Supplementing the PICA: The Effects of
Language Sampling on Intervention Strategies

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INTRODUCTION

It is most likely the case that clinical aphasiologists view accurate assessment of aphasia as essential to the formulation of appropriate and effective intervention strategies. It is also safe to assume that those involved in the treatment of this acquired language disorder approach the assessment task from wide ranging perspectives. Hence, it is not surprising to note that in his recent compilation of evaluations regarding aphasia, Darley (1979) included fourteen different test instruments for the appraisal of acquired language deficits.

Criticisms of such instruments appear to rest on a double edged sword. That is, on the one side many of these assessment tools have been judged to be limited in validity and standardization (Darley, 1979). On the other, the complexities of aphasia often require that the conscientious clinician supplement a selected appraisal technique with self-devised tasks designed to elicit certain linguistic behaviors about which more information is desired. This conflict in the need to remain flexible and creative in the face of standardization was recognized as early as 1935 by Weisenburg and McBride.

The PICA (Porch, 1967),according to McNeil (1979), is the model for standardized aphasia testing. If such is the case, it is understandable that it is currently the most widely used research instrument in the area of aphasia. Indeed, it has been referred to as "the ultimate in quantification" (Darley, 1979, p.191). The PICA has been criticized, however, for its lack of evaluation of spontaneous language; that is, the degree to which it measures functional communication is as yet unresolved (Martin, 1977; McNeil, 1979). Likewise, other examinations of aphasia have been judged to fall short in terms of measurement of the pragmatic, functional aspect of language. What supplemental measures clinicians have used to gain insights into this area are to our knowledge undocumented. However, it is likely that many would consider language sampling as a viable approach. We know, for example, that language sampling is judged by many linguists, psycholinguists and speech/language pathologists to be that piece of data most representative of an individual's linguistic competence. What has not been known, however, is whether intervention goals of the clinical aphasiologist are actually influenced by pragmatic, linguistic information such as that obtained through language sampling. Consequently, it remains to be determined if the nature of the diagnostic information

available to the clinician, whether it be test scores, a language sample, or a combination of the two, affects intervention strategies. Therefore, the purpose of the present study was to compare intervention goals established by speech/language pathologists subsequent to the review of three types of diagnostic information. Questions of specific concern included: 1) Does language sample analysis serve as a viable approach for assessing the aphasic patient's expressive language skills? 2) When the clinician has pragmatic linguistic information, does it affect his/her intervention approach? 3) Is it the case that PICA-trained clinicians do not change their intervention strategies regardless of information provided in addition to the PICA? 4) Is it the case that the PICA provides sufficient information, regardless of therapeutic approaches, for planning adequate intervention?

PROCEDURES

Fourteen speech/language pathologists participated. There were 12 females and two males, ranging in age from 30 to 52 years. Three of these clinicians held the doctorate, the other 11 the master's degree and all held the Certificate of Clinical Competence in Speech Pathology. All clinicians had attended a basic PICA workshop and 10 had received advanced PICA training. At the time of the study, all but one clinician was employed in a setting wherein she/he held primary responsibilities for providing services to an aphasic population.

Each clinician participated on one occasion wherein she/he was given a research packet. Within the packet were contained the following: instructions for the clinician regarding participation, a clinician information sheet for optional completion, nine pieces of diagnostic data and nine questionnaires. Data presented to these clinicians were obtained from three adult male patients with aphasia secondary to cerebrovascular accident. These patients were receiving treatment from the Speech Pathology Service of the Veteran's Administration Medical Center at the time the data were obtained. Further, each patient was judged to have, as his main aphasic characteristic, a deficit in the verbal expression of language. Each patient provided three types of linguistic data, representing the conditions of our study, for inclusion in the research packet. The initial set of data (i.e., condition #1 of the study) included results from a PICA administration. In addition to the raw score sheet, each clinician was also provided the ranked response and modality response summary sheets containing plottings of the subtest means. The second set of data (i.e., condition #2) we referred to as PICA-plus. These linguistic data were comprised of the respective PICA score sheet plus a transcription of all of the verbalizations produced by the patient during administration of subtests I through XII. Finally, the third set of data obtained from the patients (Condition #3) consisted of a 50-utterance language sample. The sample was elicited from each patient through a series of open-ended, indirect questions (Tell me what you did last night. Tell me about some things you like to do. or Tell me about the last trip you took.). Each patient was also shown the "cookie theft" picture from the Boston Diagnostic Aphasia Examination (Goodglass and Kaplan, 1972) and asked to describe its contents. These three types of data, obtained from the three patients, constituted the nine pieces of diagnostic information reviewed by each clinician. The order in which these data appeared in the research packets was randomly assigned. Further, each

clinician was told each piece of data was from a different patient. In this regard the study had a blind component.

