CHAPTER

# 17

# The Generalization of Response Elaboration Training Effects

Kevin P. Kearns
Gail Potechin Scher

Response Elaboration Training (RET) is a "loose training" procedure (Stokes and Baer, 1977) that was designed to facilitate an increase in the verbal elaboration abilities of aphasic patients (Kearns, 1985, 1986). The emphasis in RET is on shaping and chaining *patient-initiated* rather than clinican-selected responses. The ultimate goal of response elaboration training is to facilitate generalized improvement in patients' ability to elaborate on "conversational" topics, so they can more fully share the burden of communication with their partners.

The rationale behind RET is based, in part, on the observation that overly didactic training may inhibit creative, flexible language use (Davis and Wilcox, 1981) and limit generalized responding (Baer, 1981; Stokes and Baer, 1977). The development of RET owes much to Hart and Risley's (1974, 1982) Incidental Teaching approach to child language intervention. In particular, Hart's emphasis on patient-initiated responses, naturalistic feedback, and the importance of reinforcing informational content over linguistic form have been incorporated into RET (Warren and Kaiser, 1986).

RET can be an effective procedure for increasing the amount of verbal information produced by nonfluent aphasic patients (Kearns, 1985, 1986). In addition, preliminary data indicate that nonverbal (i.e., drawing) RET may facilitate generalized responding to people, settings, and spontaneous interactions (Yedor and Kearns, 1987). However, systematic studies of generalized improvements in verbal abilities following RET have been limited to studies of response generalization with chronic, severe Broca's patients (Kearns, 1985, 1986), and the value of RET for other categories of aphasic patients has not been explored.

## PURPOSE

The purpose of this study was to examine the effectiveness and generality of response elaboration training for three aphasic individuals. Specifically the following questions were asked:

1. Will RET facilitate an increase in the number of *content words* produced in response to trained picture stimuli?
2. Will improvements *generalize* to
   a. Untrained stimuli.
   b. Individuals (clinicians, spouse).
   c. Settings (home, senior adult center).
   d. Spontaneous discussions?
3. Will improvements in verbal elaboration skills be *maintained* over time?

# METHODS

## *SUBJECTS*

Three aphasic subjects, ranging in age from 56 to 68 years, participated in this study (Tables 17-1 and 17-2). Each suffered a single, left-sided cerebrovascular accident at least 6 months prior to their participation in the study. Their education levels ranged from 10 to 16 years of formal education, and their overall severity levels ranged from the 44th to the 90th percentile on the Porch Index of Communicative Ability (PICA) (Porch, 1981). The subjects were classified as conduction (R.G.), anomic (J.M.), and Broca's (R.W.) on the Western Aphasia Battery (WAB) (Kertesz, 1979).

## *STIMULI*

The experimental stimuli consisted of 30 black and white line drawings (5 × 4 inches) that depicted transitive and intransitive verbs. The stimuli

**TABLE 17-1. SUBJECT CHARACTERISTICS**

| *Subjects* | *R.G.* | *J.M.* | *R.W.* |
|---|---|---|---|
| Age | 68 | 66 | 59 |
| Sex | M | M | M |
| Months post-onset | 144 | 6 | 20 |
| Education | 10 | 10 | 16 |
| WAB (AQ) | 68.4 | 89.6 | 35.4 |
| Aphasia | Conduction | Anomic | Broca's |

**TABLE 17-2. SUBJECTS' PERFORMANCE ON THE PICA**

| | *R.G.* | *J.M.* | *R.W.* |
|---|---|---|---|
| Overall | 10.5 | 14.3 | 10.4 |
| Verbal | | | |
| I | 8.9 | 11.5 | 6.5 |
| IV | 12.1 | 14.8 | 7.6 |
| IX | 10.4 | 15.0 | 7.7 |
| XII | 12.8 | 14.1 | 11.2 |
| Auditory | | | |
| VI | 14.6 | 15.0 | 11.6 |
| X | 15.0 | 15.0 | 12.2 |

were divided into three sets of 10 items each. Two sets were designated for training, and the third set was used to examine generalization. Whereas training items contained contextual information, the 10 generalization pictures were actual photographs of everyday activities. Actions depicted in the generalization stimuli were related to the actions depicted in the training items.

Probes of spontaneous speech were periodically obtained throughout the study by having patients view and discuss videotaped news segments and by asking the patients to answer open-ended questions about activities of daily living.

