

The Reliability of an Interactional Communication
Profile for use with Aphasic Patients

Ruth Bluestone
Spaulding Rehabilitation Hospital, Boston, Massachusetts

Richard Dean
Ohio University, Athens, Ohio

INTRODUCTION

Over the last few years there has been a rapid proliferation of research dealing with pragmatics and aphasia. Pragmatics has had an enormous impact on the field of speech and language pathology and as a result clinicians have had to acquire a new terminology, alter their view of communication, and most importantly, apply pragmatic principles to both diagnosis and treatment. Pragmatics can no longer be relegated to a secondary or peripheral position but must be considered as a legitimate and justifiable area within the communication system. This is particularly true in the area of aphasia, where patients' functional use of language is the ultimate standard by which recovery is measured.

It is generally accepted that there is some preservation of communicative competence in aphasia and that even some severely impaired patients are somewhat functional. Evidence for the retention of communicative competence comes from many sources and covers different areas of communicative behavior (Gurland et al., 1982; Newhoff et al., 1982; Penn, 1983; Schienberg and Holland, 1980; Wilcox and Davis, 1977).

Pragmatic assessment tools for use in aphasia are still in the process of being conceptualized. Three different approaches can be identified, namely, the use of standardized aphasia tests, tests of functional communication, and nonstandardized contextual tests. For the purpose of this discussion, only the third type will be considered.

In order to evaluate nonstandardized approaches, not only is it essential to examine how each accounts for the "pragmatic constructs" (Lubinski et al., 1980) of topic, task, participants and setting, but it also is essential to examine the reliability and clinical useability of these tools.

A variety of tasks have been used, including narrative discourse (Easterbrook et al., 1982; Yorkston and Beukelman, 1980); elicited communication (Guilford and O'Connor, 1982; Linebaugh et al., 1982); unstructured conversation (Easterbrook et al., 1982; Florance, 1981; Penn, 1983) and observation of the patient in daily life settings (Holland, 1982). In the majority of studies the participants have been the patient and a familiar clinician or researcher (Easterbrook et al., 1982; Florance, 1981; Newhoff et al., 1982; Penn, 1983). Researchers have also assessed patients in interaction with other aphasic patients (Larkins and Webster, 1981; Schienberg and Holland, 1980) and with unfamiliar nonaphasic individuals (Gurland et al., 1982). In most investigations the setting has been clinical. Florance (1981) and Holland (1982), however, collected data in more natural and representative settings.

Although the determination of reliability should be the first step in the development of contextual assessment tools, a review of the literature indicates that the issue of reliability has been given secondary status.

Some studies provide no reliability information (Easterbrook et al., 1982; Gurland et al., 1982; Lubinski et al., 1980) and others mention it only peripherally (Florance, 1980; Guilford and O'Connor, 1982). Reliability data were provided by Wilcox and Davis (1977) who had 25% of their data classified by two independent raters. Linebaugh et al. (1982) had three speech pathologists rate their samples, and Penn (1983) used two graduate students.

Clinical useability refers to the practical application and use of the assessment tool in clinical settings. At this time, the assessment of communicative competence is still a time-consuming task requiring the use of video or audio equipment.

The purpose of the present study was to determine the reliability of a pragmatic assessment tool, The Interactional Communication Profile (ICP), developed to evaluate the interpersonal and interactional skills of an aphasic patient and significant other.

METHOD

Subjects. The clinical population consisted of three aphasic patients selected from a university clinic and rehabilitation center. Patients with moderate to severe speech and language deficits were excluded from the study. They all had relatively intelligible speech and sufficient expressive and receptive abilities to allow them to participate in a conversation.

The raters (subjects) consisted of seven second-year master's students in Speech Pathology. At the time of the study they were all enrolled in the same graduate-level aphasia course and all had had limited clinical contact with aphasic patients.

Three significant others (SO) participated by serving as conversational partners. All three were spouses.

