

The Aphasic Individual: A Speaker and A Listener, Not A Patient

H. K. Ulatowska
S. M. Haynes
B. H. Hildebrand
S. M. Richardson

Program in Communication Disorders
University of Texas at Dallas

The purpose of this investigation is to examine the communicative competence of aphasic individuals as exhibited by their speech habits as speakers and listeners in a variety of situational contexts. The assumption underlying the study is that there exists a discrepancy between linguistic competence and communicative competence. Communicative competence is defined as a person's appropriate use of his language, as contrasted to his linguistic competence, which is derived from the knowledge of rules of language structure. Communicating effectively within a given language community is at least as reliant upon communicative competence as on linguistic competence. The hypothesis which is posited here is that aphasia consists primarily of a disruption of linguistic competence with relative preservation of communicative competence, since the latter relies heavily on the pragmatic knowledge of the real world. Thus, the speaker can simply use a pragmatic procedure such as lifting the eyebrow to express lack of understanding in order to generate a communicative act. This communicative act is defined broadly as speech intention or the social urge to communicate, which may be expressed in the verbal, facial or gestural modalities. Of necessity, this type of study relies heavily on qualitative analysis of communicative behavior in the framework of accompanying contexts. The primary focus of the study, therefore, is the identification of a variety of factors which might help to tap, identify, and define communicative competence in aphasia. These factors involve looking at the patient's linguistic competence as measured by standardized language tests, tests of overall gestural ability and communicative and linguistic ability on role-playing tasks. Information on aphasic individuals' speech habits in real life and on their life styles as communicators is also included. The performance of the aphasic patients in therapy is compared to that of a group of employed aphasic individuals. This study is an attempt at consolidating information on communicative competence of aphasic individuals observed from different vantage points: the patient, his family, the clinician, the outsider (the investigators) and the employer.

Procedure

Subjects

Twenty-three subjects were selected for the investigation. Eight subjects, those in Group I, are enrolled in outpatient speech therapy programs; 8 patients comprising Group II attend a day care center sponsored by a home health agency; and 8, those in Group III are presently employed. Etiology of language impairment in 22 patients was a single cerebrovascular accident, 1 patient incurred trauma. Degree of language impairment, as diagnosed by the referring speech pathologist, ranged from mild to severe.

Table 1 shows the descriptive data for the 3 groups and the nonaphasic control group. Control subjects were selected from a Senior Citizens facility.

Materials and Methods

The diagnostic battery administered to all aphasic subjects consisted of selected subtests of the Boston Diagnostic Aphasia Examination, a questionnaire, and a series of role-playing activities designed to assess communicative competence. Selected subtests of the Boston Examination are listed in Table 2. Outpatient speech therapy patients and employed aphasic subjects were also given supplementary tests including communicative gestures (encoding and decoding), calculation, and digit span.

Sample questions from the questionnaire are shown in Table 3. For those subjects in Groups I and II, outpatient speech therapy patients, and day care participants, similar questionnaires were given to both the aphasic subject and a family member. Group III, (employed aphasic subjects) also completed these questionnaires. Moreover, a specially designed questionnaire completed by employers was administered. Sample questions from this employer questionnaire are included in Table 4.

To assess communicative competence, a series of role-playing activities was given. These are shown in Table 5. All responses were manually recorded, including nonverbal communication such as gestures and facial expressions. To supplement written information, sessions were audio and videotaped. A list of speech habits (see Table 6) was also compiled by the patients' clinicians. Additional information was gathered by the investigators during informal contact with the patients.

The data presented in this paper are reported and discussed in the following manner: the first section deals with a brief description of the performance of the four populations. The second section characterizes communicative competence of aphasic subjects in Groups I and II as speakers, listeners, writers and readers in their everyday life at home and in therapy. The third section describes the performance of employed aphasic subjects as communicators and employees. The final section discusses the general framework and the categories used for the study of communicative competence.

Results

Table 7 gives the performance of the four populations on the following tests: Boston (total score), home visit (total score), communicative gestures, auditory digit span, and arithmetic. Since only four role-playing tasks were given to population II, this score is also given for the purpose of comparison. Comparison of the populations can be summarized in the following points:

1. Group I and II performed similarly on the Boston Examination and role-playing tasks.
2. Group III and Group IV did not differ in overall performance on all tasks.
3. Group I and II's range of performance on the Boston Examination yielded subclassification into severe, moderately severe, moderate and mild.
4. In Group III, the range of performance on the Boston Examination yielded 2 mildly impaired aphasics; the rest were within the normal range.

