Communicative efficiency in severe aphasia

R. C. MARSHALL, D. B. FREED†
and D. S. PHILLIPS‡

University of Rhode Island, Kingston, RI, USA
† California State University, Fresno, CA, USA
‡ Oregon Health Sciences University, Portland, OR, USA

Abstract

The communicative efficiency of three severely aphasic clients was assessed with a 10-item message exchange task. The three clients demonstrated distinctively different communication profiles. Client M.D. communicated verbally; B.D. relied on drawing and writing; J.S. employed elaborate gestures. Three groups of eight raters assessed the communicative efficiency (CE) and degree of communicative burden (CB) assumed by the partner for each message exchange using a visual analogue scale. One group was aware of the content of the message exchanges (Full Content); a second received partial information about message contents in the form of a cue (Partial Content); a third received no information (No Content). Mean ratings of CE and CB differed significantly for the three clients. Many of these differences can be explained in relation to the client's severity of aphasia and abilities to effectively employ output modalities available to them to convey messages. CE ratings were higher and CB ratings were lower in the No Content viewing condition than the Partial and Full Content conditions. Several possible explanations are offered for this surprising result.

Introduction

Holland's suggestion that aphasic persons 'communicate better than they talk' has become axiomatic in clinical aphasiology (Holland 1977). Much that is done in aphasia treatment today stresses exchange of information, and getting one's ideas across, regardless of how (Davis and Wilcox 1985, Holland 1991, Kagan and Gailey 1993, Lyon 1992, Simmons-Mackie and Damico 1995). Because these treatment approaches stress communication rather than talking, they are well suited for severely aphasic persons who are 'expressively reduced' (Lyon 1995) and fluent clients with 'rambling' empty speech lacking in content (Marshall 1983). Sometimes, clients who compensate for their verbal limitations by using other output modalities (e.g. gesture, writing, drawing) and paralinguistic information (e.g. stress, intonation, facial expression) unveil competencies masked by their aphasia.

Clinical observations suggest that the communication profiles of severely aphasic persons when exchanging information with their partners are individualized and

Address correspondence to: Robert C. Marshall, Department of Communicative Disorders, University of Rhode Island, 2 Butterfield Road, Suite 1, Kingston, RI 02881, USA.

variable (Armstrong 1993, Goodwin 1996, Holland 1982, Lyon 1989, 1995, Simmons-Mackie and Damico 1995). It often appears that some severely aphasic clients communicate more efficiently than others, but the reasons for this are not always clear. For example, a client who writes and draws may be viewed as a more efficient communicator than one who uses gestures. A client with fluent, 'empty' speech who does not supply the missing content word in other modalities may be perceived as a less efficient communicator than a non-verbal client who supplies critical message elements by gesturing or pointing.

This study examined communicative efficiency for three severely aphasic clients. M.D., B.D., and J.S., in a message exchange task. These clients reflected distinctively different communication profiles that appeared related to the nature and severity of their speech and language deficits. M.D. communicated primarily by speaking; B.D. communicated through the use of writing and drawing; J.S. communicated mainly by gesturing. With respect to this limited subject sample, two questions were asked: (a) Do ratings of communicative efficiency (CE) and the degree of communicative burden (CB) assumed by a partner in a message exchange task differ for the three clients and if so why? (b) Are ratings of CE and CB influenced by raters' knowledge of the contents of the message? This second question was motivated by the fact that severely aphasic persons tend to transmit personalized information more effectively than non-personalized information, and that most communicative situations involve some form of context and/or shared knowledge by communicative partners. If knowledge of message contents influences CE and CB ratings on a message exchange task, this factor needs to be considered in using these types of procedures as evaluation tools.

Methods and procedures

Clients

The communication profiles of clients M.D., B.D., and J.S. are described in Appendix A. Table 1 provides relevant demographic, medical, language, and cognitive information about each client.