In order to ascertain clinician responses, a questionnaire immediately followed each piece of data as it appeared in the research packet. Thus each clinician completed nine questionnaires. The questionnaire which we devised consisted of 42 items to which clinicians responded by circling a rating which ranged from lowest priority to highest priority over a seven-point rating scale. The first section of the questionnaire, Primary Intervention Goals, contained a total of 19 items specific to linguistic components. For example, included were such items as: To improve mean length of utterance in words; To improve syntax; To improve use of the following morphemes . . . ; and To improve pragmatic components such as . . . discourse rules, etc. In section two of the questionnaire, Primary Approach to Intervention by Category, were contained brief descriptions of five intervention approaches: PICA-oriented, PACE, MIT, Stimulation Therapy and Programmed Learning. Finally, the third section, Specific Types of Treatment Activities, included a total of 18 items concerning intervention tasks. For example, sentence completion, object naming, natural conversation, antonyms, and gestures to facilitate speech were among the items contained in this section. Clinician time required to complete the research packet varied. However, in general the task took approximately 90 minutes.

RESULTS

For the purposes of analysis responses to the questionnaires were collated by section and condition. These data were subsequently placed, by section, into a three-way analysis of variance design. Results of these analyses are summarized in Table 1. For these analyses we were interested in whether or not the type of diagnostic information provided to the clinicians significantly influenced their intervention strategies as measured in their questionnaire responses. As noted in Table 1, there were no significant differences in responses to data information over the three conditions within either Section I, Section II or Section III.

Table 1. Analysis of variance results.

	Section 1				Section 2				Section 3			
	SS	MS	df	F	SS	MS	df	F	SS	MS	df	F
DATA INFO	17.21	36.10	2/26	1.13	18.87	9.47	2/26	1.67	4.17	2.09	2/26	1
ITEMS	7971.38	442.85	18/234	19.15*	3949.78	987.45	4/52	28.69*	11309.9	665.2	17/221	24.92*
D/I	191.59	5.32	36/468	1.29	82.27	10.28	8/104	2.15	279.31	8.22	34/442	1.72

* MSI/MSI,SS = F, p < .001

Thus, the first conclusion to be reached was that clinicians' primary intervention goals, approaches to intervention, or choice of tasks for meeting the goals do not change significantly as a result of these three types of diagnostic information. The second conclusion we came to from our analyses was that the sections of the questionnaire were significantly different. This finding was of interest because it allowed us to gain additional insights into how these clinicians, as a group, intervene with the type of patient included in this study. Therefore our next step was to rank order the mean responses to items by section. A Newman-Keuls multiple range statistic was then performed on these data, with the following results. 1) With regard to primary intervention goals these clinicians gave significant priority to the following items: to improve semantic aspect of expression; to increase expression of verbs, nouns and noun plus verb constructions; to improve use of verb plus object constructions; to improve syntax; and to increase MLU in words. These clinicians gave the lowest priority to improving the use of all transformations; the use of morphemes such as present progressive, past tense markings and copular and auxiliary to be constructions; and pragmatic components. 2) In Section II, although these clinicians gave highest priority to a PICA-oriented approach to intervention, PICA-oriented, PACE, Stimulation and Programmed Learning were not significantly different from one another in terms of priorities for approaches. These four approaches however, were significantly different from MIT. Thus, for the type of patients considered herein, these clinicians would be as likely to choose one of the earlier four approaches but rarely if ever would give priority to MIT. 3) With regard to treatment activities these clinicians would choose the following goals: sentence formulation, topic-specific conversation, word recall, describing function of objects, object naming, and sentence completion. Of least priority would be activities such as rhyming, intonation, writing, reading or gestures to facilitate speech, and word imitation. Finally, we were interested in whether or not there was a significant interaction between the type of information and the items of the questionnaire. As indicated in Table 1, there was not.

DISCUSSION

Diagnostic results serve to provide information in a number of areas; notable among these are design of treatment and accountability. In this study we were primarily concerned with the former, although inherently there must be an effect on the latter. From our findings comes the suggestion that clinicians use the information provided by a 50-utterance language sample to plan treatment in the same manner as the information provided by complete PICA administration. Therefore, if diagnostic information truly dictates intervention strategies, a 50-utterance language sample will suffice. Conversely, the suggestion can be made that the PICA provides sufficient information for treatment design. Therefore, although the PICA has been criticized by Martin (1977), among others, for its lack of sampling of spontaneous language, our results suggest such a sampling is not needed for the purposes of treatment design. It could be the case that what is needed to affect strategic changes is a combination of spontaneous language and PICA administration. Our contention at the outset was that a great deal of information is lost during PICA administration by ignoring verbalizations extraneous to the test (hence the inclusion

of condition #2). Our findings do not support this notion. Further, although it remains to be determined empirically if a change in intervention is effected by PICA administration combined with a 50-utterance language sample, rather than the sample provided in condition #2, our findings suggest that it would not.