Materials. Two test instruments, the Western Aphasia Battery (Kertesz, 1980) and the ICP were used to collect data. The ICP was designed to assess interactional-interpersonal communication--the behavior of both participants and six parameters of communication, proceeding from the general to the more specific. The six parameters include Parameter 1: Conversational Turns defined as utterances in any modality(ies) produced by the speaker and the listener's response to it (Linebaugh et al., 1982). Parameter 2: Conversational Analysis including the initiations and maintenances used by both participants. An initiation was defined as an utterance that starts a topic or interaction and a maintenance as an utterance that extends a topic or interaction. Parameter 3: Speech Act Analysis including the requests, comments and responses of both participants. Parameter 4: Communicative Success evaluated by means of a 6 variable by 12 level multidimensional system. Parameter 5: Self Correctional Strategies including the word finding, motor speech and receptive strategies used by the patient. Parameter 6: Assistive Behaviors used by the significant other. (See Appendix for a sample ICP form and descriptions of variables and levels.)

Data Collection. Each dyad was videotaped for a total of 30 minutes. The experimenter was present during testing but did not participate in the conversation. The participants were instructed to talk to each other and were given general topics chosen to ensure that there was no violation of the conversational rules proposed by Grice, described by Davis (1985). (See Appendix for details of the tasks and topics used.)

Editing and Transcription of Data. The videotapes were edited to select ten minutes of representative interaction for each dyad. A written script of

each interaction was made with conversational turns identified and utterances numbered.

Rater Training. Initial training was conducted at a group session where raters were given background information and a chance to observe videotapes and rate patients. Each rater then had one additional conference with the experimenter.

Rating Procedure. Ratings were done on an individual basis. Raters were encouraged not to talk among themselves about the interactions and did not see each others' ratings. Raters were required to rate one interaction per day and to complete each rating within one session. Within each session they were allowed to review the tape as many times as needed.

Raters were required to rate all parameters, except the first, Conversational Turns. In order to complete the analysis, raters were required to discriminate between and categorize a given number of behaviors, for example discriminate between initiation and maintenances (Parameter 2). Because the utterances had been identified and numbered, it was possible for the raters to use these numbers on their score sheets to indicate their decisions. Ratings were, therefore, very specific.

RESULTS

Results of the study were analyzed statistically by means of the following procedures: Percentage Agreement calculated for Parameters 2-6; Spearman Rank-Order Correlations calculated for Parameter 4 and Chi-square calculated for Parameters 2 and 3. Results provided evidence for parameter, category and patient differences such that all three variables affected the ratings and hence the reliability of the results. The following discussion highlights some of the results and trends.

Inter-Parameter Differences. Results indicated that as the required specificity of the ratings increased, the reliability was affected. This finding was highlighted by percentage agreement figures shown in Table 1. (Although Table 1 shows only selected percentage agreement for Patient 1, it must be noted that the same trend was noted for all patients.) The best agreement was obtained for Parameter 2 (Conversational Analysis) which required raters to make only a two-category discrimination between initiations and maintenance. Agreement for Parameter 3 (requiring three discriminations) were at a lower, yet still acceptable level. Agreement for Parameters 4-6 was poorer--for Parameters 5 and 6 no acceptable agreement was obtained.

Intercategory Differences. Results obtained for Parameter 4 (Communicative Success) need special mention. Spearman Rank-Order correlations are summarized in Table 2. Results indicate that all the interrater correlations (N=57) were significant for each patient. Although statistically significant, results indicated lack of acceptable agreement (See Table 1) at all levels except 12, which identified verbal complete utterances.

In summary, the results of the study indicated a lack of acceptable reliability for the ICP. Reliability decreased as specificity increased and was affected by interparameter, intercategory and interpatient variables. The results highlighted the inconsistency of the ratings and indicated that some of the raters were able to rate some of the parameters some of the time. This inconsistency does have a positive side, as it indicates that raters were able to learn part of the system. It is obvious, however, that the inconsistency cannot be tolerated and that the ICP cannot be used clinically at present with any reliability.