### *DESIGN*

A multiple baseline design across treatment sets, with a multiple probe component across generalizaton conditions, was adopted for this study (McReynolds and Kearns, 1983). Following baseline, RET was sequentially applied to the two sets of training items. The generalization set was never trained.

Weekly probe sessions were conducted to evaluate performance on treatment and generalization tasks. Generalization probes were administered throughout the study to examine generalization to (1) untrained stimuli, (2) individuals not involved in training (clinician, spouse), (3) functional settings (home, senior adult center), and (4) spontaneous speech conditions. Probes were conducted in the same manner as the baseline tests, and they provided the primary data of interest for this study.

### *BASELINE*

During baseline sessions, the 30 stimulus items were individually administered in random order, and subjects were asked to "Tell me as much as you can about this picture or whatever it reminds you of." The *dependent variable* was the number of content words (nouns, verbs, adjectives) produced in response to the picture stimuli. Perseverative, stereotypic, unintelligible, and reiterative responses were not tallied. Content words were correct if they were clearly relevant to the topic, but content words did *not* have to be directly depicted in the stimulus picture to receive credit in the scoring.

Probes of patient performance in each of the generalization conditions were also obtained during the baseline phase. Feedback and reinforcement were never provided during baseline or probe conditions.

### *TREATMENT*

Treatment sessions were held three to five times weekly, and training items were individually presented in random order during each session.

RET was applied to one set of training items until a 90-percent criterion level was met for an individualized and preestablished number of content words per utterance. Upon reaching criterion for the first set, RET was applied to the second set of training items until the criterion level was met.

During each session a treatment trial consisted of having a patient repeat the RET training sequence twice for a given item. After completion of the sequence for the second time, another item was presented and a new training trial began. All 10 items in a training set were randomly presented twice each session for a total of 20 trials per session.

RET procedures have been described in detail elsewhere and will only be briefly reviewed here (Kearns, 1985, 1986). RET trials consisted of the following sequential steps: (1) An initial verbal response was elicited for a given stimulus picture. For example, one Broca's aphasic patient initially responded to a line drawing of someone with a broom by saying, "Man . . . sweeping." (2) Following the patient's initial response, the clinician provided verbal reinforcement and then shaped and modeled the response. Thus, the clinician in our example responded to the patient by saying, "Great. The man is sweeping." (3) During the third RET step, the clinician used a *wh*-cue to elicit an elaboration on the initial response. Continuing our example, the clinician provided the cue, "Why is he sweeping?", and the patient responded, "Wife . . . mad." (4) Next, the clinician reinforced the attempt to elaborate and then shaped and modeled the initial response in combination with the subsequent elaboration. For example, "Way to go! The man is sweeping the floor because his wife is mad." (5) The clinician subsequently provided the model a second time and asked the patient to "Try and say the whole thing after me. Say . . . ." (6) Following the patient's repetition of the combined model, the clinician attempted to elicit a delayed imitation of the combined response.

This training sequence continued until the patient either failed to provide an additional elaboration on the previous response or he was unable to repeat the combined response that was modeled by the clinician. Once the patient encountered either of these difficulties the RET sequence was terminated and a second sequence was initiated for that item or a new item was presented.

## *RELIABILITY*

All probe sessions were videotaped for reliability purposes. Point-to-point interobserver agreement for content words was examined for each patient, during each phase of the study. Independent interobserver reliability ranged from 91 to 94 percent average agreement across all conditions for the three subjects. Interobserver agreement was well above the

level of overall agreement expected on the basis of chance alone for all subjects and conditions.

### *SOCIAL VALIDITY*

Social validity data were obtained by having 10 normal, age-matched volunteers describe the 30 experimental stimuli under baseline conditions. The mean number of content words produced in response to each set of pictures was subsequently calculated for normal subjects (Fig. 17-1). These data were used as a reference point for evaluating the aphasic patients' performance on the treatment tasks.

## RESULTS

The results of this study are presented in Figures 17-1 through 17-10. The figures provide a graphic display of the mean number of content words (ordinate) produced during probe sessions (abscissa).

Data for subject R.G., a chronic conduction patient (see Tables 17-1 and 17-2), are shown in Figures 17-1 through 17-4. Figure 17-1 shows R.G.'s performance on the three sets of experimental stimuli. R.G. was relatively stable in terms of the number of content words (3.5) produced during the baseline phase, and he exhibited steady improvement on the first set of training items during the RET phase (*top panel*). This subject met his training criterion of 6 content words/utterance after approximately 20 treatment sessions. Performance on the second set of items (*middle panel*) remained relatively stable until treatment was initiated (session 22). Once the response RET began, rapid improvement was also evident for this set of items.

