BASE 10 "Programmed-Stimulation": Task Specification, Scoring, and Plotting Performance in Aphasia Therapy

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INTRODUCTION

The rise in popularity of the concept of accountability has led many of us to refocus our view of therapy in aphasia in terms of therapeutic results. It seems intuitive that therapy must in fact be therapeutic, but, unfortunately, as we are all too aware, we do not have a wellspring of evidence from which to draw.

In my view, two factors which contribute to this lack of evidence are:

First, a tradition of over emphasis on between-group research designs at the expense and neglect of intra-subject replication approaches; and, also, a failure in the development, refinement, and <u>use</u> of measurement systems in therapy which clearly specify, score and plot countable language behaviors, and which indicate the subsequent effect on these behaviors of therapeutic strategies.

Therefore, the purposes of this paper are twofold:

1. To describe and advocate the applicability of "time-series" designs in addition to "between-group" strategies, in the effort to document the effects of therapy with aphasic individuals, and,

2. To present a system of measurement which we find useful in the organization of therapy, in task specification, scoring, and in the graphic display of change in language behaviors.

"TIME-SERIES" DESIGNS VS. BETWEEN-GROUP DESIGNS

As mentioned above, I feel one of the reasons why we have failed to overwhelm the scientific community with a firm foundation of research support to justify what we do in therapy, is that we have failed to emphasize the so-called "time-series" or "subject-as-his-own-control" technique. Briefly, the basic logic of the "time-series" design is to determine operations or therapeutic interventions that relate functionally to the performance or behavior. The effect of a variable on behavior (for example, having a patient write and name five pictures, 7,000 times) is demonstrated by the consecutive presentation, removal and re-presentation of the variable to a subject. Control over behavior is demonstrated if the behavior can be altered by the introduction of the experimental or therapeutic operations.

Baseline Measurement

Initial repeated measures of a behavior and repeated measures during the application of the experimental or assumed therapeutic procedures are common to all time-series designs. First, the behavior of interest is repeatedly measured over time to establish a baseline. This provides a basis for predicting what the level of the behavior would have been in the future, had the experimental or therapeutic procedures not been introduced. Please see figure 1.

The new level of performance, determined by repeated measures of the behavior during the therapeutic procedures, is called the A-B design (A, measures during baseline; B, measures during experimental procedures) and can establish whether or not the level of performance has changed, and the approximate magnitude of that change.

The most common elaboration of this design is to "reverse" the experiment by discontinuing the therapeutic or experimental procedures. The return of the behavior to the baseline level or the plateauing of the behavior supports the initial prediction from the baseline, that the introduction of the experimental or therapeutic behavior has a casual effect on the behavior being measured. See figure 2.

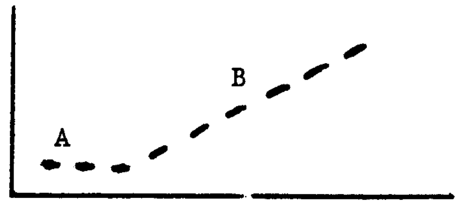
This A-B-A design is usually further extended by reinstating the therapeutic procedures producing an A-B-A-B design which further demonstrates that the experimenter has sepecified and does control the casual variables. Other names for this strategy include the "reversal technique", the "intra-subject replication" design, and the "equivalent time samples" design (Kazdin, 1973).

Modifications of the A-B-A design have been suggested for cases where effecting a reversal would be undesirable or where a reversal in responses would not be expected, such as in language therapy. The "multiple-element" or "multiple-baseline" design provides a valuable alternative to the A-B-A whereby data are collected across behaviors, across individuals, or across situations. With this design, two or more behaviors can be observed, and baseline responses can be measured and plotted. After the behaviors have reached stable rates, the therapeutic or experimental condition is implemented for only one of the behaviors and its effect can be monitored on all behaviors for which baselines have been measured.

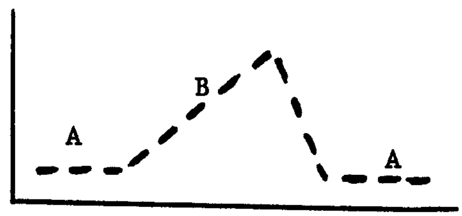
Slide 1

"TIME-SERIES" DESIGNS

A - B



A - B - A

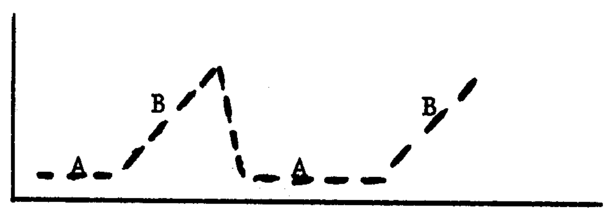


Slide 2

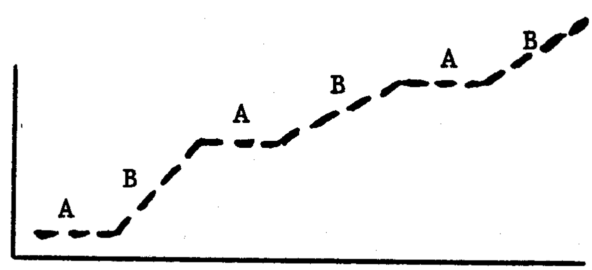
"TIME-SERIES" DESIGNS

A - B - A - B

1.



2.



MULTIPLE BASELINE DESIGNS

This approach seems particularly applicable to some of the tasks we use in aphasia therapy. First, we can judge the effect of therapy on similar tasks across modalities.