Table I. Descriptive Data For Aphasic and Normal Subjects

Measure	Aphasic						Control	
	Group I.: out-patient Rx.		Group II.: day care		Group III.: employed		Group IV.: normal	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
Age (years)	49.2	30-63	65.5	52-85	52.5	28-66	69.3	50-85
Education (years)	15.3	12-17	11	6-16	13.5	12-17	11	6-14
Months Post Onset	32.7	10-83	13.5	7-21	27.3	11-48	---	---
Apraxia present	4 subjects		4 subjects		2 subjects		---	---
Hemiplegia present	8 subjects		6 subjects		1 subject		---	---
Sex	6 M; 3F		3 M; 3 F		5 M; 3 F		4 M;	5 F

Table II. Boston Subtests

1. Tape-Recorded Expository Speech Sample
2. Fluency Rating
 - a. Articulation rating
 - b. Phrase length
3. Auditory Comprehension
 - a. Word discrimination
 - b. Commands
 - c. Complex material
4. Repetition
 - a. Words
 - b. Hi probability
 - c. Low probability
5. Naming
 - a. Responsive naming
 - b. Visual confrontation naming
6. Reading
 - a. Word-picture matching
 - b. Sentences-paragraphs
7. Writing
 - a. Mechanics
 - b. Primer dictation
 - c. Written confrontation naming
 - d. Written formulation

Table III. Questionnaire: Sample Questions

1. Do you use the phone?
Do you answer the phone when it rings?
Do you dial the phone yourself?
Do you look up numbers in the phonebook?
Are you able to memorize some phone numbers?
2. Do you read a daily newspaper?
What part of the paper do you read?
What magazines do you read?
3. Do you watch television regularly?
What shows do you enjoy watching most?
4. Do you handle your own money?
Do you write checks?
Do you balance your checkbook?
5. Do you write letters?
Do you fill out application forms?

Questions asked only of spouse or family member:

1. Have you changed your way of speaking because of his/her language problems?
Has your word choice changed?
Do you speak at the same rate?
2. Does he understand you better than strangers?

Table IV. Employer's Questionnaire: Sample Questions

1. List the responsibilities of the employee, the number of people he supervises, the number of people to whom he reports, and the percentage of the day he spends doing each.
2. How do you feel your employee is doing in verbal communication, telephone communication, taking telephone messages, writing, understanding information given to him, reading?
3. Does his performance vary depending on the time of day or from one day to another?
4. How well does he communicate with strangers (customers) as opposed to people who are familiar to him?
5. How does his communication differ depending on the number of people involved?
6. In dealing with your employee, do you have to write information for him, repeat information to him, be more explicit in your instructions, talk slower than to other employees?
7. Does the employee have to compensate for his communication deficit?
8. How accurate is he in his work? If there are errors, what kind have you noticed specifically in typing, calculating, scheduling?
9. How well does he use a dictaphone, an adding machine, a typewriter, computer equipment, recording equipment?
10. How well does he keep books, take shorthand?
11. Does he engage in light conversation with his fellow employees on non-work subjects?
12. How well does he give instructions and make explanations to other employees or customers?
13. If you had to choose one aspect of the employee's communication skills which seems to give him more trouble than any other, what would it be?

Table V. Role-Playing Tasks

1. Answer phone - relay message
2. Write checks - balance checkbook
3. Transaction with newspaper boy
4. Respond to complex requests
5. Fill out application
6. Request information from theatre by telephone and relay message
7. Watch TV news and commercial; answer questions

Table VI. Questionnaire on Speech Habits of Aphasic Subjects:
Sample Questions

Does the patient talk to strangers?

Does he talk to his family and friends only?

Does he talk about known topics only, such as his life, family, hobbies?

Does he talk about new topics such as current political events?

Does he talk primarily about himself or also about others?

Does he make small talk about weather or compliment people on their physical appearance?

Does he initiate conversation or only respond to others?

Does he participate in conversation conducted by other people? If not, does he appear to listen?

Does he tell jokes and enjoy jokes being told?

How does he express emotions such as joy, pleasure, frustration, anger, thanks, dissatisfaction and annoyance?