Table 1. Selected percentage agreement (PA) for Patient 1, Parameters 2-6.

PARAMETER	Patient		Significant Other	
	N	PA	N	PA
2 Maintain	454	89	272	76
3 Comment	230	64	218	68
4 Level 12	171	50	-	-
" 11	22	0	-	-
" 10	20	0	-	-
" 9	29	0	-	-
" 8	66	39	-	-
5 Word Finding	17	0	-	-
Motor Speech	16	0	-	-
6 Significant Other Behavior	-	-	49	-

Note. PA figures represent the percentage of judgments in which there was an acceptable level of agreement greater than 71% (P1 and P3) and 67% (P2)
 N represents the number of judgments in a category regardless of agreement

Table 2. Correlation summary: Communicative success.

Category*	Patient			Total
	1	2	3	
Very High, >.90	2	1	5	8
High, .70-.90	19	8	16	43
Moderate, .40-.70	0	6	0	6
Low, .20-.40	0	0	0	0
Slight, <.20	0	0	0	0
Total	21	15	21	57

Note. Each figure represents the number of significant correlations in each of the five categories

*Guilford's classification of categories, cited by Williams, 1968, pp. 134.

Although the results of the present study indicated a lack of acceptable reliability for the ICP, the results must be interpreted in terms of the exploratory nature of the study and in terms of the following factors.

Patient Selection. Patients were limited both in terms of number (N=3) and in terms of symptomology. All presented with mild symptoms and did not provide the raters with multiple opportunities to rate certain behaviors, in particular revisions.

Rater Training. The results seem to suggest that the major factor affecting the results was the lack of adequate training provided to the raters. Raters were not given sufficient hands-on experience with the procedure and did not have an opportunity to receive sufficient feedback about their performance.

Rater Selection. The results must be interpreted in terms of the large number of raters. As the number of raters increases, the reliability is likely to decrease. The use of a large rater sample is, however, essential at this preliminary stage of test development--especially if the assessment is to be used by a large heterogeneous group of clinicians. The experience of the raters must also be acknowledged as an added factor affecting the results. All raters had little clinical experience with aphasia, and it may be postulated that more experienced clinicians would have yielded better reliability figures.

The ICP Itself. The assessment tool itself and the categories demarcated for assessment need to be validated by further research and testing.

CONCLUSIONS

A great deal of empirical work is still needed if we are to understand, not only how human interaction works, but how it is affected and how it can be assessed. If pragmatics promises to demonstrate how communicative competence is a product of the appropriate use of nonverbal and paralinguistic behavior, in addition to verbal behavior, then assessment tools must reflect this paradigm (Prutting, 1982). In the field of aphasia, both the complexity of the disorder and the area of pragmatics makes it impossible to envisage that we will ever develop a pragmatic test of aphasia. Probably the best we can manage is to develop a flexible profile with a protocol that provides different options for different patients.

Results of this study indicate that the ICP is just a "first order approximation" (Penn, 1983) of an interactional-interpersonal assessment tool and that continued research is needed to increase the reliability and clinical useability of the tool. In particular, the study needs to be replicated using a larger and more representative clinical population, more experienced raters, and improved rater training. The ICP itself needs to be modified, particularly Parameter 4 (Communicative Success), and adapted to capture the symptomatology of other clinical groups, including patients with right hemisphere lesions and head injuries.

REFERENCES

- Davis, G.A. Pragmatics and Treatment of Aphasia in Adults. Paper presented at the Northeastern Ohio Conference on Communication Disorders, Akron, Ohio, 1985.
- Easterbrook, A., Byers-Brown, B. and Perera, K. A comparison of the speech of adult aphasic subjects in spontaneous and structured interactions. British Journal of Disorders of Communication, 17, 93-107, 1982.