For example, plot baselines for both the verbal and graphic modalities on production of 10 functional, daily-living sentences or phrases; introduce a therapeutic strategy of 20 integral verbal stimulations for each phrase with feedback on errors; then, continue measurement in both modalities to monitor the effect, if any, on graphic production of the same phrases.

Secondly, multiple baseline designs can help us monitor the effect of generalization to different but similar stimulus items within a modality. For example, plot baselines of verbal responses on two separate 10-element sets of noun-verb phrases; introduce a therapeutic strategy on the first set of phrases; then measure the effect of this therapy on both sets of phrases, only one set of which has been attacked directly by therapy.

Between-Group-Designs

This research strategy is contrasted with the between-group approach, which seeks to demonstrate group differences after manipulation of the independent variable. Some of the pitfalls of this approach were pointed out at the 3rd Conference on Clinical Aphasiology by Prescott and McNeil (1973). In this design the data are subjected to statistical evaluation, and the focus is on mean differences instead of behavior of individual subjects.

This approach has several disadvantages in aphasia research, as we know. First, intra-subject variability on a wide array of variables makes it extremely difficult to match groups. The array of relevant variables which must be identified and clearly specified, even within the experimental group, makes the assumption of subject homogeneity somewhat shakey. Most of the studies of recovery from aphasia, with the exception of the Porch, Wertz, Collins, et.al. cooperative study, have neglected to either identify or account for these factors. This disadvantage is minimized in "time-series" designs.

Second, in evaluating experimental findings in traditional group desgins, the statistical procedure used may obscure the lawful effect of experimental or therapeutic variables. Problems may arise in assuming that the averages from group data have an analogue in representing the behavioral progress of individuals. Several subjects in the group may be affected differently by the therapeutic manipulation. This is sometimes obscured in between-group analysis.

This is not to say that there are no problems with a "time-series" or intra-subject replication design. One of the most serious is the interpretive problem of how large does the behavior change from treatment to treatment have to be, to be considered a significant change.

As Bandura (1969) points out, interpretation is not difficult when large successive behavior changes occur rapidly and consistently for many subjects. The interpretive problem arises in those cases in which behavioral changes are not dramatic.

Probably the major reason for the lack of concern with statistical analyses of the data in the time-series designs has been the assumed inapplicability of statistical techniques to individual cases or small numbers of subjects. Properly conceived, however, studies that collect repeated observations on the same individual are appropriate to the analysis of variance model, and a recent article in the Journal of Applied Behavior Analysis (Gentile, et.al., 1972) outlined the rationale for the use of the analysis of variance in one-subject designs. The use of statistical analysis of individual subject change was also vividly demonstrated at last year's conference by Prescott and McNeil (1973).

RATIONALE FOR MEASUREMENT

In my opinion, another reason why we do not have stunning evidence on the efficacy of therapy is that we have paid too little attention to careful measurement of clearly specified tasks in the therapy session. As Risley (1972) has suggested in a book entitled Advances in Behavior Therapy, incorporating creative strategies of measurement into therapy will serve to improve the service rendered to a client, showing unequivocally when therapy is not being therapeutic (i.e., is not correlated with significant improvements in the client's behavior).
Measurement alone perhaps would eliminate many of our current therapeutic routines by demonstrating that no marked improvement occurs when these routines are followed. How many of our therapeutic strategies would fail the simple test of measurement remains to be seen. Perhaps many would not fail, and this should be documented.

Measurement can tell us, in quantified terms, whether or not the client's behavior is improving, and this is really all we need to know, if the behavior is relevant. We should have this information on a session-by-session basis and not just from monthly retests. If he is not improving with a given procedure, we can determine this and try another procedure.

Measurement procedures can be incorporated into activities of therapy with no additional cost to personnel or equipment. These measurements can be charted on tables and graphs in a fraction of the time currently spent writing narrative accounts of each therapy session.

We must be concerned with the broader perspective of the welfare of future patients which would be enhanced by the evaluation of therapeutic procedures. This evaluation will come about through cumulative demonstrations that our therapeutic procedures cause improvements, and more specifically, which therapeutic strategies are functional and which aspects are irrelevant to improvement.

Many of the concepts related to precise measurement of behaviors are not only useful strategies for demonstrating the efficacy of treatment, but are also viable means of organizing and systematizing daily therapy. Other clinicians and researchers (the two are not mutually exclusive) such as Brookshire (1967) and Holland (1970) have outlined some of the fundamentals of operant approaches to therapy which emphasize these ideas.

Programmed-operant approaches to aphasia therapy have focused our attention on at least four principles:

1. They have guided us to a more careful measurement of baseline behaviors;

2. They have suggested we examine carefully our use of reinforcers;

3. They have suggested to us that we define terminal behavior in specific terms; and,

4. They have called our attention to stimulus control and organization of what we do during a therapy session.

This approach to therapy has been contrasted with the Schuellian or "stimulation" approach, which is in widespread use.

I am not convinced of the validity of the dichotomy between stimulation and programmed approaches or of their incompatability. We notice many similarities and areas of overlap between the two. As Audry Holland (1970) has suggested, programs can control amount of stimulation; they can require continuous responding by the aphasic; they automatically allow for restimulation, and they constantly evaluate performance. This almost reiterates the principles of Schuell and her associates, the prime advocates of stimulation.