Message exchange task

Clients were administered a 10-item message exchange task (Appendix B) developed by Fawcus and Fawcus (1990). This involves transmitting a brief message of four to six key elements (e.g. The black dog is drinking milk) to an interactive partner. The same partner participated in all message exchanges. Before starting the task the client and partner interacted informally for 10–15 minutes. The task was then explained to the client and the client was given three props: a calendar, a road atlas, and a paper-and-pencil, to use during the task. Clients then exchanged the same two practice messages with the partner before starting the task. Throughout the message exchange task the partner sat across a table from the client and interacted with him or her by paraphrasing, verifying, and questioning until the message was understood. Order of presentation of the messages and the practice message was similar for the three clients. All message exchanges were videotaped for later analysis.

Table 1. Demographic, medical, language and cognitive test data for aphasic clients. Maximum number of items correct is shown in parentheses

	MD	BD	JS
Demographic data			
Age	42	55	25
Years onset	3	6+	3+
Education (years)	14	16	12
Occupation	Construction	Teaching	Carpenter
Marital status	Married	Married	Single
Medical data			
Aetiology	Thrombotic	Haemorrhage	Thrombotic
Lesion site	Left temporal	Left frontal	Left parietal
Language data			
PICA	51	72	43
Token (62)	26	7	0
ACTS (21)	17	20	19
PPVT (175)	107	155	143
BNT (66)	0	41†	0
PP (52)	51	50	48
Drawing (3)	3	3	3
Cognitive testing			
CPM (36)	33	33	36
FM (10)	4	4	5
VPA I/II (18/6)	13/6	15/6	6/na

Test Key

PICA = Porch Index of Communicative Ability (Porch 1981); Token = Token Test (DeRenzi and Vignolo 1962); ACTS = Auditory Comprehension Test for Sentences (Shewan 1979); PPVT = Peabody Picture Vocabulary Test (Dunn 1965); BNT = Boston Naming Test (Kaplan *et al.* 1983); PP = Pyramids and Palm Trees Test (Howard and Patterson 1992); CPM = Coloured Progressive Matrices (Raven 1965); FM = Figural Memory subtest, Wechsler Memory Scale–Revised (Wechsler 1987); VPA-I = Visual Paired Associates, Wechsler Memory Scale–Revised; VPA-II = Visual Paired Associates (delayed recall), Wechsler Memory Scale–Revised.
† Allowed to write names on BNT.
Drawing was assessed by asking subjects to draw something in a room of their house, something outside their house, and something they would see on the way to the clinic.

Ratings of communicative efficiency and burden

Three groups of raters, each containing eight speech–language pathology students, rated the communicative efficiency (CE) and degree of communicative burden assumed by the partner (CB) for each message exchange using a 10 mm visual analogue scale. Appendix C provides information on operational definitions of CE and CB, instructions to raters, and the rating scale. Rater training was limited by the students' time schedules. Prior to doing the rating task, student raters were given background information about the clients and allowed to view the informal videotaped client–partner interactions. They also viewed the two practice message exchanges of each client and assigned CE and CB ratings to them. These ratings were discussed briefly, and raters were allowed to ask questions about the rating task. This encompassed approximately 30 minutes.

Table 2. **Ranges of communicative efficiency (CE) and communicative burden (CB) mean ratings for the message exchange task for clients M. D., B. D., and J. S. for raters in the no content (NC), partial content (PC), and full content (FC) groups**

	Rating group		
Clients	NC	PC	FC
M. D.			
CE	65–87	43–68	50–83
CB	23–43	46–81	27–64
B. D.			
CE	75–98	63–77	69–88
CB	9–30	35–56	14–81
J. S.			
CE	53–97	29–78	63–87
CB	9–53	41–71	22–62

To aid them in making CE and CB ratings, student raters were supplied with all writing and drawing for the message exchanges and informed of any relevant pointing responses. The order in which the client message exchanges were viewed by the three groups was counterbalanced. Raters viewed each message exchange only once. The examiner stopped the tape at the conclusion of the exchange to give raters time to record their ratings. Upon completing the rating task, raters were asked to provide written anecdotal comments about what made it difficult or easy to understand the message exchanges.

