repetition, revision, and semantic support.

Repetition. A significant increase in repetitions was found in the discourse of all subjects as a group during interactions with the aphasic assistants. The major reason for this difference was a significant increase in repetitions during interactions with the assistant with a severe auditory comprehension disorder. Speech and language pathologists used significantly more repetitions with assistants exhibiting severely impaired auditory comprehension than did the rest of the health care providers (Table 5).

Revision. The increase in revisions found during interactions with aphasic assistants was not statistically significant. However, speech and language pathologists used significantly more revisions than the sample health care provider group. A significant increase in revisions did occur in the discourse of all subjects as a group during interactions with the severely impaired assistant. Again, speech and language pathologists used significantly more revisions than the sample health care provider group did (Table 6).

Semantic Support. No significant differences were found among professional categories or conditions for instances of semantic support. In addition, reliability of repeated measurements of the data was not satisfactory. Therefore, we did not include these data in our results.

Task Orientation. This variable was measured for all subjects. A significant increase in the number of task oriented utterances was found for all subjects as a group and for health care providers as a group during interactions with the aphasic assistants. Number of task oriented utterances to the severely impaired assistant also increased significantly (Table 7).

Occupational therapists and speech and language pathologists significantly increased task oriented utterances to aphasic assistants. Physicians and speech and language pathologists significantly increased task oriented

Table 3. Mean length of utterance to aphasic and nonaphasic assistants: health care providers by professional categories.

Subjects	N	All range \bar{x} # words	Assistants			
			Nonaphasic range \bar{x} # words	Aphasic range \bar{x} # words	Mildly Impaired range \bar{x} # words	Severely Impaired range \bar{x} # words
LPN & Nursing Assistants	8	3.5-8.2 5.4	3.5-8.2 6.1	3.9-6.3 5.0	3.9-6.3 5.0	4.0-5.9 5.0
Physicians	5	3.7-11.4 6.0	4.7-11.4 8.4	3.7-6.3 4.8	3.7-6.3 5.0	3.9-5.5 4.6
Occupational Therapists	10	3.2-10.0 5.5	4.0-10.0 6.5	3.2-7.5 4.9	4.1-7.5 5.5	3.2-6.0 4.4
Physical Therapists	1	4.8-11.6 7.4	11.6	4.8-5.7 5.3	5.7	4.8
Registered Nurses	8	3.4-9.2 5.2	4.1-8.6 6.3	3.4-9.2 4.6	3.6-9.2 5.2	3.4-4.9 3.9
Speech and language Pathologists	10	3.0-11.9 5.4	4.3-11.9 6.8	3.0-8.2 4.7	4.1-8.2 5.3	3.0-6.0 4.1

Table 4. Change in mean length of utterance: health care providers by professional categories.

Subjects	N	Nonaphasic	Aphasic	Assistants			
				mean change	Mildly Impaired	Severely Impaired	mean change
LPN & Nursing Assistants	8	6.1	5.0	-1.1*	5.0	5.0	0
Physicians	5	8.4	4.8	-3.6*	5.0	4.6	-1.4
Occupational Therapists	10	6.5	4.9	-1.6*	5.5	4.4	-1.1*
Physical Therapists	1	11.6	5.3	-6.3	5.7	4.8	-0.9
Registered Nurses	8	6.3	4.6	-1.7*	5.2	3.9	-1.3*
Speech and language Pathologists	10	6.8	4.7	-2.1*	5.3	4.1	-1.2*

*Statistically significant at $p < .05$.

Table 5. Message redundancy to aphasic and nonaphasic assistants-repetitions.

Subjects	n	Assistants									
		All		Nonaphasic		Aphasic		Mildly-impaired		Repetitions	
		Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
All	28	1-29	9.1	1-14	6.4	1-29	10.5*	1-19	7.6	2-29	13.4*
HCP/SLP group	20	2-29	9.4	2-11	5.8	2-29	11.2	2-19	7.8	2-29	14.6
Control	8	1-23	8.5	1-14	7.9	1-23	8.9	1-16	7.3	6-23	10.5
HCP sample	10	2-17	7.6	2-11	5.9	2-17	8.4	2-13	6.3	2-17	10.5
Speech and language Pathologists	10	3-29	11.2	4-10	5.7	3-29	13.9	3-19	9.2	5-29	18.6*

*Statistically significant at $p < .05$.

Table 6. Message redundancy to aphasic and nonaphasic assistants-revisions.

