

Analysis Of Clinician-Patient Interactions
In Aphasia Treatment

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The Clinical Interaction Analysis System (Brookshire, 1976) developed at Minneapolis Veterans Administration Hospital, was described at the 1976 Clinical Aphasiology Conference. However, for those who may not be familiar with the CIAS, it will be described briefly here.

The CIAS is a system for recording events which occur in clinician-patient interactions in aphasia treatment sessions. The major categories into which interaction events can be divided by one using the system are (a) Type of clinician behavior, (b) Complexity of request, (c) Support, (d) Manner, (e) Materials, (f) Expected response, (g) Patient's response, and (h) Clinician feedback. Nine kinds of events are categorized under "type of clinician behavior." They are:

Imperative - A request for response that consists of a command; e.g., "Point to the car."

Model - A request for response that requires the patient to imitate the clinician's behavior; e.g., "Say, 'The boy chased the dog.'"

Completion - A request for response that requires the patient to complete a linguistic unit which the clinician has begun; e.g., "I want a cup of _____."

Yes-No Question - A request for response which requires a "yes" or "no" response from the patient; e.g., "Have you had your breakfast?"

Other Question - A request for response in question form which requires a response other than a "yes" or "no" response; e.g., "What did you do this morning?"

Nonverbal - A request for response which is signaled by the absence of spoken behavior by the clinician, which is accompanied by gestural or postural behavior which indicates that the clinician expects the patient to respond.

Explanation - This is not a request for response, but is coded when the clinician explains or instructs the patient about an upcoming task.

Clinician-Initiated Discourse - This is also not a request for response, but is coded when the clinician engages in a discourse with the patient, and when that discourse does not constitute a request for response.

Patient Discourse - This is not clinician behavior, but patient behavior,

and is coded when the patient initiates communication behaviors which are not in response to a specific request from the clinician.

The second major category of descriptors is related to the complexity of the requests made by the clinician. There are two measures of complexity in the system. The first, inference, is recorded when there is a mismatch between the structure of a request and the implied function of the request. In general, inference is coded when the clinician gives the patient only partial information about the nature of the expected response, or when the structure of the clinician's behavior does not match its implied function. For example, requests which have question structure but serve as imperatives, e.g., "Can you point to the dog?", are coded as + inference. Likewise, inference is coded whenever key words are depleted from a request, especially in repeated requests, e.g., "Point to the spoon." . . . "the napkin." The second measure of complexity is the number of words contained in the clinician's spoken request behavior. In our original version of the coding system, we had included a number of measures of complexity, including such measures as linguistic structure, information density, and word order. Our analysis of these complexity measures indicated that none was a more valid measure of the complexity (or difficulty) of a clinician's request than length. Consequently, we employed length, the most easily coded of our many measures of complexity, as the measure to be retained in the present version of the system.

Requests for response can be delivered in three manners. Spoken manner is coded when the clinician's request involves any spoken behavior. Gestural manner is coded when the clinician's request involves any gestural behavior. Melodic manner is coded when the clinician's request involves any humming or singing.

Two Event Categories are used to describe the materials used in the treatment session. Object-Picture is coded when objects or pictures are presented to the patient by the clinician in conjunction with the request for response. Written material is coded when written or printed materials of any kind are presented to the patient in conjunction with the request for response.

Seven aspects of the response which is expected from the patient at the time of a request for response are coded. The first aspect of the expected response to be coded is length. Length is coded as "0" when the expected response consists of a single word or single gesture and it is coded as "1" when the response consists of more than a single word or gesture. Spoken, Melodic, Gestural, and Written expected responses are coded, and if the expected response consists of a duplication of the immediately preceding response produced by the patient, it is coded as a Repeated Expected Response. If the patient is to wait for a period of time before responding to the clinician's request for response, the category Delayed Expected Response is coded.

Another category of events in the system is concerned with the support given to the clinician's request for response. Support can be of two kinds; spoken unison and gestural unison. Spoken unison is coded when the clinician produces a spoken expected response in unison with the patient. Gestural unison events are coded when the clinician produces gestural cues in unison with the patient as the patient is producing a spoken response.

The response emitted by the patient is described in terms of four parameters. Whenever the patient attempts any sort of response to the clinician's request, the presence of Response is recorded. If the patient's response is considered to be "normal" in all respects, then the presence of a Normal Response is recorded. If the response is unacceptable to the clinician, the presence of an Unacceptable Response is recorded. If "Unacceptable Response" is not coded,

then, by definition, the response was an "Acceptable Response." When the patient responds, then asks the clinician for information about that response, the presence of a Requests Information event is recorded.

Ten aspects of the feedback which the clinician may deliver following patient responses are recorded. First, the presence of feedback behavior is recorded. The modality of the feedback (Spoken or Gestural), and whether the feedback is positive or negative is recorded. When the clinician provides the correct response to the patient after the patient has produced an unacceptable response, the presence of correction feedback is recorded. If the clinician repeats or elaborates upon the patient's response, the presence of repetition-elaboration is recorded. Finally, when any part of the feedback is delivered with unusual intensity or emotion, the presence of intense feedback is recorded.