- Florence, C.L. Methods of communication analysis used in family interaction therapy. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1981. Minneapolis, MN: BRK Publishers, 204-211, 1981.
- Guilford, A.M. and O'Conner, J.K. Pragmatic functions in aphasia. Journal of Communication Disorders, 15, 337-346, 1982.
- Gurland, G.B., Chvat, S.E. and Gerber-Wollner, S. Establishing a communication profile in adult aphasia: Analysis of communicative acts and conversational sequences. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1982. Minneapolis, MN: BRK Publishers, 18-27, 1982.
- Holland, A.L. Observing functional communication in aphasic adults. Journal of Speech and Hearing Disorders, 47, 50-56, 1982.
- Kertesz, A. Western Aphasia Battery. Ontario: University of Western Ontario Press, 1980.
- Larkins, P.G. and Webster, E.J. The use of gestures in dyads consisting of an aphasic and a nonaphasic adult. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1981. Minneapolis, MN: BRK Publishers, 120-127, 1981.
- Linebaugh, C.W., Kryzer, K.M., Oden, S. and Myers, P.S. Reapportionment of communicative burden in aphasia: A study of narrative interaction. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1982. Minneapolis, MN: BRK Publishers, 4-9, 1982.
- Lubinski, R., Duchan, J. and Weitzner-Lin, B. Analysis of breakdowns and repairs in aphasic adult communication. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1980. Minneapolis, MN: BRK Publishers, 111-116, 1980.
- Newhoff, M., Tonkovich, J.D., Schwartz, S.L. and Burgess, E.K. Revision strategies in aphasia. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1982. Minneapolis, MN: BRK Publishers, 83-85, 1982.
- Penn, M.A.C. Syntactic and Pragmatic Aspects of Aphasic Language. Unpublished doctoral dissertation, University of the Witwatersrand, Johannesburg, South Africa, 1983.
- Prutting, C.A. Pragmatics as social competence. Journal of Speech and Hearing Disorders, 47, 123-134, 1982.
- Schlenberg, S. and Holland, A.L. Conversational turn-taking in Wernicke Aphasia. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 1980. Minneapolis, MN: BRK Publishers, 106-116, 1980.
- Wilcox, J.M. and Davis, A.G. Speech act analysis of aphasic communication in individual and group settings. In R.H. Brookshire (Ed.), Clinical Aphasiology: Conference Proceedings, 166-174, 1977.
- Williams, F. Reasoning with Statistics. New York: Holt, Rinehart and Winston, 1968.

DISCUSSION

- Q: A lot of these spouse behaviors that you observed or didn't observe could be directly explained by how much time has gone by. I'm also curious about how long your couples were married. There is very little unshared information in a marriage. The breakdown may be the result of the specific aphasic impairment rather than a failure of one of the spouses to make the proper presupposition of the other spouse's knowledge.
- A: The patients were all in the acute phase, an average six months post onset. They had all been married for more than 20 years.

C: I'm a spouse of someone who has had several cerebral hemorrhages and has been more or less aphasic for the last 15 years. I have been moved by the papers in this session. There are many issues that need to be dealt with partly because once you're out of the acute phase or access to speech pathologists there are different issues that occur. Longitudinal studies will show that things do deteriorate over time in relationships if there is not some sort of intervention from other community providers. There is need for public education. There are things that speech pathologists do that are helpful in terms of strategies that have a great impact on relationships. Also things like word retrieval strategies that may be helpful. For example, as a spouse, how long do you let somebody struggle trying to come up with the word because you don't want to assist.

APPENDIX

Interactional Communication Profile

**INTERACTIONAL
COMMUNICATION
PROFILE**

PATIENT: _____ RATER: _____
DATE: _____ Dx: _____

© Ruth Bluestone 1985.