R.G. also demonstrated a steady increase in the mean number of content words produced in response to untrained generalization pictures (*bottom pannel*). Performance on these contextually rich pictures was consistently higher than performance on the training items that contained minimal contextual information.

Maintenance data are indicated by the Xs at the far right of each graph of performance on the three sets of stimuli. Examination of these data reveals that R.G. maintained his improvement on all three sets of stimuli for up to 3 months after his dismissal from training.

Figure 17-2 presents R.G.'s performance on the experimental stimuli with a clinician not involved in the study (*filled squares*). His performance with this generalization clinician closely parallels his performance with the treatment clinician (*open squares*) for both training (*top, middle panels*)

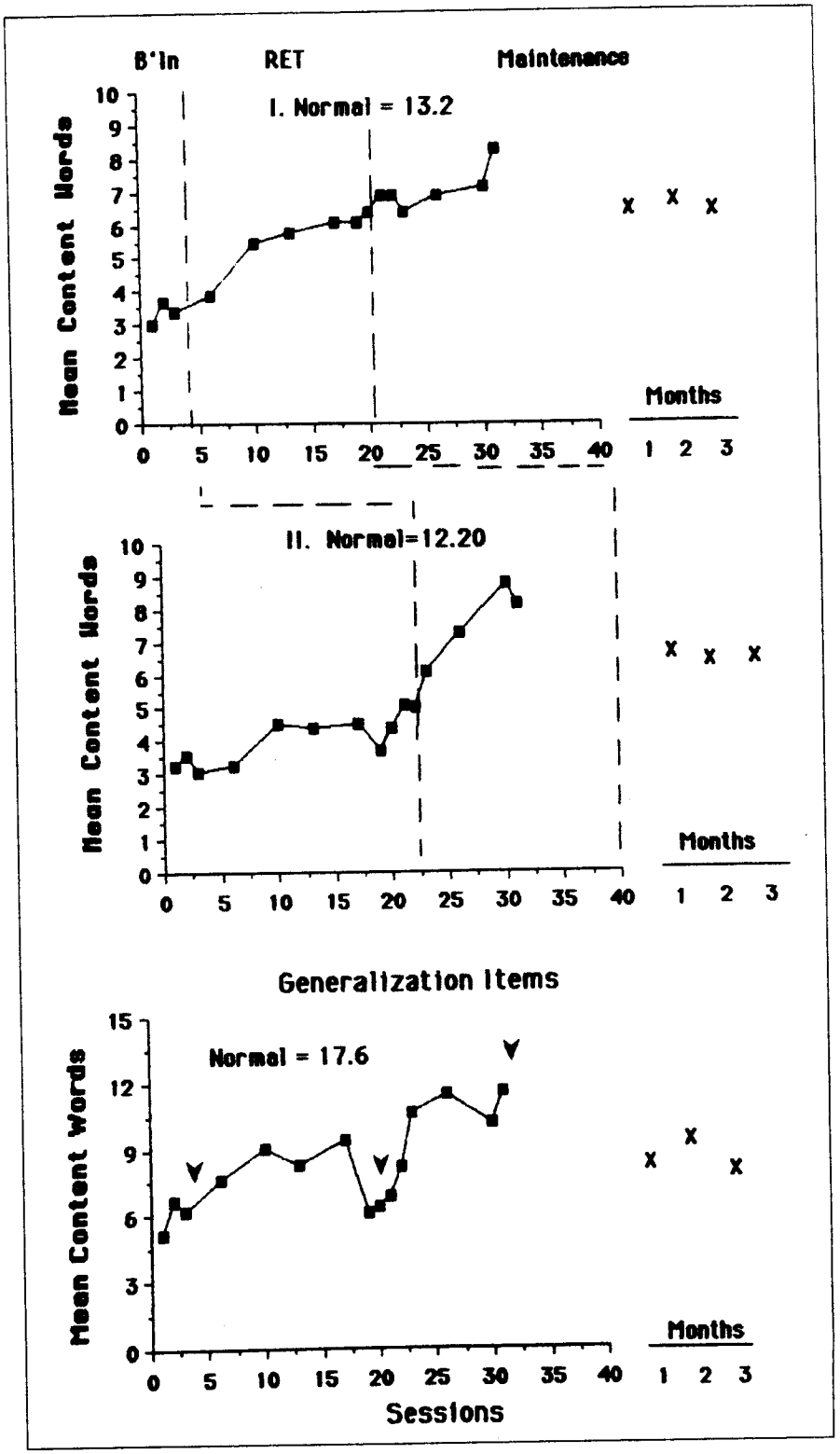


**Figure 17-1.** Social validity data for normal subjects and mean number of content words for training (*top, middle*) and generalization (*bottom*) stimuli for subject R.G.