Knowledge of message contents differed for the three groups of raters. One group received no information about message contents (NC). A second group received partial information about message contents in the form of a cue (PC). For example, the cue 'animal function' was used for the message 'The black dog is drinking milk' (see Appendix B for all cues). A third group was provided the full content of each message (FC).

Reliability measures

Visual analogue scale ratings were converted to numerical values (0–100) using a 10 mm ruler, by a research assistant. Twenty-five per cent of the conversions were checked by the first author; point-to-point agreement was 99 %.

Inter-rater reliability for CE and CB measures was relatively poor. Table 2 shows the ranges of mean CE and CB ratings for the three clients for each group of raters. Raters reflected less variability for some messages than others, and for some clients than others. Typically, five to seven raters demonstrated equivalent CE and CB ratings for a message exchange and one to three reflected discrepant values. Given the minimal experience of the student raters with aphasia, and the minimal training they received on the rating task, this was not a totally unexpected result.

Intra-rater reliability reflects the consistency of rater perceptions of CE and CB from time to time. This was assessed by having four raters from the NC, PC, and

Table 3. First and second time (T1/T2) mean ratings of communicative efficiency (CE) and communicative burden (CB) for raters in no, partial, and full message content groups for clients M.D. (verbal style), B.D. (graphic style) and J.S. (gestural style)

	Verbal		Graphic		Gestural	
	CE	CB	CE	CB	CE	CB
No content						
1	80/84	43/39	91/39	16/11	81/80	22/25
2	66/59	36/38	93/85	08/16	89/77	21/26
3	86/78	23/31	97/98	09/10	80/82	38/33
4	80/82	34/39	76/70	30/37	86/80	20/27
Partial						
1	44/47	59/56	65/68	37/31	78/70	41/44
2	48/54	68/61	72/70	33/32	77/76	33/37
3	46/56	81/79	65/60	43/48	41/46	44/33
4	60/62	65/58	70/77	43/40	38/45	71/65
Full content						
1	71/69	44/40	81/82	30/34	62/70	62/50
2	69/60	51/47	69/64	62/56	85/78	30/36
3	50/54	52/44	84/87	14/11	65/60	32/35
4	54/50	63/60	88/89	18/19	77/76	30/32

FC groups re-rate the message exchanges 2 months after the initial ratings. Ratings of CE and CB were deemed reliable if the second rating (time 2) was within 10 points of the first rating (time 1). For the CE ratings this occurred 86%, 84%, and 82% of the time for raters in the NC, PC, and FC groups respectively. For the CB ratings this occurred 85%, 82%, and 84% of the time for raters in the NC, PC, and FC groups respectively. Ranges of the mean CE and CB ratings for time 1 and time 2 were also compared. Table 3 shows that, in most cases, time 1 and time 2 ratings were within 10 points.

Results

Communication modalities used by clients for the message exchange task

The 30 message exchanges were reviewed independently by the first author and the research assistant to determine if the output modalities employed for the task were similar to those observed in the client's day-to-day communications. Point-to-point agreement for the two examiners (see Table 4) as to whether or not a client conveyed a key element during the message exchange, and the modality or modalities employed to convey specific elements was near-perfect for clients B.D. (97%) and J.S. (97%), but lower for client M.D. (85%). Table 4 shows that M.D., B.D., and J.S. successfully communicated 41, 34 and 35 of the 44 possible message elements successfully for the task. Table 4 also reflects that client communication profiles for the message exchange task were congruent with observations of their day-to-day communications. Specifically, M.D. conveyed 63% of his information with speech; B.D. conveyed 69% of the message elements with drawing (51%) or writing (18%) and used these modalities in combination with other modalities the rest of the time; J.S. conveyed 51% of his message elements with gesture and 37% by speaking (single words only).