Table VII. Analysis of Performance on Tests Administered

	Possible Points	Group I.: out-patient Rx.		Group II.: day-care		Group III.: employed		Group IV.: normal	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Boston Total*	312	166.9	100.2	167.7	87.9	303.5	8.7	305.9	4.6
Fluency Rating	14	8.0	4.2	7.0	4.9	12.8	1.8	13.8	0.4
Auditory Comp. Total	99	61.4	28.0	62.8	22.4	97.5	0.9	96.8	1.9
Writing Total	32	15.6	10.8	12.5	13.1	30.5	2.2	30.9	2.7
Reading Total	10	4.1	2.3	6.8	3.6	9.3	1.4	8.8	1.5
Gestures: Decoding	20	10.1	8.1	---	---	19.5	0.9	18.4	1.3
Encoding	20	11.3	4.6	---	---	18.5	1.5	16.8	1.5
Digit Span	6	1.9	2.1	---	---	5.6	1.7	6.0	1.5
Arithmetic Total	20	7.1	3.9	---	---	19.1	0.8	17.7	2.4
Role-Playing Total	84	28.8	17.1	---	---	69.9	4.4	62.8	6.3
Role-Playing: 4 tasks									
Total	31	9.0	6.8	11.5	9.1	28.1	1.6	25.9	2.9

* 300-312 = within normal range
 280-299 = mild
 201-279 = moderate
 111-200 = moderately severe
 0-110 = severe

Table 8 gives Spearman rank-order correlation coefficients for selected tests of the diagnostic battery for the four groups of subjects. Note that Group II subjects (day care patients) were given only the Boston test and the series of role-playing activities. The table shows that for the out-patient group, the Boston Examination total scores have high positive correlations with role-playing activities, arithmetic, communicative gestures, and digit span. In the same group, role-playing activities have high positive correlations with digit span, communicative gestures, and arithmetic. Thus for Group I, both Boston and role-playing scores are good predictors of the other tasks listed. In all three aphasic groups, Boston total scores and role-playing scores have a high positive correlation. For Group III, there is a higher correlation between the Boston test and arithmetic performance than between role-playing and arithmetic performance. On the other hand, role-playing activities correlate better than the Boston with performance on gestures and digit span.

Aphasic Subjects in Therapy as Communicators

The data presented in this section are based on information gathered by clinicians, utilizing a form on speech habits designed by the present investigators, questionnaires given to patients and their spouses, and informal observation by the investigators. Characterization of the aphasic as a speaker was performed using the following categories:

1. Whom does he talk to?

All aphasic subjects in this study talk to families and friends; all but two talk to strangers. The latter fall into the severity level of moderate and moderately severe.

2. When does he talk?

All aphasic subjects except two in the moderately severe and severe group initiate conversation and participate in conversation conducted by others. Those who do not, respond only when asked specific questions.

3. How does he communicate?

The following modes of communication were identified:

a) deictic, consisting of pointing to objects or showing objects to be talked about as a primary mode of expression (exhibited by 10 patients in the moderate, moderately severe, and severe groups).

b) illustrators, consisting of indicating the outline of an object in the air or indicating numbers by holding up fingers (patients in the severe and moderately severe groups).

c) using communicative gestures such as "I don't know", "yes" and "no": (two severe and one moderately severe).

d) graphic: drawing a picture or writing the response (two severe, one moderate aphasic).

e) facial: smiles used communicatively in greetings and in acknowledging the speaker (four severe and moderately severe).

f) verbal: profanities used in place of appropriate verbal response (exhibited by men only, in all but the mild severity group).

g) actions, such as pushing the plate away, or pounding fists on the table.

4. What does he talk about?

The following topics were selected to describe the content of conversation:

First, polite social speech was subclassified into small talk

Table VIII. Spearman Rank-Order Correlation Coefficients for Selected Tests

	Group I.: out-patient Rx.	Group II.: day-care	Group III.: employed	Group IV.: normal
Boston Total/Role-Playing	.98 (.001)	.90 (.01)	.68 (.05)	.11
Boston Total/Arithmetic	.78 (.05)		.76 (.05)	.53
Boston Total/Gestures (Decoding and Encoding Total)	.93 (.001)		.55	.19
Boston Total/Digit Span	.75 (.05)		.43	.73 (.05)
Role-Playing/Arithmetic	.78 (.05)		.24	.09 (.05)
Role-Playing/Gestures (Decoding and Encoding Total)	.90 (.001)		.69 (.05)	.04 (.05)
Role-Playing/Digit Span	.78 (.05)		.71 (.05)	-.06