Subjects	n	Assistants									
		All		Nonaphasic		Aphasic		Mildly-impaired		Revisions	
		Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
All	28	0-6	1.8	0-4	1.3	0-6	2.1	0-5	1.5	0-6	2.7*
HCP/SLP group	20	0-6	2.2	0-4	1.6	0-6	2.6	0-5	1.9	0-6	3.2
Control	8	0-4	0.8	0-2	0.8	0-4	0.9	0-1	0.4	0-4	1.4
HCP sample	10	0-4	1.4	0-3	1.2	0-4	1.5	0-3	.8	0-4	2.2
Speech and language Pathologists	10	0-6	3.0*	1-4	1.9	0-6	3.6	0-5	3.0	2-6	4.2*

Table 7. Number of task oriented statements to aphasic and nonaphasic assistants.

Subjects	n	Assistants									
		All		Nonaphasic		Aphasic		Mildly-impaired		Severely-impaired	
		Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
All	28	0-33	6.0	0-25	3.4	0-33	7.3*	0-26	5.0	0-33	9.6*
HCP	42	0-33	6.5	0-25	3.9	0-33	7.9*	0-26	5.5	0-33	10.3*
Control	8	0-14	3.2	0-5	1.1	0-14	4.2	0-8	2.0	0-14	6.4

*Statistically significant at $p < .05$.

utterances to the severely impaired assistant. Physicians used significantly more task oriented utterances than other health care provider groups (mean = 13.6, range = 0-33).

Last year we reported that physicians talked significantly faster than other health care providers. Overall, a positive correlation between rate of speech and number of task oriented statements was found. As physicians both talked faster and used more task oriented utterances, the efficiency and effectiveness of their medically-related communication with aphasic patients can be questioned.

Finally, if you are wondering if professional experience and experience with aphasia is a factor regarding the variables in this study, there were no significant correlations. Someone new to the field is as likely to adapt their speech to the presence and degree of aphasia as a well-seasoned professional is.

CONCLUSIONS

In this study health care providers as a group significantly reduced the length of their utterances during interactions with aphasic assistants. The overall decrease reflected sensitivity to the level of assistants' auditory comprehension impairment. Occupational therapists, registered nurses, and speech and language pathologists significantly decreased MLU to the severely impaired assistant. The redundancy of interactions also varied in the expected direction. Speech and language pathologists used a significantly larger number of repetitions to the severely impaired assistant and a significantly larger number of revisions overall than the other groups.

The number of task oriented utterances significantly increased relative to the presence and degree of aphasia. Physicians used significantly more task oriented utterances than other health care provider groups.

Despite the findings that health care providers do not alter rate in the face of aphasia, these findings allow a ray of hope that perhaps our education, research, and clinical experience have affected the quality of our interactions with aphasic persons. We need to learn the communication needs of other members of the health care provider team and aid them in providing the highest possible quality of health care. This can begin with maximally effective communication to patients who have impaired understanding.

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DISCUSSION

- Q: Could you find any psychologists who would come in off the street?
- A: You are the first to suggest it. I am sorry to say no.

Q: Did you measure paralinguistic things such as gestures and intonations as well as discourse?

A: The interactions were audiotape-recorded, so I couldn't measure visual aspects.

Q: Do you have any thoughts or any previous experience with differences among professions?

A: I don't think I can contribute anything to that.

Q: I recall a study from a few years back in which LaPointe and some of his colleagues presented data showing that non-contingent repetitions were not terribly helpful and error-contingent repetitions were. The repetitions that you saw, can you comment in terms of whether or not they were breakdown-contingent or were they just reiterations that were independent of any feedback from the listener.

A: Both occurred. I didn't separate them. It would have been a good idea to do that. The kind of example that I showed was non-contingent, but there were a lot of "where do you live" contingent repetitions.

Q: Do you have any suggestions on how we as speech pathologists can try to get physicians to use more repetitions and revisions when they deal with aphasic patients?

A: I have been thinking a lot about training programs. I have a colleague who is in instructional development. She suggested highly efficient training programs, maybe auditory cassette tapes. I don't work in a hospital currently, but the feedback I get is that it is very difficult to get attention for those kinds of suggestions.

C: One of the ways that we are attempting to influence health care providers to utilize the data that we presented last year is to incorporate it into inservice meetings in the hospitals. We show them the slides and show them the data. The data are persuasive and we emphasize that in communicating with aphasic people, one has to slow down and increase repetitions and redundancy, and manipulate the type of communication that is used. I have not been able to measure how successful our efforts have been, but at least the anecdotal feedback from a few is positive.

Q: In the last ten to twelve years we have done a number of patient satisfaction surveys. There was one overriding complaint, and that is that physicians do not take enough time. We might use these data to make sure they refer the patients to us as early as possible. Because that way they get the communication that they need.