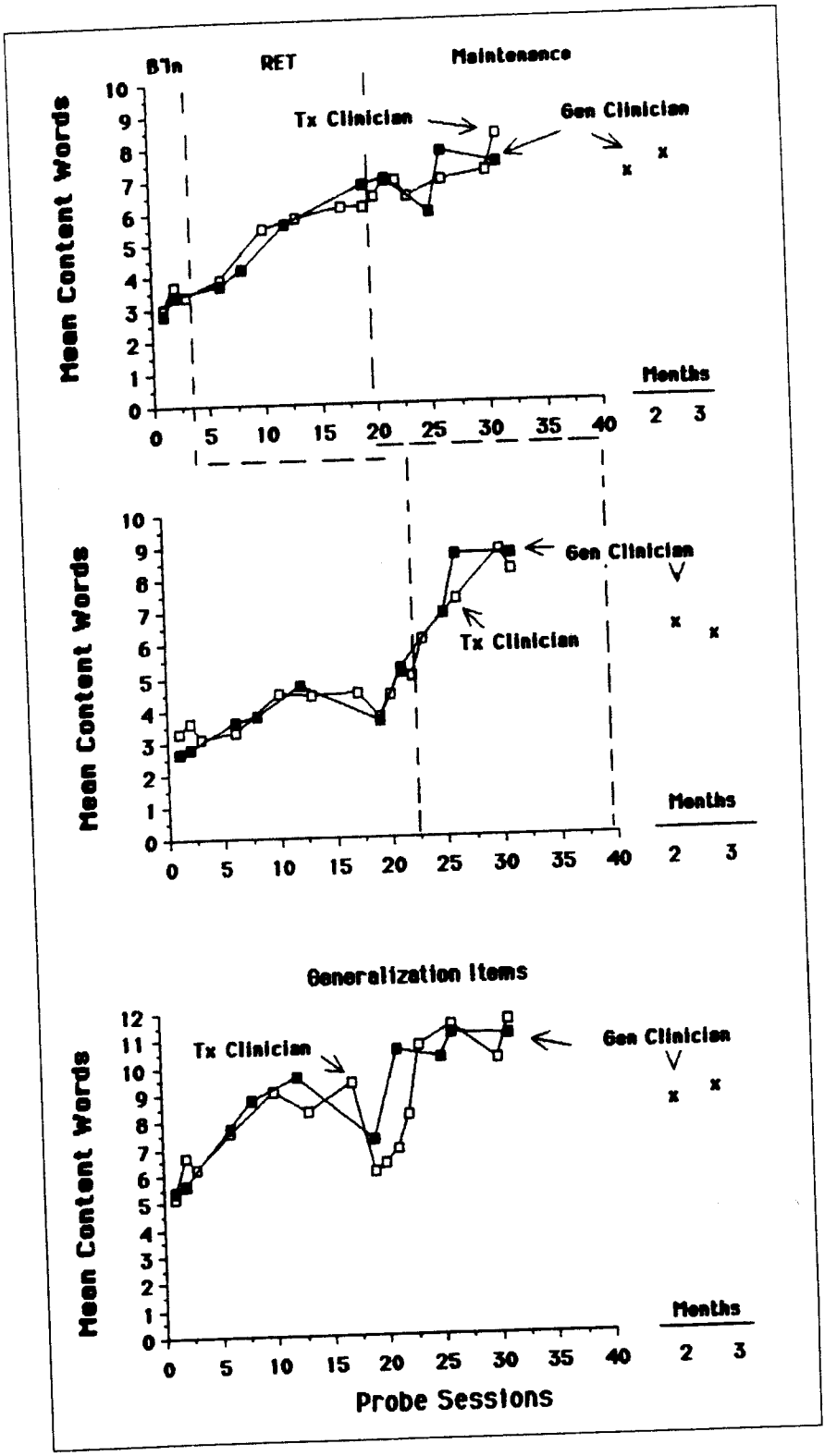


**Figure 17-2.** Generalization across clinicians. Mean number of content words produced for training (*top middle*) and generalization stimuli (*bottom*) for subject R.G.

and generalization stimuli (*bottom panel*). The follow-up data (X) at the right side of the figure demonstrate that these improvements were maintained on probes administered at 2 and 3 months after cessation of training.

