

## Can the Clinical Interaction Analysis System Describe PACE Therapy?

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At the Annual Meeting of the American Speech and Hearing Association in San Francisco last year, Wilcox and Davis (1978) described a form of clinician-patient interaction in aphasia treatment called PACE. PACE, which stands for Promoting Aphasics' Communicative Effectiveness, has been developed for the past two years at Memphis State University. We have claimed that the interaction in PACE reshapes the interaction of traditional treatment and, in effect, represents a new structure of clinician-patient interaction. Traditional treatment may be characterized as a teacher-student interaction, while PACE is designed to conform to components of natural face-to-face conversation.

Brookshire's Clinical Interaction Analysis System (CIAS) was developed "for recording events that occur in clinician-patient interactions in aphasia treatment sessions" (Brookshire, Nicholas, Krueger, and Redmond, 1978, p. 440). The CIAS is based on samples of treatment procedures gathered from around the United States. It appeared to us that this system codes what we have considered to be the teacher-student interaction of traditional treatment procedures but may not be capable of describing the interaction in PACE. Therefore, we wanted to see if PACE is truly a unique form of treatment by attempting to code its interaction with the CIAS. Before we present the results, we shall describe PACE and review the events categorized in the CIAS with reference to the principles of PACE.

### PACE and the CIAS

PACE structures the interaction between the clinician and patient so that it conforms to components of natural face-to-face conversation (Duncan and Fiske, 1977; Jaffe, 1978; Rosenfeld, 1978). Procedures are carried out according to four basic principles.

First, there is an exchange of new information between the clinician and the patient. The patient, for example, attempts to convey messages not already known by the clinician, by keeping stimulus cards from view of the clinician.

Second, the patient has a free choice as to which communicative channels s/he may use to convey new information (similar to Holland, 1977, 1978; Schlanger and Schlanger, 1970). Depending on the patient's capabilities, these channels may include speaking, writing, gesturing, or pointing to printed words or another set of pictures. Furthermore, though the clinician ensures that these channels are made available to the patient, the clinician does not direct the patient to use any particular channel.

Third, the clinician and patient participate equally as senders and receivers of messages. That is, the clinician and patient alternate in conveying new information, usually by taking turns drawing from a single stack of picture cards face down on the table.

Finally, feedback is provided by the clinician in response to the patient's success in conveying a message. The clinician's feedback is aimed at receiving the patient's message rather than rewarding selection

of an expected channel or achievement of an expected linguistic level (similar to Holland, 1977, 1978).

Two turns of PACE interaction are depicted in Table 1. An additional aspect of PACE is suggested in this table. The clinician may influence the patient's communicative behavior not only by making certain channels available but also by modeling certain communicative behaviors when sending messages. When taking a turn as sender, the clinician may demonstrate the communicative value of certain channels, of using channels in combination, and of certain linguistic levels within channels.

Table 1. Two turns of PACE interaction show that the clinician and patient alternate in sending and receiving messages.

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	<u>Clinician</u>	<u>Patient</u>	<u>Clinician</u>
(1)	SENDER  (model channels and levels)	RECEIVER	
(2)		SENDER  (free choice of channels)	RECEIVER  (feedback based on communicative adequacy)

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In a description of speech acts (Searle, 1969) used by clinicians and patients in traditional aphasia treatment, Wilcox and Davis (1977) found that clinicians primarily were requesting and questioning, and that patients primarily were asserting in response. The event categories of the CIAS correspond to this unidirectional teacher-student type of interaction. In this system, most initial clinician behaviors constitute requests for a specific response from the patient. These requests include imperatives, models that require imitation, completion of linguistic units, and two types of questions. Three of the nine clinician behavior categories are used for behaviors other than requests for specific responses, and these are the clinician explanation, and clinician and patient discourse categories (Brookshire, *et al.*, 1978). Patient responses are coded in the CIAS primarily with respect to the clinician's request for a response. First and irrespective of the patient's actual response, the response modality that is expected by the clinician is recorded. Second, responses to requests are coded as to whether they were successful or unsuccessful. Therefore, most of CIAS coding is based on the clinician's making a request for a particular response and on the patient's responding according to expectations implied by the request.