In summary, then, the events recorded by our system are of three major kinds: (1) instances in which the clinician requests a response from the patient, (2) instances in which the clinician engages on certain other non-request behaviors, and (3) instances of patient discourse. Whenever a request for response occurs, the coder records:

- (1) The number of the event
- (2) The time at which the event begins
- (3) The type of request
- (4) Two aspects of the complexity of the request
- (5) The kind of support present
- (6) The manner in which the request is presented
- (7) The kind of materials present
- (8) The expected response to the request
- (9) The patient's response to the request
- (10) The clinician's feedback to the patient's response

Whenever a clinician non-request event occurs, the coder records:

- (1) The number of the event
- (2) The time at which the event begins
- (3) The type of event
- (4) The number of words in the event
- (5) The support present
- (6) The manner in which the request is presented
- (7) The materials which are present

Whenever patient discourse occurs, the coder records only:

- (1) The number of the event
- (2) The time the event begins
- (3) The type of event (patient discourse)

Reliability of the CIAS.

Using training materials developed for teaching observers to record interactions with the CIAS, naive observers can learn to reliably code and record clinical events with approximately 24 hours of training, using self-contained videotaped and printed training materials. We have evaluated the reliability of (a) Minneapolis coders vs coders from other U.S. cities, and (b) experienced aphasia clinicians vs inexperienced clinicians. Coder reliability was assessed by comparing the judgments of each coder with a master protocol for each treatment sample coded. (Master protocols were generated by project center personnel, and represents their consensus regarding how each event should be coded.) Event-by-event agreement with the master protocol for all coders generally exceeded .90, and consistently exceeded .80, (according to the formula: category agreements/category judgments). The range of agreement for 20 coders was .861-.998. The mean agreement was .964, with a standard deviation of .062. There were no significant differences in reliability between Minneapolis and

Collection of Treatment Videotape Library.

In the course of the development and validation of the CIAS, we have collected more than 50 ten-minute samples of aphasia treatment from clinical facilities distributed throughout the United States. These tape samples are excerpts from longer sessions, and reflect those procedures that speech pathologists employ in day-to-day treatment activities with aphasic patients. We have also begun a collection of thirty-minute (and up) treatment tapes, and by July 1, 1978, we shall have collected more than 50 of these longer samples of treatment from facilities across the United States.

In our project center tape library, we have collected 40 ten-minute videotaped samples of aphasia treatment from all over the United States. Each of these tape samples has been completely coded, using the CIAS. We are currently carrying out content analyses of these 40 ten-minute samples. Our first analyses consisted of tabulation of various event frequencies and rates (Table 1).

Table 1. Means, standard deviations, and ranges for events which occurred in clinician-patient interactions.

	SD	\bar{X}	RANGE
Total # of events	28.51	92.30	43-168
Total # of request events	24.67	71.55	32-107
Non-request events	15.32	20.75	0-70
Clinician non-request events	7.37	13.67	0-32
Total # of responses	20.29	64.25	29-105
Total # of RI	3.50	1.52	0-20
Total # of UR	12.53	16.80	0-40
Total # of NR	17.42	18.87	2-86
Total # of Feedback (FB)	14.71	34.45	5-65
Total # of Negative FB	2.43	2.27	0-9
Total # of Positive FB	14.22	30.57	5-65
Total # of Corrective FB	1.58	1.25	0-5
Total # of Repetition FB	6.52	5.32	0-24
Total # of Elaboration FB	3.37	3.35	0-14
Response - UR	20.12	47.47	13-102
Total # D2	9.38	7.07	0-38
Total # US/UG	11.99/12.39	4.27/3.00	0-56/0-65
Gestural Only	14.37	7.60	0-67
Total # of Inference Events	26.56	48.70	0-121
Total # Gestural	22.90	27.72	0-81
Total # Spoken/Mel	23.77/2.78	74.82/.70	37-123/0-13
Total # OP	27.32	43.25	0-90
Gesturals OP	26.48	18.40	0-138
Request OP	25.15	39.45	0-88
Request rate: Mn # of request events/min	2.43	7.16	3.2-14.2
# of times 2 successive events are of the same type	17.99	35.52	10.0-97.0
# of times 2 successive expected responses are same	19.58	42.60	8.0-97.0
# of request events in strings identical types + # of strings	7.28	6.76	3.0-48.0
# of expected responses in strings of identical types + # strings	2.90	6.34	3.3-15.7

Table 1 (con't)