Figure 17-3 presents data on R.G.'s performance on the experimental stimuli when they were administered in a nontraining setting, a senior adult center. These data indicate that R.G.'s improvements on the structured probes generalized to the new setting. The data at the right of each graph (X) show that these gains were maintained for three months.

The data in Figure 17-4 represent the mean number of content words spontaneously produced by R.G. in response to open-ended questions about daily activities. These probes were obtained during each experimental phase. They were conducted prior to lunch in a patient dining area of the medical center. Initial baseline performance (sessions 1–2) was at approximately nine content words per session, and considerable improvement occurred in conjunction with treatment of the first set of items (sessions 7–21). However, the mean number of content words produced on the spontaneous probes began to decrease during training of the second set of items (sessions 25–31). The mean number of content words (10.0) produced during 1- and 2-month follow-up probes was slightly above the number of content words produced during baseline testing (8.2).

Results for J.M., a high level anomic patient, (see Tables 17-1 and 17-2) is presented in Figures 17-5 through 17-7. J.M.'s performance on the treatment and generalization stimuli are presented in Figure 17-5. Following a stable baseline of approximately four content words per response on the three sets of stimuli, J.M. rapidly improved his performance on the first set of treatment items (*top panel*) after RET initiated. This finding was replicated for the second set of stimuli (*middle panel*). A moderate degree of improvement was also apparent for the generalization items (*bottom panel*). Finally, the 2-week follow-up data (X) at the right of each graph demonstrate that treatment and generalization gains were maintained following this patient's termination from the study.

J.M.'s performance on probes of across clinician generalizaton are presented in Figure 17-6. These data show pre- and post-treatment performance on the three sets of experimental items when they were administered by a clinician not involved in training. The data in the figure demonstrate that J.M.'s performance showed marked improvement on the post-treatment probes for the training (sets 1–2) and generalization (set 3) items.

Figure 17-7 presents the mean number of content words spontaneously produced by J.M. during his descriptions of videotaped news segments. Prior to RET (session 1), he was producing approximately six content