Obviously it could be argued that differences in intervention strategies may exist in relation to the conditions of our study, but that our research instrument was not sufficiently sensitive to such differences. However, statistical analysis indicated items sufficiently different from one another, and a large number of items was included--items representing a wide range of linguistic goals, approaches and activities. That another measure might prove more sensitive to possible differences remains to be demonstrated.

Stated simplistically, it appears that clinicians will approach this type of patient in basically the same manner regardless of diagnostic input. The profile emerges of a clinician who will devote time to output (especially of contentives and combinations such as N + V + O) within the context of appropriate meaning. She/he will probably use a PICA-oriented approach and traditional types of activities such as formulating sentences, word recall and describing functions of objects. Of course, it is possible that the rigorous training required to learn PICA administration may have influenced these clinicians' overall approach to intervention. Perhaps if this study had used scores from another standardized assessment tool, thereby eliminating the need to include only PICA-trained clinicians, our results might have shown differences across conditions. Further, these clinicians may well be at an evolutional point. For example, PACE was chosen as a treatment approach almost as often as PICA-oriented therapy, yet using gestures or writing to facilitate speech was not an item of great importance to these clinicians. Likewise, although the data suggested that the patients had deficits in expression as their primary aphasic characteristic, MIT was consistently the approach of last choice. Perhaps it is the case that clinical aphasiologists are currently in a state of flux, somewhere between accepting the importance of functional communication and implementing such a philosophy in their clinical interactions. Holland's (1980) CADL is now out. PACE (Davis and Wilcox, in press) appears to be gradually gaining widespread acceptance. If we are interested in changing intervention emphasis by way of diagnostic data, perhaps the CADL will provide information leading to a treatment model such as PACE. It goes without saying that if functional communication is where it's at, our training programs need to reflect such a position. In the meantime if the choice is between the PICA and language sampling, the best avenue appears to be the PICA. Not only do its results suffice for treatment planning, but it enjoys standardization benefits as well. Further, although our results don't resolve the issue regarding PICA and functional communication, they do suggest that it doesn't presently matter to clinicians.

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DISCUSSION

Q: What is PACE therapy?

A: This approach, Promoting Aphasic Communicative Effectiveness, is pragmatic in nature. Therapy centers around activities designed to increase the client's ability to communicate successfully through whatever modality is available. Progress during individual therapy sessions is calculated based on a frequency count of the client's successful communicative attempts. This is the description as it appeared in the questionnaire. Albyn will be talking about it later this week.

Q: You found no differences among the treatment conditions and you concluded from those results that clinicians didn't tend to need that extra language sample information, in addition to the PICA, but that they could plan therapy with just the PICA. Following that reasoning, could you just as well say that they thought they could plan therapy with just the language sample?

A: I think I made that point when I began my discussion. That is, you could (from these results) say that a 50-utterance language sample will do it, in terms of treatment design. However, I took the position that if we're going to go with it, we better go with the PICA.

Q: Could you clarify the number of patients and data?

A: There were three patients times three types of data for a total of nine pieces of diagnostic information in each research packet.

Q: So from conditions #1 and #2 the same PICA sheets were available to the clinicians. Didn't the clinicians suspicion that these were the same?

A: Well, I would have to ask Rich about the running of his subjects, but in running mine, only one person questioned the possibility of similarity. The randomization of the order in which the data appeared pretty much took care of two pieces of data, from the same patient, following in immediate succession. Additionally the instructions contained a provision that clinicians could spend as much time as they would like on one piece of data and one questionnaire, but that once they moved to the next data, they could not look back.

Q: The data that you supplied in addition to the PICA were actual people, aphasics, talking as they usually do and you simply took that down. Could there have been any difference in the results if you had pre-structured the sampling such that a clinician might say "well, working on discourse rules would be important for this subject" and consequently we might restructure the goals that the clinician selected for that particular client? We've got here in effect a randomly distributed linguistic sampling and it's not really prestructured to change intervention goals; but if we had put in linguistic information it might have biased the results.

A: Yes, I think that's a possibility. I did speak in my discussion to the point, suggesting it might be the case that had we a condition wherein we combined our full language sample with the PICA, we might have evidenced a change. So that's one possibility. The other thing is that we were using the language sampling condition as the one in which we exerted the most control from a structuring standpoint. That is, each patient was given the same stimulus to which to respond and the same opportunity to determine what the outcome would be. We were using the PICA-plus condition to try to take into account, within the context of administration only, the freedom to speak within that frame-work. But I do think within our study there are some limitations with regards to the language sampling aspect. We set out with the contention that language sampling would affect intervention strategies and we had hoped our results would be different than they turned out to be. For this initial investigation, to allow for maximum control, I feel we had to control the language sampling in condition #3 and leave it as open as possible in condition #2; the notion being that a lot of information is lost during PICA administration by ignoring verbalizations of the patient extraneous to the test. My guess is we don't ignore this information, nor do we write it down.