% of Total Events receiving Unison Support	10.36	3.68	0-52.3
% of Total Events Eliciting a Response	12.72	70.53	51.2-92.8
% of Total Events Eliciting a RI	3.50	1.62	0-19.8
% of Total Events Eliciting an NR	19.60	21.66	1.86-77.47
% of Total Events Eliciting a UR	11.20	18.35	0-39.60
% of Total Responses receiving FB	19.89	54.91	8.77-97.91
% of UR's receiving NFB	12.36	10.19	0-50
% of (R-UR) receiving NFB	3.16	1.53	0-17.24
% of (R-UR) receiving PFB	23.0	62.87	12.82-100
% of UR's receiving PFB	14.12	10.75	0-50.0
% of UR's receiving CFB	5.47	3.40	0-20
% of UR's receiving RFB	6.66	2.76	0-33.33
% of UR's receiving EFB	8.99	4.10	0-50
% of (R-UR) receiving CFB	2.25	1.12	0-10.34
% of (R-UR) receiving RFB	14.16	11.00	0-57.89
% of (R-UR) receiving EFB	8.41	6.92	0-36.84
% of Total Request Events containing Inference	27.31	61.08	0-98.4
# of Gestural Only requests + # Spoken & Melodic Requests	22.95	11.75	0-100
# of Requests W/OP + # Requests W/O OP (Not %)	8.82	5.06	0-40.0
% UR responses followed by Non-UR on next request	23.68	52.22	0-100
% Total Requests containing G Manner	22.44	31.12	0-71.87
% Total FB that is neither P nor N	7.20	5.92	0-26.66
% Total FB that is <u>Both</u> P and N	5.15	1.93	0-28.0
% of Requests	13.24	77.86	48.76-100.0
% of Clinician Non-request	7.22	15.08	0-25
% of D2	8.28	7.03	0-30.57
% of Non Requests	13.24	22.12	0-51.23
Request/Clinician Non-request	5.43	6.83	0-26.75

The data in Table 1 are too extensive to discuss in detail in the time allowed, but several measures merit mention. First of all, one can see that there was wide diversity across our 40 samples, as is indicated by the large ranges measured for almost all events. Event rate ranged from one event every 14 sec to one event every 3.6 sec. Request event rate ranged from one every 19 sec. to one event every 4.1 sec. Redundancy of treatment activities was apparently quite high, because 50% of all request events were members of "strings" of two or more consecutive requests of the same type. The use of materials was prevalent; 54% of all request events involved the use of object or picture materials (although some tapes contained no use of materials, and other tapes contained almost no requests without materials present).

Clinicians were generally effective in eliciting responses from patients; 70% of all responses elicited a response, and the lowest request/response ratio was above 50%. Clinicians apparently also structured treatment activities so that patient error rates were kept low; only 13% of clinician requests elicited unacceptable responses from the patient (although on some tapes, 40% of clinician requests elicited unacceptable responses). However, treatment tasks were difficult enough to tax the patient's abilities; only 22% of requests elicited normal responses. When patients made errors, clinicians were generally adept at helping the patient to change the error to a correct response on the next request; 52% of requests generating unacceptable responses were followed by requests which generated acceptable responses. However, this was not a universal characteristic -- the range was from zero to 100%, indicating that some clinicians never elicited consecutive unacceptable responses, while others never succeeded in changing unacceptable responses to acceptable responses.

Clinicians were relatively inconsistent in their use of feedback. Some clinicians provided feedback for virtually every response, while others rarely provided feedback. Fifty-five percent of all responses in our tape samples received feedback, but the range extended from 9% to 98%. Most clinicians exhibited a bias in favor of positive feedback, because only 10% of unacceptable responses received negative feedback. In fact, 11% of unacceptable responses received positive feedback! A few clinicians provided substantial amounts of ambiguous feedback. On several tapes, over 20% of feedback was both positive and negative. Clinicians also generally demonstrated a significant tendency to repeat the patient's response, whether acceptable or unacceptable, but especially if it was acceptable.

Our general reaction to the clinician behaviors we have observed on our videotapes has been positive. Clinicians generally tend to observe those principles which have been set forth in the literature on treatment of aphasic individuals, and they tend also to observe more general principles of conditioning and learning. However, we have also seen inconsistencies and ambiguities that appear to interfere with treatment activities. Whether or not those behaviors which appear to us to be "good" are, in fact "good for the patient," and whether or not those behaviors which appear to be "bad" are, in fact, "bad for the patient" awaits controlled experimental examination.

Reference

- Brookshire, R. H., A system for coding and recording events in patient-clinician interactions during aphasia treatment sessions. Clinical Aphasiology: Conference Proceedings, 1976, Minneapolis, BRK Publishers, 1976.

Discussion

- Q. Do you have a theory regarding why clinicians repeat more frequently following acceptable responses?
- A. I think it is habit. We find that clinicians tend to echo patient's responses, whether correct or incorrect, especially vocal responses.
- Q. Are you looking at the clinician's behavior as a function of patient type or severity?
- A. Yes. We are looking at patient severity and at patient type as they may relate to the things that clinicians do. These are more general data that I am talking about today.
- Q. How can clinicians benefit from what you are doing?
- A. We are currently concentrating on establishing the reliability of the system. In terms of current effects on clinicians, we do get reports back in which people say, after learning the coding system, "Wow, I didn't realize what I was doing in treatment. I didn't realize the extent to which I do this or don't do that. I really notice things that I have never noticed before in treatment!" The system would also be an excellent supervisory aid in training clinicians. And eventually we are going to be able to correlate what we are identifying with the system with the patient's recovery. But the immediate current effect is that it makes the clinician more observant.

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