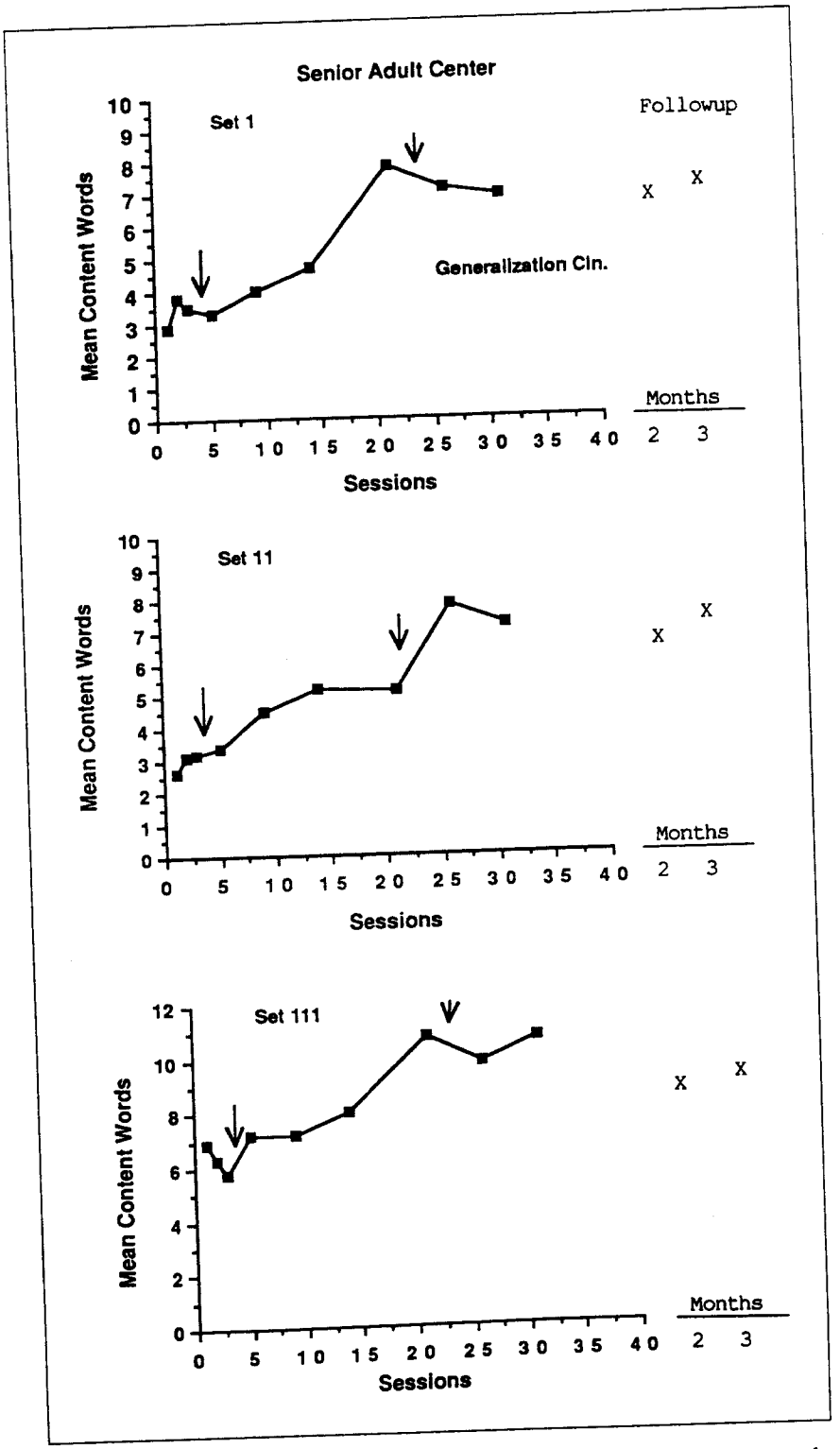


**Figure 17-3.** Generalization across settings. Mean number of content words for training (*top, middle*) and generalizaton items (*bottom*) for subject R.G.

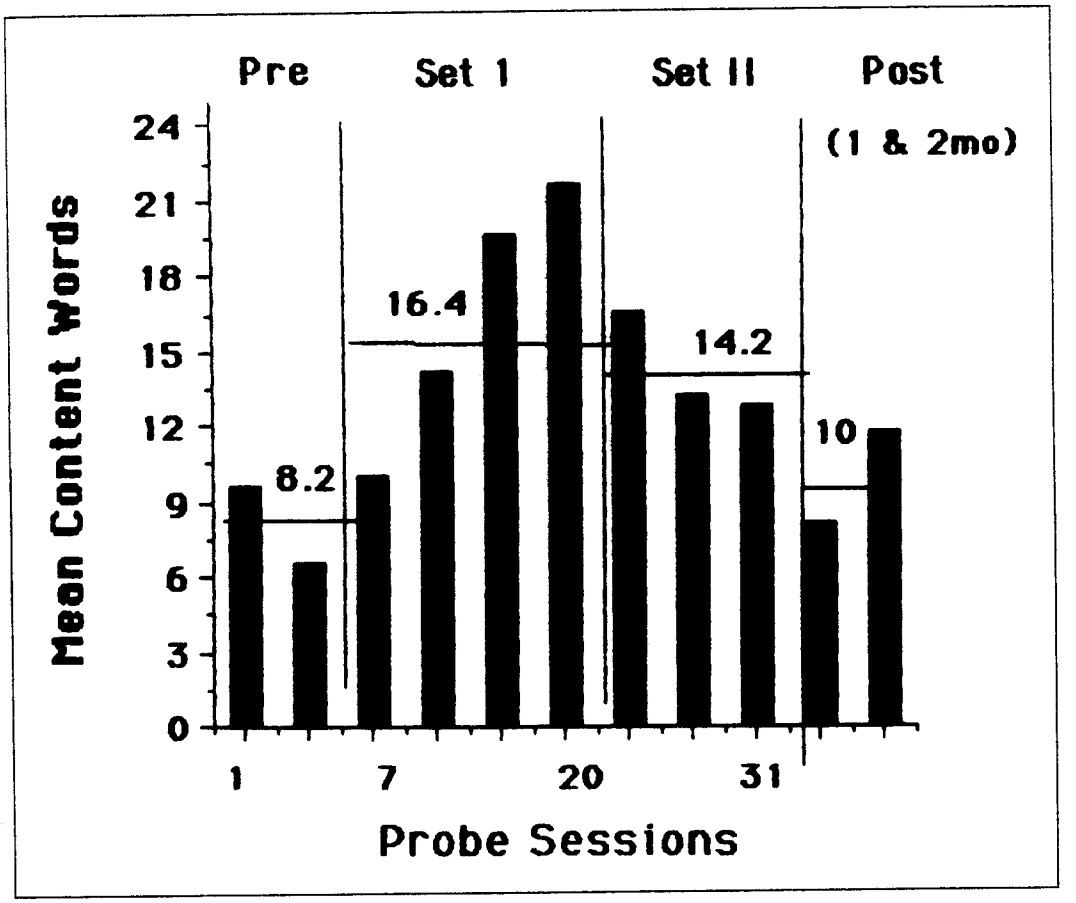


**Figure 17-4.** Generalization to structured spontaneous speech task for subject R.G. Horizontal lines depict mean performance during probe conditions.