(including compliments, talking about the weather, greetings, apologies, and thanks). All patients express thanks, greetings, and apologies. All but 3 in the moderately severe, and severe groups attempt small talk including primarily compliments. Information topics consisting of the patient talking about himself in terms of his hobbies, previous jobs, needs, deficits and feelings or his family, were exhibited by all aphasic subjects except two in the severe group. However, only half of the aphasic subjects in the severe or moderately severe groups talk about new topics such as politics. Most of them use complaints as a topic. Finally, only 4 in the group of moderate and moderately severe tell jokes and tease both verbally or gesturally.

5. How does he express emotions?

In observing aphasic subjects' modes of expressing emotions, two broad categories were established: positive emotions such as joy and pleasure; and negative emotions such as anger and frustration. Modes of expressing negative emotion include profanity, gestural behavior such as shaking the head, shrugging the shoulders, raising hands or making fists; facial: including crying, frowning, sticking out the tongue, pursing the lips; and, in the verbal modality, specific intonation patterns and tones of voice. In positive emotions, facial expressions of smiling, head nodding, tactile behavior of patting one's leg, hugging and patting the other person and verbal expressions such as "how nice" and "good", were reported. All aphasic subjects express some of these emotions.

In communicating on the phone, 10 patients answer the phone; 8 make calls. Those who do not, belong to the severe and moderately severe groups.

The analysis of the aphasic individual as a listener yielded the following information. All aphasic subjects listen more than speak. Listening behavior was exhibited in the following way: they display attention and interest verbally by interjecting "oh", "what?", "O.K.", "yeah" and requesting repetition of information. Facially, listening behavior is displayed by quizzical looks, raising the eyebrows and widening the eyes. Gesturally, the patients indicate agreement or disagreement with the speaker by shaking the head for "no" and "yes". Attention is shown by cocking the head or leaning forward. All except 1 aphasic subject in the moderately severe group enjoy listening to jokes, displaying their enjoyment by smiling, laughing, and using the occasional verbal comment "good". Finally all except 1 watch television regularly.

The data from questionnaires given to spouses revealed that aphasic subjects understand spouses better than strangers. Spouses of severely impaired aphasic subjects report that they adjust their way of speaking in terms of length of sentence, choice of words, and rate of speaking, when talking to their husbands.

The data on aphasic subjects as writers indicated that only 2, 1 moderate and 1 moderately severe, write letters. Five, at various severity levels, write checks; 4 take phone messages, none are in the severe group. Finally, the characterization of aphasic subjects as readers revealed that 10 read newspapers, 7 read magazines; both activities excluded 2 severe patients. Only 1 patient (moderately severe) reads the Bible and religious books.

Employed Aphasic Subjects as Communicators

The 8 employed aphasic subjects are office workers, representing levels of responding ranging from a self-employed executive to a darkroom technician. Table 9 describes the performance of the employed aphasic subjects, based on

Table IX. Employed Aphasic Subjects

Subject	Boston Total Score	Role-Playing	Age	Speaking Deficits: Word Finding Problems	Semantic Paraphasias	Listening Deficits: Comprehension Problems	Reading Deficits: Slower Than Average	General Writing Deficit	Overall Ability to Function in Job	Type of Job
1	310	68		+	+				+	Executive Secretary
2	304	68		+	+	+	+	+	-	General Office Worker
3	306	69		+	+	+			+	Head Nurse
4	305	76		+	+				+	Self-Employed Executive
5	294*	66		+	+	+	+	+	-	Bank Clerk
6	310	76		+	+		+		+	Insurance Executive
7	312	72		+					+	Secretary
8	287*	64		+	+	+	+	+	-	Dark-Room Technician

* Mildly-impaired

data gathered through role-playing activities and questionnaires given to both the patient and his employer. Special emphasis is paid to the types of deficits observed in their functioning in various communicative roles. Six fall within the normal range according to Boston scores; 2 are mildly impaired.