**PARAMETER 1
CONVERSATIONAL TURNS**

		PARAMETER 2 CONVERSATIONAL ANALYSIS	
P A T I E N T	I N I T I A T E		S O
	M A I N T A I N		I N I T I A T E
			M A I N T A I N

**PARAMETER 3
SPEECH ACT ANALYSIS**

P A T I E N T	R E Q U E S T	C O N T R I B U T I O N	R E S P O N D	O T H E R	U N R E S P O N D	S O	R E Q U E S T	C O N T R I B U T I O N	R E S P O N D	O T H E R	U N R E S P O N D

**PARAMETER 4
COMMUNICATIVE SUCCESS**

		LEVEL		VARIABLE					
				verbal	request	initiated	response	intensity	time
F U N C T I O N A L C O M M U N I C A T I O N	12	V	*		*	*	*		
	11	NV	*			*	*		
	10			R	*	*	*		
	9		*		ASS	*	*		
	8		*			INEFF			
	7		*				TIME		
	6		*				TIME		
	5		*			INEFF			
	4		*		ASS				
	3			R					
	2	V	NL						
	1	NV	NL						

* VARIABLE APPLIES

✓ EITHER VARIABLE APPLIES

■ VARIABLE DOES NOT APPLY

**PARAMETER 5
PATIENT STRATEGIES**

WORD FINDING	MOTOR SPEECH
DELAY	REVISION
ASSOCIATED WORD	ELABORATION
CIRCUMLOCUTION	OTHER
NONVERBAL	
RECEPTIVE	
REQUEST REPETITION	
REQUEST MODEL	

**PARAMETER 6
ASSISTIVE BEHAVIORS**

REQUEST STRATEGY USE	INTERPRET
MODEL	USE GESTURE
INSTRUCT	OTHER
SPEAK SLOWER—LOUDER	
PARAPHRASE	
REPEAT	

APPENDIX (continued)

VARIABLES

1. VERBAL - NONVERBAL
2. LINGUISTIC - NONLINGUISTIC
Jargon or Unintelligibility
3. REVISED - UNREVISED
Active strategy use by patient to repair or revise communication
4. ASSISTED - UNASSISTED
Assistance provided by SO
5. EFFICIENT - INEFFICIENT
Time taken to complete a message:
Captures nonfluency
6. TIME APPROPRIATE - INAPPROPRIATE
Time taken to start or respond to a message

DESCRIPTION OF LEVELS

- A score of 12 implies the production of a successful verbal and linguistic utterance; an utterance most resembling 'normal'.
- A score of 11 implies that the utterance was efficient and successful in all respects, but was nonverbal.
- A score of 10 indicates that the utterance was successful, but revised.
- A score of 9 highlights the concept of listener assistance; the utterance was successful but assisted.
- A score of 8 implies that the utterance was successful, but inefficient.
- A score of 7 highlights the timing aspect of the utterance, it was successful, but the time was inappropriate.
- A score of 6 implies that an utterance was unsuccessful because of the variable of timing.
- A score of 5 indicates that the utterance was unsuccessful because of inefficiency.
- A score of 4 indicates that although assistance was provided, the utterance was still unsuccessful.
- A score of 3 indicates that although there were attempts to revise, the utterance was still unsuccessful.
- A score of 2 implies that the utterance, although verbal, was unsuccessful because of the nonlinguistic element.
- A score of 1 implies that the nonverbal communication was unsuccessful because it was nonlinguistic.

DESCRIPTION OF THE TASK AND TOPICS USED TO ELICIT COMMUNICATION

The TASK was constant - the participants were required to engage in conversation.

The following are some examples of the TOPICS suggested to the participants. These topics were designed to incorporate the following parameters: old (past / new (recent) information and shared / unshared information.

Talk about old / shared information - an event from the past (broadly defined to include vacations, specific incidents) or more generally, your lives together.

Talk about old / unshared information - in particular your lives prior to your relationship.

Talk about new / shared information - the stroke and the effects of this; family, recent happenings and the managing of day to day problems.

Talk about new / unshared information - a recent event that your spouse knows nothing about.