Table 4. Number of key elements (44 possible) from the message exchange task conveyed successfully by clients M.D., B.D., and J.S. Agreements on presence or absence of key element and modality used to convey elements for first author and research assistant are shown in parentheses

Modality	Clients		
	M.D.	B.D.	J.S.
Speech	26 (21)	0	13 (13)
Gesture	9 (8)	2 (2)	19 (18)
Writing	6 (6)	6 (6)	2 (2)
Drawing	0	18 (18)	0
Pointing	0	0	1 (1)
Writing/drawing	0	5 (5)	0
Gesture/drawing	0	1 (1)	0
Writing/pointing	0	2 (1)	0

Data analysis

A three-way analysis of variance (ANOVA) was conducted to ascertain main effects for clients (M.D., B.D., and J.S.), knowledge of message contents (NC, PC, and FC), and messages with repeated measures on the last two factors. Separate analyses were carried out for CE and CB data.

Communicative efficiency

Main effects for clients [$F(2,42) = 8.76$, $p = 0.0007$], knowledge of message contents [$F(2,21) = 18.57$, $p = 0.0001$], and messages [$F(9,189) = 14.40$, $p = 0.0001$] were significant. The message by content interaction was significant [$F(9,18) = 2.16, p = 0.0056$] suggesting that messages were rated differently for the three content conditions. Similarly, the client by message interaction was significant [$F(18,376) = 25.57, p = 0.0001$) indicating that patients differed in their ability to transmit different messages. Mean client CE ratings were highest for B.D. (mean = 79.2; SD = 18), next highest for J.S. (mean = 72.7; SD = 24.7) and lowest for M.D. (mean = 65.6; SD = 23). Mean CE ratings were highest for the NC condition (mean = 81; SD = 19), next highest for the FC condition (mean = 75; SD = 18.8) and lowest for the PC condition (mean = 61; SD = 25).

Communicative burden

ANOVA results for the CB data were similar to those for CE. Main effects for clients [$F(2,42) = 6.96$; $p = 0.0025$], knowledge of message contents [$F(2,21) = 18.89$; $p = 0.0001$], and messages [$F(9,189) = 14.97, p = 0.0001$] were significant. The message by content interaction was significant [$F(9,18) = 14.96, p = 0.0001$] as was the client by message interaction [$F(18,376) = 26.84, p = 0.0001$). Mean CB ratings were lowest for B.D. (mean = 34; SD = 27), next lowest for J.S. (mean = 38.3; SD = 29) and highest for M.D. (mean = 47; SD = 27). Mean CB ratings were lowest in the NC condition (mean = 25.5; SD = 24.6), next lowest in the FC condition (mean = 42; SD = 27), and highest in the PC condition (mean = 52;

SD = 27). The CB data, similar to the CE data, suggest that messages were rated differently for the three content conditions, and that clients differed in their ability to transmit different messages.

Discussion

The three severely aphasic clients in this study conveyed an equivalent number of key elements on the message exchange task, but the efficiency with which they did this was judged to differ. B. D., who communicated with drawing and writing, received the highest CE ratings in all message content conditions and the lowest CB ratings in the NC and PC conditions (see Figures 1 and 2). Rater comments reflected an appreciation for the 'hard copy' provided by her drawing and writing. This may partially explain her higher CE and lower CB ratings, but it can be argued that her ratings reflect the fact that her aphasia is less severe than that of M. D. and J. S. B. D.'s better language skills and good comprehension may allow her to use her strongest output modalities singly, in combination, and in combination with weaker modalities (e.g. writing/pointing) to compensate for her verbal limitations secondary to apraxia of speech. The argument that severity alone accounts for differences in CE and CB ratings among the clients suffers when the performance of J. S. is considered. J. S. communicated primarily through gesture, but he also used some single words in conjunction with his elaborate pantomimes (see Appendix A and Figure 1). The fact that he is severely aphasic is supported by his overall PICA percentile of 43 and his zero scores on the Token Test and BNT. Nevertheless, mean CE ratings for J. S. approximated those of B. D. for the NC and FC conditions (Figure 2). His mean CB rating (Figure 2) was almost as low as B. D.'s rating in the NC condition, and is actually lower than B. D.'s rating in the FC condition. J. S. therefore appears to use his good gestures and small corpus of single words very efficiently. Raters' comments extolled the 'directness' of J. S.'s communications for the message exchange task. These suggest that J. S. is doing as well as he can with what is available to him.