The two approaches are quite similar and we use features of both in our therapy. I'm impressed by the flexibility of some aspects of the stimulation approach. I'm also impressed by several features of programmed approaches.

BASE 10 THERAPY

We use these principles in our clinic in a strategy we call Base 10 Therapy. We call it this because we have organized our "programmed-stimulation," if I may marry the two concepts, into tasks which contain ten stimulus items and which are scored and plotted over ten sessions. See figure 3.

The next figure illustrates the response form we use for each task. As you can see, the form permits specification of the task to be worked upon, permits a definition of the behavioral performance levels (criterion) which we would be happy with, and allows for listing of the exact stimulus items used in a task, as well as space for scoring performance on each item during every session. And finally, it permits the patient's performance levels to be converted to a graphic display of progress or lack of progress over ten sessions.

This strategy does not tell you what to work on or how to reinforce, but once you've made those decisions, we feel it helps organize your stimulus presentation and provides a means of making statements about progress. See figure 4.*

Task Selection

The critical decision is task selection, and this, of course, is based on your evaluation and testing of the patient. If you subscribe to PICA theory, you would be guided by the patient's ranked response summary and the "fulcrum of the curve" concept. You would then select a task on the task continuum, such as naming objects or pictures, and fill in this task on the appropriate blank, which may include stimulus mode and the patient's response mode.

Of course, with any given patient, a number of tasks can be used in a session. Each task calls for a different response form so progress on each one can be plotted. We have found that for 30-45 minute sessions, 3 or 4 different tasks are used. These might include such things as sentence completion; naming objects; auditory retention of directions; matching words to sample; writing from dictation; and so forth.

The prime guideline to decision-making on task selection is functionality and relevance. We try to avoid such tasks as color matching or naming the astrological signs, and concentrate

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*EDITOR'S NOTE: The author omitted some figures but hopes that the printed text will convey the intent of the omissions.

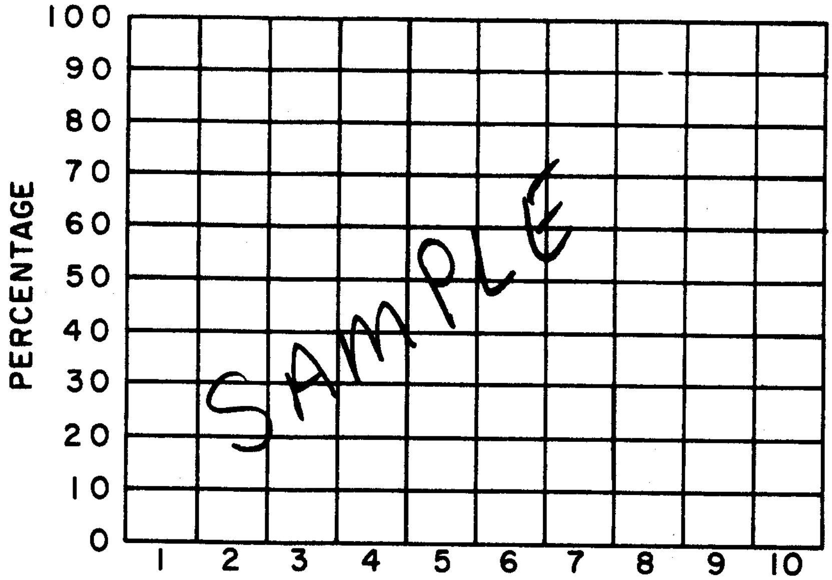
Slide 3

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK ______________________________

CRITERION ______________________ SCORING



STIMULI	DATE / SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. ______											____
2. ______											____
3. ______											____
4. ______											____
5. ______											____
6. ______											____
7. ______											____
8. ______											____
9. ______											____
10. ______											____
MEANS	____	____	____	____	____	____	____	____	____	____	

on things which are meaningful in the patient's functional communication and daily-living needs. See figure 5.*

Criterion

For the blank marked criterion, a decision must be made as to what level of performance will be acceptable. This is guided by the patient's severity and base rate on the task, and can be stated in terms of percentage of correct response for a given number of sessions. To shoot for 100 percent performance is generally unrealistic and we quite frequently used a criterion of 90% or above for three consecutive sessions on our target levels, as you can see on this figure. Again, if you use PICA theory, high scores on individual items within a subtest can be used as guidelines for criterion.

Target behavior levels are difficult to establish sometimes, and it should be pointed out that pre-established targets are not sacred. They can be flexible and can be changed, depending on the patient's performance over time. Consistency over time is an important key to terminating the task, and if you have established a criterion of 90% or above for three consecutive sessions and your patient has risen to an 80% level and plateaued for five consecutive sessions, I think he is trying to tell you something.

We have found it useful to modify our criterion after getting a good look at the patient's base rate of performance on the task. See figure 6.*

Stimulus Items

The next decision is to select 10 stimulus items for each task, preferably items that are meaningful and functional, and specify them, as has been done in this slide. See figure 7.

Scoring

Each item is then presented to the patient and can be scored in one of several ways. If you're satisfied with plus-minus scoring, you can use it to score each stimulus item, tally the total, and enter the performance level on the percentage graph, as has been done on this figure.