Brookshire *et al.* (1978) found four categories of treatment in their analysis of 40 treatment samples. Three of these can be identified with the traditional directive stimulus-response form of interaction; these include auditory stimulation, melodic intonation, and motor speech production. However, conversational treatment also was identified with the CIAS. This would not be surprising if the conversations consisted of the

clinician's asking questions and the patient's answering, as was found in a description of speech acts in a social setting by Wilcox and Davis (1977).

We expected that the structured interaction of PACE would be difficult to code with the CIAS for three reasons. First, in PACE the clinician does not make requests for specific responses when sending messages, as is done in the types of treatment from which the CIAS was developed. Second, though the clinician may develop certain expectations of how the patient will behave communicatively in PACE interaction, there are no expected patient responses in PACE since there are no planned requests for particular responses. Third, the bi-directionality of PACE may be difficult to score with a system based on unidirectional treatment. Whichever is the case, an attempt to code PACE with CIAS was considered to be a way of pinpointing similarities and differences between this new procedure and traditional treatment.

### Method

Two clinicians—one, a supervisor (first author) at Memphis State University and the other, a speech pathologist at the Memphis VA Medical Center—used the short form of CIAS (Brookshire *et al.*, report) to categorize videotaped samples of traditional and PACE treatment. These clinicians were trained formally to use the short form as part of Brookshire's reliability study. The short form contains 26 of the original 39 categories, in part, by reducing redundancy and eliminating infrequently used categories (Brookshire *et al.*, 1978). The treatment samples were two 10-minute segments of traditional treatment, including an auditory comprehension pointing-to-pictures task, a naming task, and a sentence completion task. Two 10-minute segments of PACE were coded, in which the clinician and patient exchanged messages about object pictures.

Both clinicians coded each of the treatment samples. Their coding of traditional treatment was used not only to facilitate comparison between the two forms of treatment interaction but also to check on the reliability between the two coders. Therefore, the coders recorded the traditional treatment events independently.

### Results and Discussion

The number of occurrences of each event is shown in Table 2. The pertinent event categories of the CIAS short form are shown across the top of the table. Three different traditional activities and one PACE activity were categorized by the first author (A) and the VA clinician (B). In parentheses, the total number of interactions recorded by each coder are shown. Regarding reliability between coders, the major differences between them are due to the differences in number of interactions recorded by each coder and to the fact that coder B forgot to code the inference level of complexity (#12) for the third traditional task. Otherwise, the two coders were in close agreement as to the categorization of events.

The three traditional tasks were coded as follows: First, the auditory comprehension task consisted mostly of imperatives (#3) as the initial clinician event with expected responses being largely gestural (#20) or pointing to pictures. Most responses were appropriate (#24). Second, the naming task consisted mostly of clinician requests that

Table 2. Number of events for three traditional tasks and one PACE activity scored in CIAS Categories by two recorders, A and B. Total number of interaction events recorded by A and B are in parentheses. The traditional treatment tasks, in the order shown, were pointing to pictures (auditory comprehension), confrontation picture naming, and sentence completion. For PACE, only events when the CLINICIAN WAS SENDER were recorded with CIAS. The patient's turn as sender could not be categorized. The above categories depict a modified CIAS short form with two categories omitted due to space limitations.

	TYPE OF EVENT										COMPLEX					MANNER					EXPECTED RESPONSE					RESP			FEEDBACK		
	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22	24	25	26	27	28	R	UR	P	N	INF		
	I	M	C	Q	Q	N	E	DI	D2	I	#W	G	M	LR	SR	MR	CR	WR	DR	R	UR	P	N	INF							
TRADITIONAL																															
A (12)	11				1					10			8		1		11				10	1				2					
B (8)	7				1					5			7		1		5				7	1			0						
A (9)	7							2							7						7				1			1			
B (10)	8							2							8						8				1			1			
A (19)				14	1	1		2		14					16						17	7			4			2			
B (15)				9	2			4		--					13						12	2			4			3			
PACE																															
A (11)	3						4	4		6		7			3						8	3			8			5			
B (13)	5						4	4		8		5			5						9	5			9			5			

functioned as imperatives such as "Tell me the name of these" which was dropped with subsequent stimuli. In this task, spoken responses (#18) were expected, and the patient was appropriate (#24) on each request. Third, the sentence completion task consisted mostly of completion events (#5) that required a spoken expected response (#18). These patient responses were appropriate most of the time (#24). Regarding the clinician feedback categories, relatively little positive reinforcement (#26) was provided in these samples.