M. D., an improved Wernicke's aphasic, relied on verbal communication. He was also the only one of the three clients capable of using speech. He successfully conveyed more key elements from the message exchange task, but he also had the lowest mean CE ratings and the highest mean CB ratings for all conditions. Raters' comments reflected impatience with his excessive verbalizations, circumlocutions, and non-productive self-corrections. Raters complained that it was difficult to wait for M. D. to complete a message and that this caused them to forget the early portions of the message. For M. D., the key elements of the message exchange are buried among many non-productive utterances. This seems to reduce his communicative efficiency. The specificity of the message exchange task could restrict M. D.'s ability to exchange information, but there are reasons to doubt this. First, in his pre-testing (see Table 1). M. D. was able to draw. Secondly, his gestures were adequate, as reflected by his gestural subtest means on the PICA (subtest II = 13·2; subtest III = 13·9). Finally, a review of his records revealed that M. D. was encouraged to talk less and supplement his empty speech with gesture, drawing, and other strategies in treatment. These therapeutic endeavours appear to have been unsuccessful. This raises some interesting clinical questions. Does M. D. simply make the 'human' choice to communicate verbally? Does he make a poor choice by communicating verbally when other options are available? Is it, or will
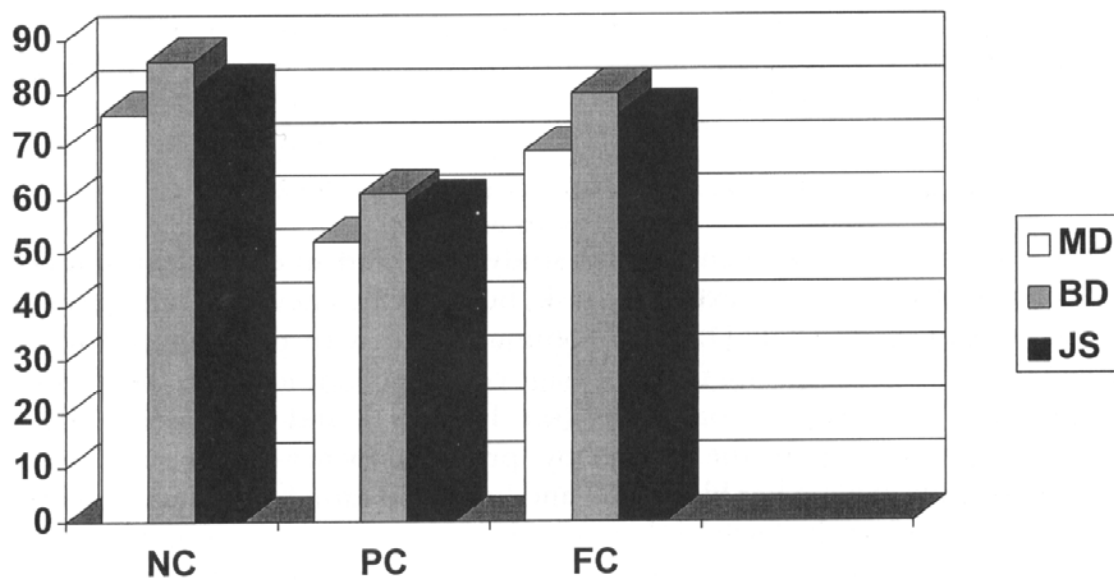
Figure 1.   Mean ratings of communicative efficiency for M.D., B.D., and J.S. for no, partial, and full content conditions.
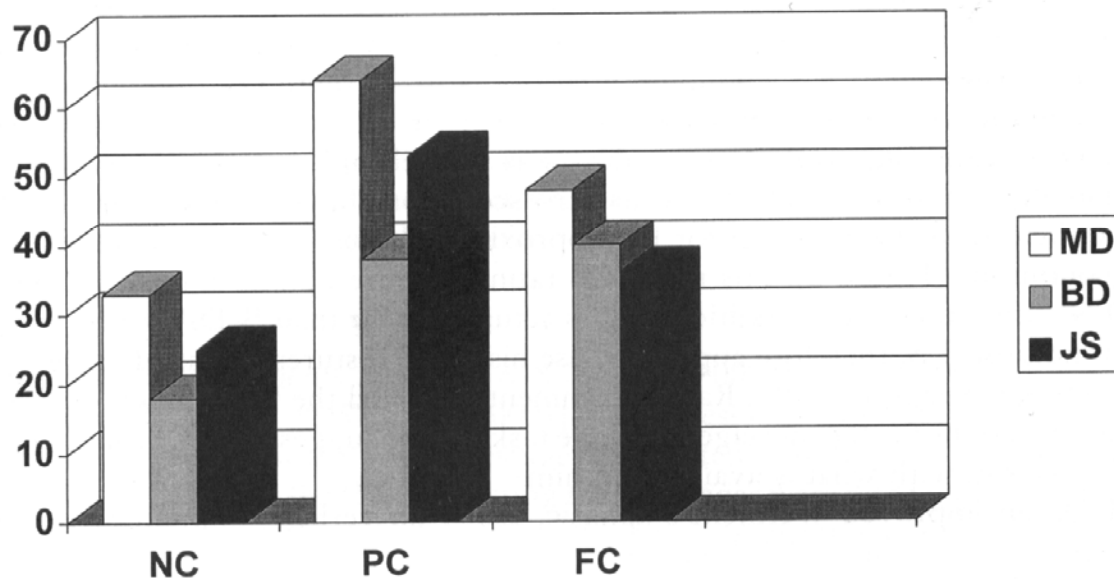