This is the time to establish your patient's baseline performance. We have done it in several ways. You can measure the patient's performance on the task for several sessions without doing any drill or therapy on his errors and establish his base rate. Or, you may want to measure performance several times during one day or even within a session and plot his mean performance as a base rate. At any rate, it is important to

Slide 7

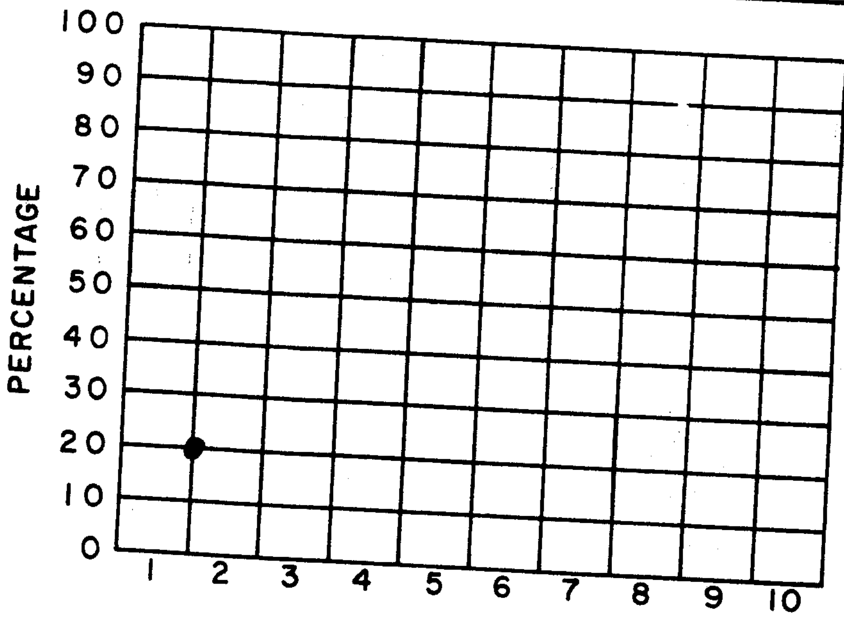
PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK: Confrontation Naming: Pictures

CRITERION: 90% ↑, 3 consec. sessions

+ =



	STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1.	house	–										
2.	bed	+										
3.	chair	–										
4.	nurse	–										
5.	feet	–										
6.	bathtub	–										
7.	car	+										
8.	razor	–										
9.	arm	–										
10.	juice	–										
	MEANS	2										

emphasize that the measurement, or merely running through the 10 stimulus items, is not the therapy. After you've established his baseline performance, it is time to introduce the therapeutic variable, which is your particular strategy for improving the patient's performance on these 10 items. It might be that you decide to separate the error items and drill on each one in a variety of ways; say them with me 10 times each, say them with just a visual cue 10 times each, write them and say them several times each, or whatever you decide. But it is important to specify what you do and then continue measuring to judge the effect of your therapeutic intervention. See figure 8.

The next figure shows the completion of this task, and how the graphic display of change can be very evident. This can be reinforcing to you, to the patient and his family, and to your friendly neighborhood neurologist. See figure 9.

In scoring, if you feel more comfortable with a multi-dimensional scoring system, and you're already using the 16 point PICA scale, you can adapt it to scoring your therapy tasks. This system, as you know, incorporates five dimensions of patient response, including accuracy, responsiveness, completeness, promptness and efficiency. You can then arrive at a mean score for each session, and if you want, convert it to percentiles using the PICA tables, and plot it appropriately.

If you've had trouble remembering the five dimensions of patient response, as I have, when you lecture about multi-dimensional scoring system, perhaps a mnemonic, memory-jogging devise I use will help.

First, creative acronym ARCPE.

Then, visual image to remember ARCPE, see figure 10.*

Examples of Base 10 Tasks

I would now like to show some Base 10 response forms which illustrate how we have used them with patients on a variety of tasks. See figure 11.*

The first slide illustrates one of the tasks we used with a mild aphasic patient who sustained left hemispheric damage from a land mine explosion in Viet Nam. He was a 28-year-old man who presented language impairment at 14 months post onset which included difficulty in spelling verbs and using connective and function words in his verbal language. This figure shows his progress in writing verbs from dictation. This is just a sample of several spelling tasks we were plotting using a variety of verbs. He reached criterion in five sessions on this task. See figure 12.

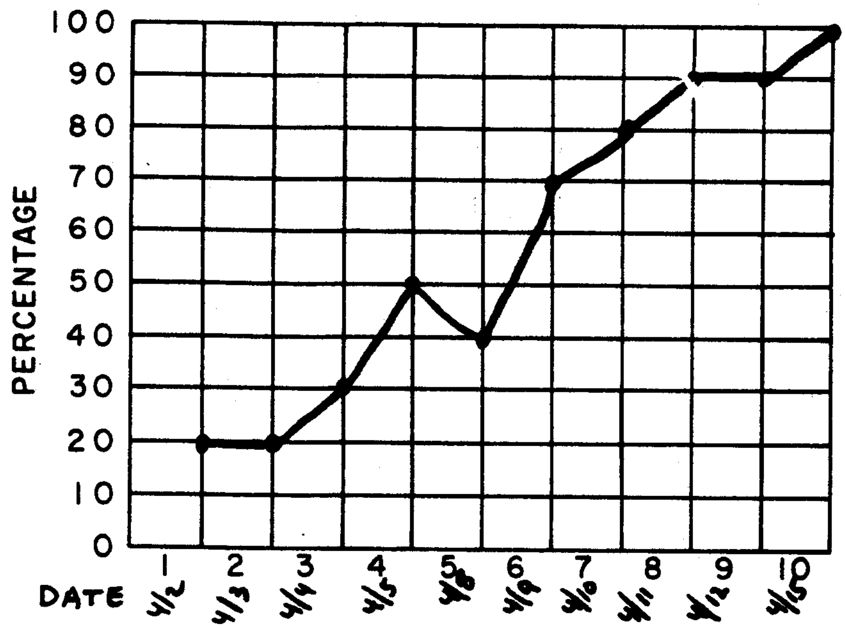
Slide 8

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK Confrontation naming: Pictures