words per response to questions about the news. After reaching criterion for the first set of training items (session 8), the number of content words produced increased to 12 per response. This level of performance was also apparent on the probe administered after criterion had been reached on the second set of training items (session 12).

Data for subject R.W., the Broca's aphasic patient (see Tables 17-1 and 17-2), are presented in the final three figures. This patient's performance on the treatment and generalization stimuli essentially replicates the results of the previous two subjects (Fig. 17-8). That is, he demonstrated stable rate of baseline performance on all three sets of experimental stimuli, followed by gradual improvement on the treatment items each time RET was applied (*top, middle panels*). Less significant increases were apparent for the number of content words produced in response to the generalization items (*bottom panel*). After an initial decrease in perform-

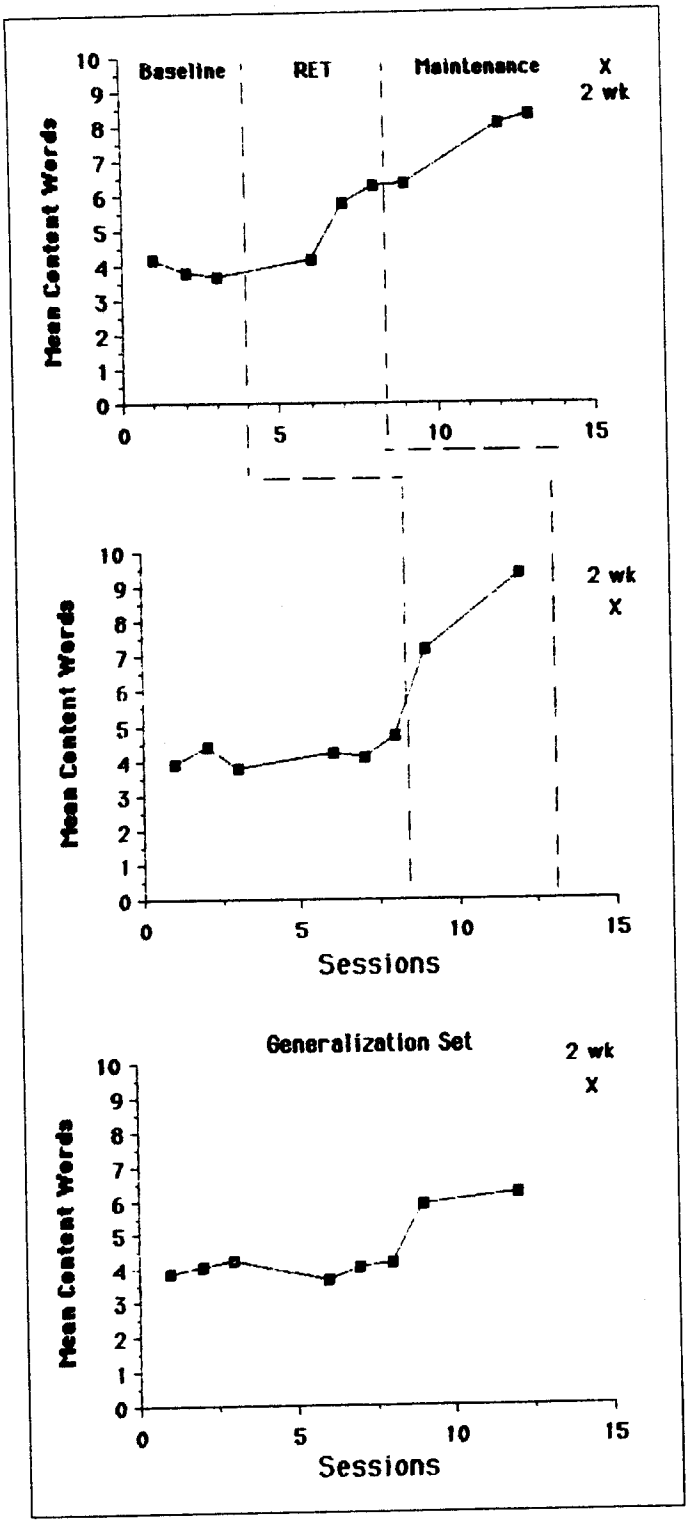


**Figure 17-5.** Mean number of content words produced for training (*top, middle*) and generalization items (*bottom*) for subject J.M.