Figure 2.   Mean ratings of communicative burden for M.D., B.D., and J.S. for no, partial, and full content conditions.

it ever be, feasible to 'stop' M.D. from talking, and encourage him to use other output modalities as long as verbal communication is an option?

CE ratings were substantially higher and CB ratings substantially lower in the NC condition. A methodological problem in this study, namely the fact that the same messages were employed for all three clients, makes this result even more implausible. Specifically, when viewing the taped message exchanges, raters had information from the first tape that was applicable to the second, and information from the first and second tapes that could be used in rating the third tape. It is important to think about this result, since information about message contents and the redundancy inherent in hearing the same messages repeatedly would be expected to result in higher CE and lower CB ratings. More informed raters might be better able to focus on CE and CB, and make more realistic ratings of these factors, because they do not need to decode the message. Another possible explanation for the lower CE and higher CB ratings in the PC and FC conditions

is that knowledge of message contents might create a 'preparatory set' that causes raters to listen or watch for production of specific words. If the rater views the task as demanding 'preselected' responses, lower ratings may be assigned if these are not produced. In other words, knowledge of message contents could disrupt the rater's ability to focus on less obvious message features such as stress, intonation, facial expression, body language and information from the partner, all of which seem important to rating CE and CB. Higher ratings by less-informed raters may result from focusing more on the overall success of the message exchange because of the decoding demands. In such cases raters may assign higher ratings if any information is communicated. Alternatively, providing raters with little information about message contents may free them to concentrate on aspects of the message exchange other than content words.