CRITERION 90% ↑; 3 consec. sess. SCORING + -



STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. house	-	-	-	-	-	+	+	+	+	+	5
2. bed	+	-	+	+	-	+	+	+	+	+	8
3. chair	-	+	+	+	-	+	+	+	+	+	8
4. nurse	-	-	-	-	-	-	+	+	+	+	4
5. feet	-	-	-	+	+	+	+	+	+	+	7
6. bathtub	-	-	-	-	-	-	+	+	+	+	4
7. car	+	+	+	-	+	+	+	+	+	+	9
8. razor	-	-	-	-	-	-	-	-	+	+	2
9. arm	-	-	-	+	+	+	+	+	+	+	7
10. juice	-	-	-	+	+	+	-	+	-	+	5
MEANS	2	2	3	5	4	7	8	9	9	10	

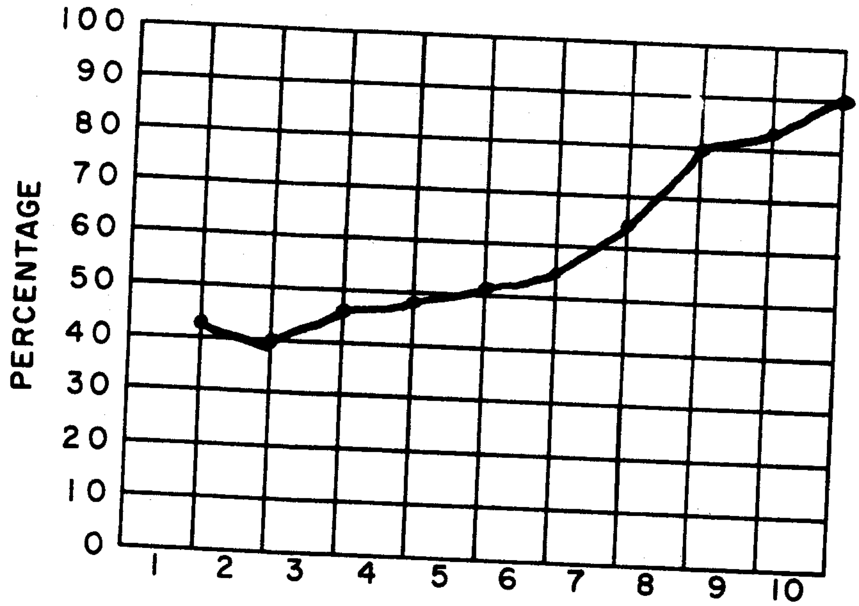
Slide 9

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK Confrontation naming

CRITERION 80%ile +; 3 consec. sessions SCORING: PICA



STIMULI	1	2	3	4	5	6	7	8	9	10	MEANS
1. house	6	5	10	9	13	13	13	15	15	15	11.4
2. bed	13	15	13	15	15	15	15	15	15	15	14.6
3. chair	7	6	8	13	13	15	15	15	15	15	12.2
4. nurse	5	5	4	7	8	10	14	14	15	15	9.7
5. feet	7	5	8	13	13	15	15	15	15	15	12.1
6. bathtub	5	5	5	4	7	5	14	14	14	14	8.7
7. car	15	13	13	13	15	15	15	15	15	15	14.4
8. razor	4	4	6	8	9	10	13	13	14	14	9.5
9. arm	10	9	13	10	13	13	14	15	15	15	12.7
10. juice	5	8	5	6	5	9	10	13	14	15	9.0
MEANS	7.7	7.5	8.5	9.8	11.1	12.0	13.8	14.4	14.7	14.8	

The next figure shows his progress in generating and verbalizing sentences with prepositions. He reached criterion on this task after nine sessions. Three weeks after he reached criterion, we tested him on the same task and he performed at a 90% level. During each session, after we had tested him on a task, we would select those items on which he had difficulty and drill on them in a variety of ways. For example, repeat it after me five times, complete these sentences, write it, shout it, sing it, dance it, say it again, write it and say it five times etc. Figure 13.*

The next figure illustrates plotting or progress on an auditory task with another patient. As you can see, PICA scoring was used on this task and criterion was reached after nine sessions.

I would now like to briefly present a series of slides from our patient files which illustrate a variety of tasks, scoring systems, and progress rates, Figure 14.

This slide shows a modification of scoring, in which a 3-point system was used on a phonemic cueing task, Figure 15.

This slide is a verbal paired associate task, scored with the PICA system, on which all scores of 13 and above were plotted, Figure 16.*

This slide is the same patient and the same stimulus items were plotted for writing, Figure 17.

This slide shows the performance of a patient with visual-perceptual-graphic involvement on a task of copying geometric forms, Figure 18.

This slide shows the performance of a patient with severe verbal formulation involvement on a task of functional gestures. His spontaneous use of gesture was somewhat non-communicative, and this slide shows his progress on gestures which we isolated and thought were relevant to his functional on-the-ward communication. Figure 19.

This slide shows how we have incorporated some of Rosenbek's task continuum concepts into our therapy. This is a task of sentence formulation and production using three simultaneous stimulations of the patient followed by fading of the clinician's stimulation and then scoring the patient's three successive responses. Figure 20.