Aphasic Subjects as Speakers

All 8 employed aphasic subjects use the verbal modality as their primary means of communication; however, they exhibit word finding difficulties and occasional semantic paraphasias when expressing complex ideas. They use gestures and facial expressions to enhance the verbal message, rather than to substitute for it. Topics of conversation extend far beyond the limited scope of the severe, moderately severe, and moderate aphasics to include politics, job-related activities, and current events.

The employed aphasic subjects perform all conversational activities previously described. Six regularly participate in conversations at meetings or in groups, and do so satisfactorily. Seven talk as readily and as capably to strangers and clients as they do to family and friends.

Additional speaking activities involve giving instructions and making explanations to other employees or to clients. Six do these adequately. All except 1, a mildly impaired aphasic subject, use the telephone for business purposes.

Aphasic Subjects as Listeners

These aphasic subjects report listening more than speaking, a behavior consistent with that reported by aphasic patients in therapy. Seven answer the phone regularly at work, but often must ask for repetitions, especially of proper names and numbers.

Some employers report a need to communicate differently to the aphasic employee than they do to their other employees. Four must repeat information to the aphasic employee; 3 must be more explicit in their instructions to the aphasic employee (2 of whom are mildly impaired). One employer talks slower to his aphasic employee than to other employees; 1 must write information for the aphasic employee.

Aphasic Subjects as Readers

Seven read newspapers, magazines, and books including lengthy and complex novels such as Roots and Hawaii. The 1 subject who does not read is mildly impaired. The employers of 4 subjects report a slower-than-average reading ability for their employees (2 of whom are mildly impaired).

Aphasic Subjects as Writers

Of the 8 aphasic subjects, 4 write letters, 7 take phone messages; all 8 sign and write checks. Specific skills related to writing ability are shown in Table 10.

Handicaps and Compensations

To compensate for word-finding difficulties, the subjects use circumlocutions, adjust their rate of speaking, and ultimately self-correct as they monitor their verbal abilities. Two aphasic subjects (both within the normal range on the Boston) compensate for difficulties in auditory comprehension by pretending not to hear what is said, by writing information down, or by asking for repetition of information; especially of numbers.

Table X. Specific Writing Skills and Use of Equipment at Work

Subject	Keeping Books	Taking Shorthand	Typing	Calculating	Scheduling*	Typing From Dictaphone	Using an Adding Machine	Using a Calculator	Using Computer Equipment	Using Recording Equipment
1	+	+	+	+	+	+	+	+		+
2				-						
3	+			-	+				+	
4				+	+			+		
5	-			+			+	+		
6				+	+		+			
7	+			+			+			
8				-	+					

Legend: + Performs this task satisfactorily

- Does not perform this task satisfactorily

* Scheduling includes such tasks as making appointments, scheduling working hours for other employees, and making travel arrangements and hotel reservations for trips.

Other compensations include the extensive use of a dictionary, avoidance of situations where communicative problems might arise, and alerting the listener to the language handicap. Observations made by the investigators and the employers revealed a deterioration of the language of the aphasic subjects under fatigue; this deterioration was most evident in the afternoon. Moreover, variations in performance were observed from day to day. It was interesting to note that all of the employers reported making adjustments in the working environment for aphasic employees, either on a short-term basis when the aphasic employee first returned to work or on a permanent basis. These adjustments include: not making the employee use the phone, reassigning responsibilities according to the employee's ability to cope with them, smoothing out misunderstandings resulting from the employee's handicap, and reassigning other employees to alternate responsibilities to improve the aphasic employee's work environment. On the other hand, all employers noticed an improvement in communication skills of the employed aphasic individuals since their return to work.

Discussion

In discussing the data presented here, the following points should be emphasized. The primary focus was to design a framework within which communicative competence can be described. That framework consisted of observing the aphasic individual as a communicator, (a speaker, listener, writer and reader). Within that broad framework, categories relevant to each communicative role were provided: with whom does he communicate; what does he communicate; how does he listen? Communication was defined as embracing all modes of expression. Methods for collecting and eliciting data were proposed to include role-playing activities, questionnaires, and data sheets used in recording communicative behavior.

The function of standardized tests such as the Boston Diagnostic Aphasic Examination, digit span, and arithmetic was to measure linguistic and cognitive competence. Role-playing tasks and gestural tasks were used to formally measure communicative competence. The observational data on communicative behavior provided the description of communicative performance as opposed to competence.