In attempting to use CIAS to code one of the two samples of PACE, coder A became exasperated and declared that CIAS could not be used to record PACE interaction because the clinician in the videotaped sample did not make specific requests, specific response modalities were not expected by the clinician, and there was no place to record the patient's turn as a sender of messages. The second coder (clinician B) observed only three minutes of that tape since the rest of the 10 minute segment had somehow been erased. She could only agree with coder A.

For coding the other 10 minute segment of PACE, coder A decided to ignore the principles of PACE and to categorize events without this apparent bias. The outcome from coders A and B is shown in Table 2. Only half of the interaction sequences could be recorded, since CIAS itself is biased toward certain assumptions and principles underlying treatment. These relate to the clinician's always initiating the interaction sequence. Therefore, the patient's turns for sending messages were not recorded; only the clinician's turns as sender were recorded.

The clinician's sending behavior was categorized under "Type of Event." This consisted of eight turns in which the clinician verbally or gesturally conveyed a message represented on a picture of an object. Four of these attempts were considered to be nonverbal requests (#8) and four were considered to be explanations (#9). When we compared the intent of the clinician in PACE with the intentions that define these categories in CIAS, we concluded that neither of these categories actually describe the clinician's sending behavior in PACE.

The three events assigned by coder A (five by coder B) to the Model-Imitations category (#4) were appropriately categorized. This is because once a message was communicated in the PACE activity, the clinician correctly chose to pursue improving the linguistic adequacy of the patient's response. In this case, the patient's response was occasionally a verbal hypothesis about the clinician's message. Once the patient indicated comprehension in this manner, the clinician temporarily entered the traditional interaction style by providing a verbal stimulus for the patient to repeat. According to PACE principles, this type of interaction is appropriate only after the message has been conveyed successfully. This is why three (A) and five (B) events in addition to the eight turns of PACE interaction were recorded, as shown in Table 2.

Regarding the expected response category, the coders still could not infer from the clinician's sending behavior in PACE that a particular response modality was expected. The patient was allowed to choose whatever response modality she wished to use to indicate comprehension of the message. Expected spoken responses (#18) were inferred from the modeling behaviors by the clinician that were extraneous to the PACE interaction as described previously.

Four CIAS categories were consistent with certain events or attributes of events that occurred in the essential PACE interaction, but only when the

clinician took a turn to send messages. The clinician's sending behavior could be categorized in terms of complexity and manner. Regarding manner in PACE, the clinician used either spoken or gestural channels or both simultaneously to convey a message. The patient's responses could be categorized as either an appropriate response for the task (#24) or a response that fell short of the clinician's model (#25) when extraneous imitation occurred. Finally, positive feedback by the clinician (#26) was identified when the clinician acknowledged the patient's successful comprehension.

Because CIAS, which was based on samples of treatment before PACE was developed, could not be applied to PACE interaction, we have concluded that PACE is, at least, a unique form of aphasia treatment. A coding system that could describe PACE would have to allow for the balanced roles of participants in this form of treatment, that is, a patient-to-clinician direction and a clinician-to-patient direction and not just the latter as is the case in traditional treatment. Such a coding system also would have to eliminate the element of requesting from clinician behavior and eliminate the assumption that specific response modalities are expected from the patient. These modifications point to a few of the ways in which PACE differs from the treatment of aphasia as we have known it.

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#### Discussion

Comment: The problem with the bidirectionality of PACE could be handled quite simply in the CIAS by just considering the "patient" as "clinician." That is, another column could be added, and it could be checked as to whether the patient was sender or the clinician was sender. However, the problem that I don't see as being solvable without derivation of a whole new system is the fact that responses by the patient are not specifically expected or requested.

A: I agree with both points. Ann Haire has considered using the reverse of the clinician and patient behavior columns so that there would be four columns instead of two (to allow for the reciprocity of roles in PACE). I also do not have a suggestion regarding the second problem.