This slide shows another step on the task continuum. We called it "Rosenbek II" and it consisted of integral stimulation (watch me, "listen to me") and delayed production by the patient, with the clinician's visual cue.

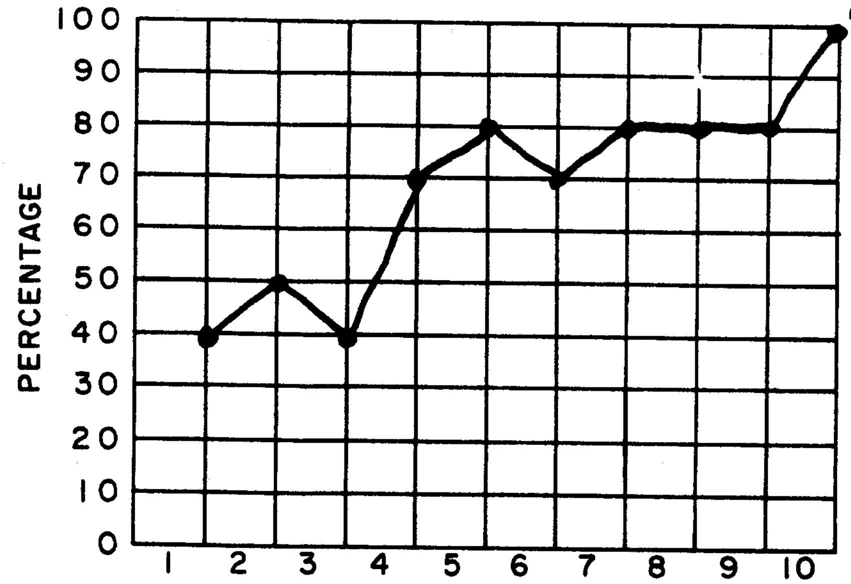
Slide 14

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK Name pictures c̄ phonemic cueing: Plot 3's

CRITERION 80% +; 3 sessions SCORING: 3 = correct 1st try
2 = correct 2nd
1 = correct c̄ cue
0 = incorrect



STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. car	3	3	3	3	3	3	3	3	3	3	10
2. banana	1	3	3	3	3	3	3	3	3	3	9
3. house	3	3	3	3	3	3	3	3	3	3	10
4. radio	1	2	1	1	2	2	2	3	3	3	3
5. apple	3	3	1	3	3	3	3	3	3	3	9
6. glasses	0	1	1	1	2	2	2	2	3	3	2
7. bus	3	3	3	3	3	3	3	3	3	3	10
8. lamp	0	2	1	3	3	3	3	2	2	3	5
9. coffee	0	2	2	3	3	3	3	3	3	3	7
10. towel	0	0	1	1	3	2	3	3	2	3	4
MEANS	4	5	4	7	8	7	8	8	8	10	

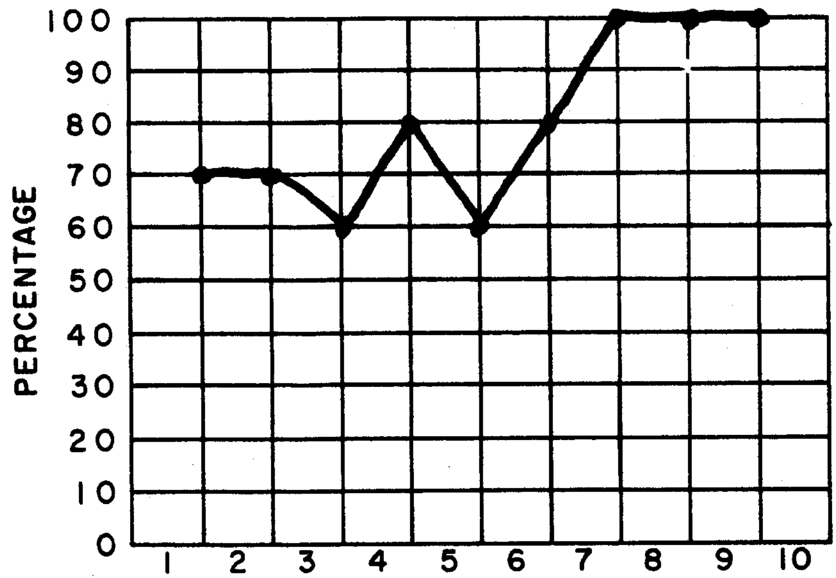
slide 15

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK: Paired associates: Verbal

CRITERION: 90% + of 13's; 3 sessions SCORING: PICA



STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. Bread & ____	13	6	13	15	9	13	13	15	13		
2. Dog & ____	15	15	9	15	10	13	13	15	15		
3. Up & ____	15	15	15	15	15	15	15	15	15		
4. Shoes & ____	8	8	13	8	15	8	13	15	15		
5. Black & ____	13	15	15	15	15	13	13	15	15		
6. Pen & ____	13	8	13	15	13	13	13	15	15		
7. Winter & ____	13	13	13	13	13	13	13	15	15		
8. Cake & ____	8	13	8	13	8	13	13	15	15		
9. Stop & ____	15	15	10	15	13	15	13	15	15		
10. Hand & ____	9	13	8	8	8	8	13	15	15		
MEANS	12.2	12.1	11.7	13.2	11.9	12.4	13.2	15.0	14.8		