Looking at the results of statistical analysis, the high correlations between performance on the Boston test and on the digit span, arithmetic and communicative gestures are consistent with the findings previously reported in aphasia literature. The high correlation between language performance and performance on digit span was reported by Shuell (1973) and Brookshire (1973), and between language performance and arithmetic by Goodglass and Kaplan (1972), Shuell (1973), and Smith (1975). Duffy and Pearson (1972) and Ulatowska, Kumin and Kaplan (1974) reported that performance on communicative gestures is correlated with that on language tests. The above findings support the view that aphasia can be defined within a broader cognitive framework as opposed to a more restricted linguistic framework. However, the finding which is of direct interest to this study is that a positive correlation was found between the performance on the Boston test and role-playing activities, contrary to the results obtained by Ulatowska, Haynes and Richardson (1976). The present results can be accounted for by the following factors: in the present investigation, the role-playing activities were more complex and encompassed a wider range of tasks. In addition, a more sophisticated scoring system was

used for responses to these role-playing activities, taking into cognizance the modality used i.e. verbal, gestural or graphic.

While it was possible to establish positive correlations between linguistic and communicative competence in the aphasic populations studied, the interrelationship between combined communicative and linguistic competence and communicative performance appears to be very complex. What emerges is that some severely impaired aphasic patients are extremely functional. Additional factors have to be isolated and larger populations will have to be studied in order to understand the nature of communicative competence. Finally, comparison between the two aphasic populations, those in therapy and those employed, provided us with two extremes on the continuum of communicative behavior. The basic issue of strategies used in compensating for the aphasic damage bridges the gap between the populations. Aphasic patients with severe deficits tap the entire spectrum of communicative devices. Those employed utilize additional strategies and exhibit an intricate scheme of reorganization of various linguistic skills. Thus, each group in its own way is communicatively viable.

Acknowledgement

The authors would like to express their gratitude to the following clinicians for their cooperation in providing information on the patients in this investigation: Josephine Simonson, Bernice Paul, Cheryl Frank, Benna Askew, Emily Anderson, Christi Friedman, Candy Moltz, Erin May, Nancy Hixon, Joann Grassman, Betty Ohler, Deborah Sams, and Marietta Weaver. Thanks are due to our graduate students Anne Weise, Noel Marshall, Kathleen Bartels, and Pam McCurdy, for their assistance in testing the patients. Appreciation is also expressed to Temple Lee Baker for computer processing of the data.

Bibliography

- Brookshire, R. H. An Introduction to Aphasia. Minneapolis, Minnesota: B. R. K. Publishers, 1973.
- Duffy, R. J., and Pearson, K. L. A preliminary report on the development and use of the gestural recognition test (G.R.T.). In R. T. Wertz and M. Collins (eds.), Clinical Aphasiology: Conference Proceedings, 1972. Madison, Wisconsin, 1976.
- Goodglass, H. and Kaplan, E. The Assessment of Aphasia and Related Disorders, Philadelphia, Pennsylvania: Lea and Febiger, 1972.
- Schuell, H. Differential Diagnosis of Aphasia with the Minnesota Test, Minneapolis, Minnesota: University of Minnesota Press, 1973.
- Smith, A. Neuropsychological testing in neurological disorders. In Friedlander, W. J., (ed.), Advances in Neurology, Volume 7. New York, New York: Raven Press, Publishers, 1975.
- Ulatowska, H. K., Haynes, S. M., Richardson, S. M. The assessment of communicative competence in aphasics. In R. H. Brookshire, (ed.), Clinical Aphasiology, Proceedings of the Conference, 1976. Minneapolis, Minnesota: B. R. K. Publishers, 1976.

Ulatowska, H. K., Kumin, L., Kaplan, E. Production, comprehension, and imitation of codified gestures in aphasics. In B. E. Porch and J. E. Shelton, (eds.), Clinical Aphasiology, Proceedings of the Conference, 1974. Minneapolis, Minnesota: B. R. K. Publishers, 1974.

Discussion

- Q. Did you find a correlation between the patient's ability to engage in joking and recovery patterns and improvement?
- A. Yes on the whole, but there are some complicating factors because I think we have to look at the pre-morbid personality. There are some people who really do not tell jokes and probably do not exhibit, in an overt way, the enjoyment of jokes. But on the whole, yes, we did find a correlation between joking ability and improvement of communication skills.