Methodological limitations require cautious interpretation of the findings of this study. The operational definition of CE (see Appendix C) included multiple dimensions (e.g. clarity, completeness, speed) that can vary independently and affect the construct validity of the scale. The fact that the same interactive partner was involved in all message exchanges creates a potential bias in the CB ratings due to partner expertise. As stated earlier, rater training was minimal and inter-rater reliability was less than adequate. This was not a problem that could be addressed within the time frame of the study. Intra-rater reliability appeared to be acceptable, but we do not know if a rating of 44 for a time 1 rating and one of 34 for a time 2 rating is equivalent to a rating of 77 for a time 1 rating and a time 2 rating of 67. We chose a 10-point time 1–time 2 interval on the basis of a limited pilot investigation. In sum, the message exchange task appears to have some utility in assessing communicative behaviour in severe aphasia. Clients in this study differed in terms of communicative efficiency on the task. These differences were consistently manifested across raters and conditions. For this small subject sample, communicative efficiency appears to reflect how well or how poorly severely aphasic persons use output modalities available to them to transmit information. However, much more research is needed before tools such as the message exchange task can be used with confidence to assess the performance of severely aphasic people.

References

ARMSTRONG, E. (1993) Aphasia rehabilitation: a sociolinguistic perspective. In A. Holland and M. Forbes (Eds) *Aphasia Treatment: World perspectives* (Chapman & Hall, London), pp. 263–290.
DAVIS, A. G. and WILCOX, M. J. (1985) *Adult Aphasia Rehabilitation: Applied pragmatics* (College-Hill Press, San Diego, CA).

DeRenzi, E. and Vignolo, L. A. (1962) The Token Test: a sensitive test to detect receptive disturbances in aphasics. *Brain*, **85**, 665–678.

Dunn, L. (1965) *Peabody Picture Vocabulary Test* (American Guidance Service, Circle Pines, MN).

Fawcus, M. and Fawcus, R. (1990) Information transfer in four cases of severe articulatory dyspraxia. *Aphasiology*, **4**, 207–212.

Goodwin, C. (1996). Co-constructing meaning in conversations with an aphasic man. Telerounds Presentation no. 29, National Center for Neurogenic Communication Disorders, Tucson, AZ, 28 February 1996.

Holland, A. L. (1977) Some practical considerations in aphasia rehabilitation. In M. Sullivan and M. Kommers (Eds) *Rationale for Adult Aphasia Therapy* (University of Nebraska, Lincoln, NB), pp. 167–180.

Holland, A. L. (1982) Observing functional communication of aphasic adults. *Journal of Speech and Hearing Disorders*, **47**, 50–56.

Holland, A. L. (1991) Pragmatic aspects of interaction in aphasia. *Journal of Neurolinguistics*, **6**, 197–211.

Howard, D. and Patterson, K. (1992) *Pyramids and Palm Trees Test* (Thames Valley Test Company, Suffolk).

Kagan, A. and Gailey, G. F. (1993) Functional is not enough: training conversation partners for aphasic adults. In A. Holland and M. Forbes (Eds) *Aphasia Treatment: World perspectives* (Chapman & Hall, London), pp. 199–225.

Kaplan, E., Goodglass, H. and Weintraub, S. (1983) *The Boston Naming Test* (Lea & Febiger, Philadelphia, PA).

Lyon, J. (1989) Communicative partners: their value in re-establishing communication with aphasic adults. *Clinical Aphasiology*, **18**, 11–18.

Lyon, J. (1992) Communication use and participation in life for adults with aphasia in natural settings. *American Journal of Speech–Language Pathology*, **1**, 7–14.

Lyon, J. (1995) Drawing: its value as a communication aid for adults with aphasia. *Aphasiology*, **9**, 33–49.

Marshall, R. C. (1983) Communication styles of fluent aphasic clients. In H. Winitz (Ed.) *Treatment of Language Disorders* (University Park Press, Baltimore, MD), pp. 163–180.