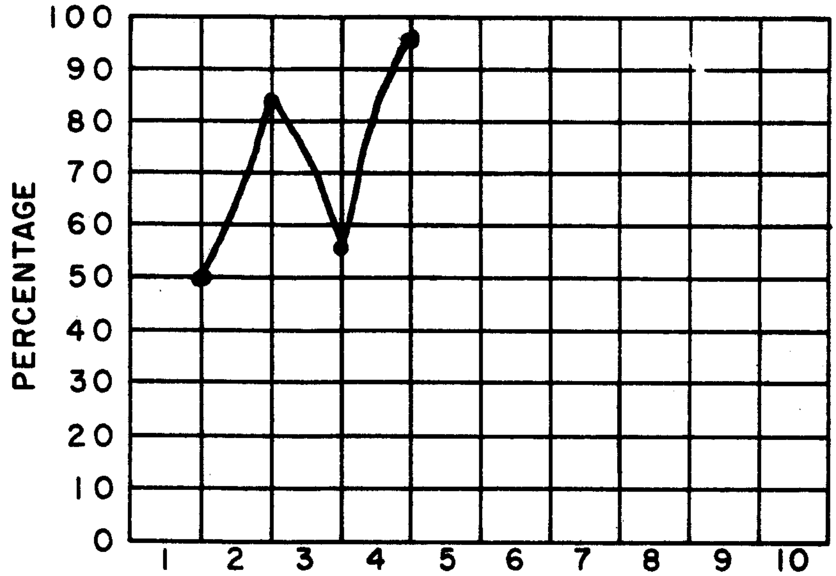
Slide 17

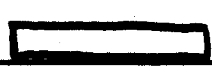
PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK: Copying geometric forms

CRITERION: 90th %ile; 3 sessions SCORING: PICA



	STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1.		15	15	12	15							
2.		14	15	12	14							
3.		7	15	15	14							
4.		15	15	14	14							
5.		12	14	13	14							
6.		12	14	14	15							
7.		12	12	12	14							
8.		7	14	14	14							
9.		12	12	10	14							
10.		14	12	7	14							
	MEANS	12.0	13.8	12.3	14.2							

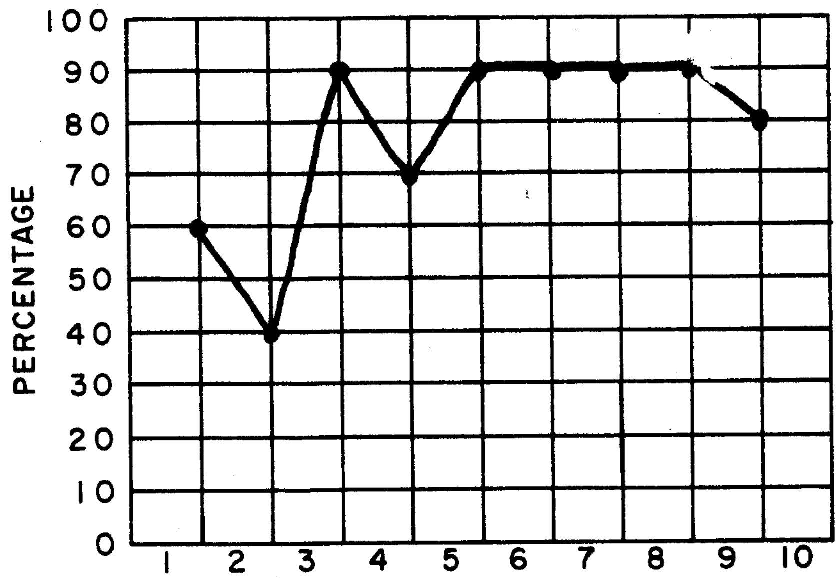
Slide 18

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK: Functional gestures on command

CRITERION: 90% +; 3 sessions SCORING + -



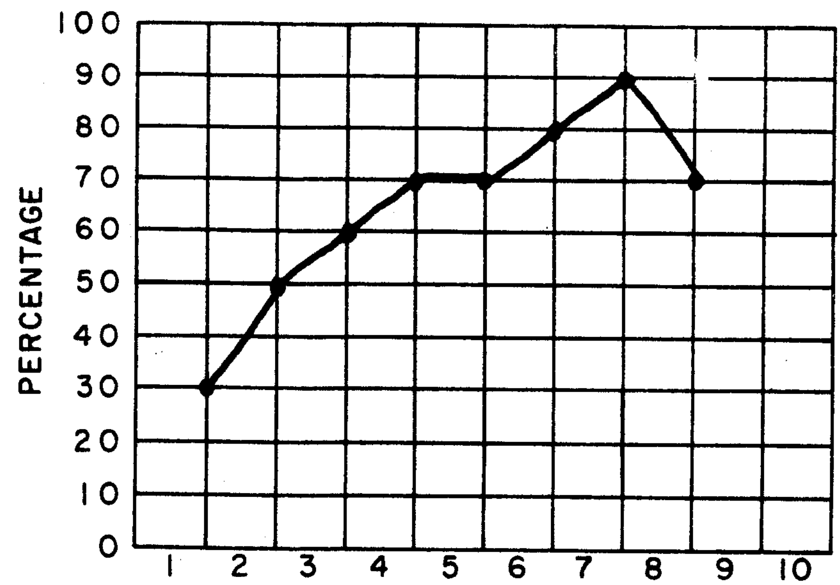
STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. Headache	+	-	+	+	+	+	+	+	+		
2. Stomach ache	+	+	+	+	-	+	+	-	+		
3. Pain in arm	+	-	+	+	+	+	+	+	-		
4. married	+	+	+	+	+	+	+	+	+		
5. comb hair	-	-	+	+	+	+	+	+	+		
6. go to canteen	+	-	+	+	+	+	+	+	+		
7. go to ward (4B)	+	+	+	+	+	+	+	+	+		
8. quiet	-	-	-	-	+	-	-	+	-		
9. the urinal	-	-	+	-	+	+	+	+	+		
10. the light off	-	+	+	-	+	+	+	+	+		
MEANS	6	4	9	7	9	9	9	9	8		

PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK Modified Rosenbek I; 3 simultan. (a V_1) followed by 3 pt. responses

CRITERION 90% +; 3 sessions SCORING + -



STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. I'm hungry	+	-	+	+	+	+	+	+			
2. I'm tired	-	-	-	-	-	-	-	-			
3. I'm thirsty	-	-	-	+	+	+	+	+			
4. I'm getting better	-	+	+	+	+	+	+	-			
5. I'm talking	-	-	-	-	-	-	+	-			
6. I'm busy	-	+	+	+	+	+	+	+			
7. I'm broke	-	+	+	-	-	+	+	+			
8. I'm cold	-	+	+	+	+	+	+	+			
9. I'm hot	+	+	+	+	+	+	+	+			
10. I'm right	+	-	+	+	+	+	+	+			
MEANS	3	5	6	7	7	8	9	7			

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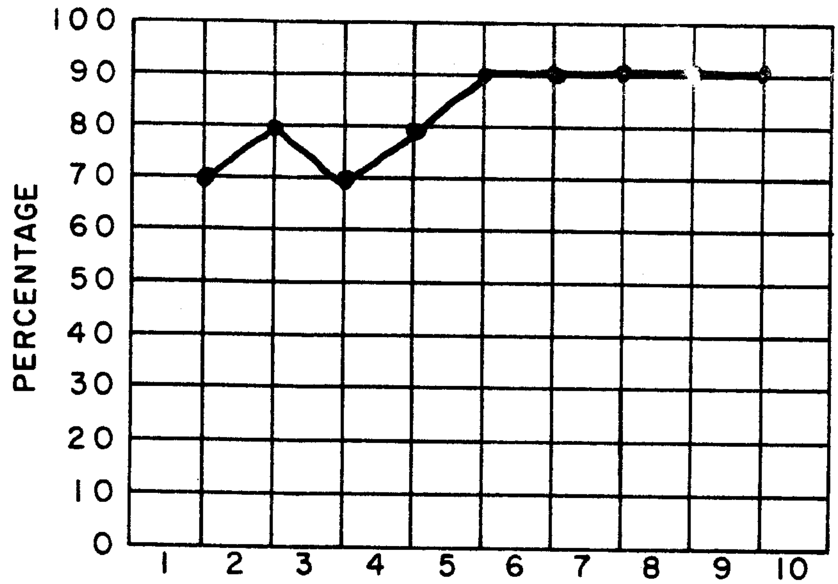
PROGRAMMED SPEECH-LANGUAGE STIMULATION

BASE 10 RESPONSE FORM

TASK Rosenbek II; Integral stim. (V_1, a); delayed resp. c̄ V_1 cue

CRITERION ______ SCORING: + -



STIMULI	SESSION 1	2	3	4	5	6	7	8	9	10	MEANS
1. Not now	-	-	+	-	+	+	+	+	+		
2. I'm tired	+	+	+	+	+	+	+	+	+		
3. I'm sick	+	+	+	+	+	+	+	+	+		
4. later	+	+	+	+	+	+	+	+	+		
5. I feel good	+	+	+	+	+	+	+	+	+		
6. I'm mad	+	+	+	+	+	+	+	+	+		
7. It hurts	-	+	-	+	+	+	+	+	+		
8. I don't want to	+	+	+	+	+	+	+	+	+		
9. Thank you	+	+	-	+	+	+	+	+	+		
10. please	-	-	-	-	-	-	-	-	-		
MEANS	7	8	7	8	9	9	9	9	9		

Now that I look at these 10 stimulus items, I have second thoughts about them. They look like a list of excuses in an unsuccessful marriage.

To summarize, we find the approach of programmed-stimulation of language and BASE 10 plotting useful for several reasons:

1. It emphasizes stimulus control. Our therapy is more organized and tasks are defined and clearly specified.

2. Performance is scored and change can be noted on a session by session basis, and;

3. Performance levels can be plotted graphically to reinforce the patient and the clinician as to the effect of what we're doing in therapy.

We find this strategy helpful and perhaps you will also.

We face a formidable task in demonstrating the effect of therapy on language recovery. I am convinced that the application of time-series designs and careful measurement and plotting during our daily sessions can help us face this task. I am convinced that if we use these strategies, and report our results in the literature, that the evidence will be cumulative.

Darley (1972) recently said, "Perhaps ten years from now the profession will enjoy substantial agreemenet about the nature of language breakdown and what can best be done about it."

I think we're on the threshold of some significant advances in this area, as demonstrated by the papers at this conference during the past few years. In the immortal words of Bob Dylan, "My friends, the times they are a changin".

I think it's exciting for all of us to be part of it.

Thank you very much.

Information on ordering and cost of BASE 10 Response Forms is available from:

BASE 10 Response Forms
Box 13308
University Station
Gainesville, Florida 32604

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