Q: But it doesn't seem to change the way we rank order intervention strategies in terms of priorities?

A: No.

Q: Is it possible that the information was there but the clinicians were not sophisticated enough to use it?

A: That's my feeling about this. Most of the clinicians had been out of school five years or more. And I think many of the items in the questionnaire reflected current language course content. I had one clinician ask "What's copular auxiliary?" The questionnaire section included morphemes, and you might hypothesize that these would be introduced in a developmental sequence. But these clinicians did not know the developmental sequence. For example they chose most often to work on the auxiliary form of to be, which comes after the copula and far after the present progressive. Likewise the discrepancy in terms of the choice of PACE as an intervention technique, yet the ignoring of "gestures to facilitate speech" and the like as tasks, may reflect a lack of knowledge regarding PACE. However, as the clinicians read the description in the questionnaire they might have thought "Hey I've been doing this all along" and given it high priority.

Q: Is it possible you might have gotten some different results had the clinicians had the benefit of listening to the language sample rather than just reading it?

A: There is no question that that would have been an added dimension that could only work to the benefit of a clinician's planning. However, my feeling is that where these clinicians are concerned, we would not have gotten a change in response. I think if the clinicians had seen a videotape, and had observed both verbal and nonverbal interactional styles, it might have had an effect. But to our knowledge no study like this had been attempted; consequently we were attempting to rid ourselves of as many variables as possible and to concentrate on verbal output and written data. I'm sure we'd all agree there's more information to be obtained through seeing and hearing.

Q: You prestructured the questions in each section, giving clinicians specific items to respond to. I wonder if things might have come out differently had you given them a broad category and let them describe what they in fact would do.

A: This is of course a possibility. When we were designing the study, however, broad response categories were eliminated because such responses are difficult to categorize, quantify and statistically analyze.

Q: Regarding the point about needing other kinds of information, what you've provided is specific language information out of context, where you're not seeing its functional use. I'm not sure we understand enough yet about how to define specific goals directed towards the functional use of language and functional communication per se; in that you don't have that information, and the goals are defined more towards specific linguistic information. It kind of orients you that way and seeing how language is used in a variety of contexts provides a lot of additional information to start with.

A: This may be true; however, following each section in the questionnaire was a blank item in which clinicians could add a goal, approach or task of her choosing and rank it. There was also a fourth section in which clinicians could make additional comments. In only one instance did a clinician remark she/he had insufficient information.

Q: How was PICA-oriented therapy defined?

A: This approach to intervention begins at the level of PICA performance where the client's skills start to break down; that is, responses are correct but represent processing problems such as delays, incompletions, self-corrections or requiring repetition of instructions or cuing. Generally therapy activities follow the format of corresponding PICA tasks and include a wide variety of nouns, verbs, etc. Modalities are frequently isolated and worked on individually. Progress during individual therapy sessions is generally scored following PICA scoring guidelines.

Q: I liked hearing your candid response regarding language course content and I think that how we train students can bias their treatment decisions. In addition I'm concerned that at times selection of an approach is a popularity contest, rather than based on some systematic

clinical decisions. In order to individualize our therapy approaches
I think the content of our language courses need to address learning
models, linguistic models, and traditional modality-based models. Do
you have any feelings on that?

A: Only to agree with you.

Q: You had 14 speech pathologists. Were they from the same area?
A: The clinicians came from all over the country. San Diego, Los Angeles,
Memphis, etc. More importantly, they were educated in schools from
coast to coast.

Q: Do they all work in Veteran's Administration Hospitals?
A: No, they do not. Some are in academic settings, some in the VAH, some
in private hospitals and clinics, but they all were in a setting where
they were dealing with the aphasic population.

Q: I'd like your reaction to this. What you're finding may not be a
response to what clinicians are doing but what they can talk about. I
think there can be a discrepancy between what they are doing and what
they are saying. They seem to feel guilty about conversation with
aphasics--that it's not really therapy--yet at some level they feel
this is very important. While they may spend 25 to 30 minutes talking
with an aphasic they don't feel this is legitimate--they feel sort of
sneaky about it.
A: On the other hand, I do think that was reflected in our description of
the stimulation approach to intervention as a very conversationally
based orientation and that this was chosen almost as frequently as the
others. So I do think the clinicians responded to that. I also think
the point must be made that if they can't talk about what they are
doing, someone needs to intervene with our clinicians.