Porch, B. E. (1981) *Porch Index of Communicative Ability* (Consulting Psychologists Press, Palo Alto, CA).

Raven, J. C. (1965) *The Coloured Progressive Matrices* (Psychological Corporation, New York).

Shewan, C. (1979) *The Auditory Comprehension Test for Sentences* (Biolinguistics Clinical Institutes, Chicago, IL).

Simmons-Mackie, N. and Damico, J. (1995) Communicative competence in aphasia: Evidence from compensatory strategies. *Clinical Aphasiology*, **23**, 95–106.

Wechsler, D. (1987) *Wechsler Memory Scale–Revised* (Psychological Corporation, New York).

Appendix A: Descriptions of client communication profiles

M. D.

M. D. is a 42-year-old man with improved Wernicke's aphasia. He communicates primarily by using speech. His speech contains few content words. His efforts to retrieve specific words end up as literal paraphasias or neologistic jargon. His verbal self-correction attempts usually fail. When he tries to write a word he tends to give up after writing one or two letters. His comprehension in a context is essentially unimpaired.

B. D.

B. D. is a 56-year-old woman with Broca's aphasia. This classification is based on the quality of her written discourse because a severe apraxia of speech limits her verbal expression. Her primary modes of communication are drawing and writing. Her drawings are detailed and accurate. She has a large vocabulary of written nouns

and seldom mis-spells a word. She conveys actions with written 'motion' lines (e.g. smoke rising) in her drawings and occasionally by gesture. She can produce a few single words orally (e.g. names of family members), but seldom uses these spontaneously. Her comprehension is excellent in day-to-day communicative interactions.

J.S.

J.S. is a 25-year-old man with severe aphasia and apraxia of speech. He communicates predominantly by using gestures. Pantomimes contain multiple steps. These are supplemented by facial expressions and the appropriate stressing and intoning of single words learned in treatment. For example, when asked about driving he said 'Mom' to reflect her concern. He uses other meaningful sounds similarly (e.g. noise of a siren accompanying a hand gesture to indicate a policeman stopping a car).

Appendix B: Stimuli for the message exchange task

Practice items

1. The rain delayed the baseball game (got postponed)
2. The woman bought a dress for $100 (a purchase)

Task items

1. The little boy has four candles on his birthday cake (happy occasion)
2. The black dog is drinking milk (animal function)
3. The man and woman live in a big house (a residence)
4. Please telephone the doctor tomorrow (make contact)
5. Mom is going to the dentist at four o'clock today (an appointment)
6. Bill and his family went to the beach August 6 (a trip)
7. The old man smoked 10 cigarettes (bad habit)
8. She drives the car to Eugene (going somewhere)
9. The rotten fish made him sick (unfortunate incident)
10. The policeman stopped the car (highway event)

(Partial message content cues)

Appendix C: Instructions to raters

On the videotapes you will see clients with severe aphasia will exchange messages with a partner. Each exchange is approximately five to eight words long (e.g. The woman paid $3 for a hamburger). Clients can communicate information by talking, writing, drawing, pointing, or gesturing. They may also use one of the props (paper/pencil, atlas, calendar) provided. You will be asked to make two ratings for each message exchange.

Rating 1: Communicative efficiency

Communicative efficiency is defined as 'the completeness, clarity, and speed with which the client conveys information in the exchange'. Use the scale provided to make this rating. Place an ' × ' between the two anchor points directly on the line provided.

No attempt to provide   Complete
any information   information
└──────────────────────────┘

Rating 2: Communicative burden

Communicative burden is defined as 'the degree to which the partner needs to use inference, to question, and to guess in order to verify the accuracy of the message'. Make this rating in the same manner as the efficiency rating.

Partner assumes no   Partner assumes all
communicative burden   communicative burden
└──────────────────────────┘