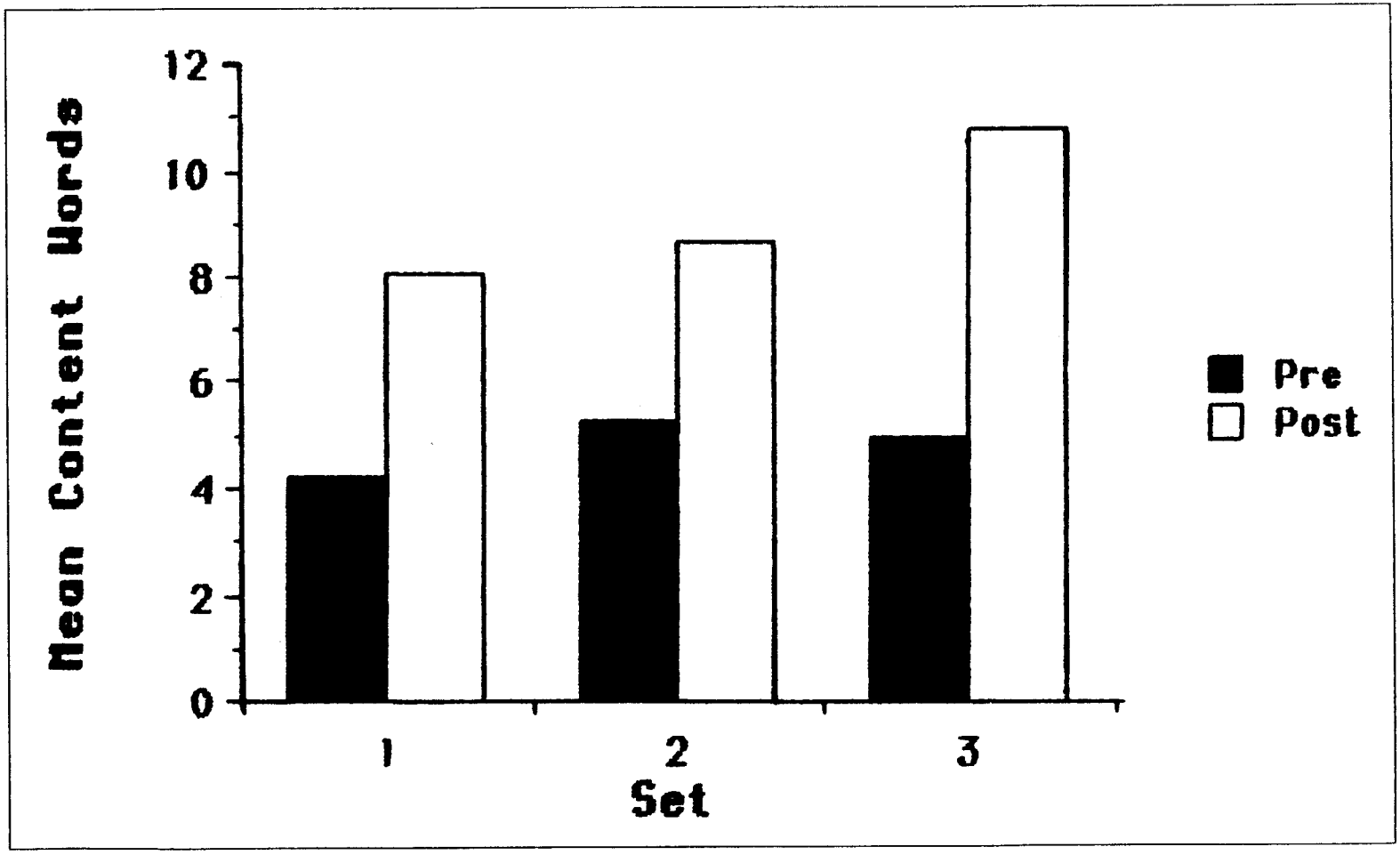


**Figure 17-6.** Generalization across clinicians for subject J.M. Mean number of content words for training (sets 1 and 2) and generalization items (set 3) in pre-/post-RET (probe 12).

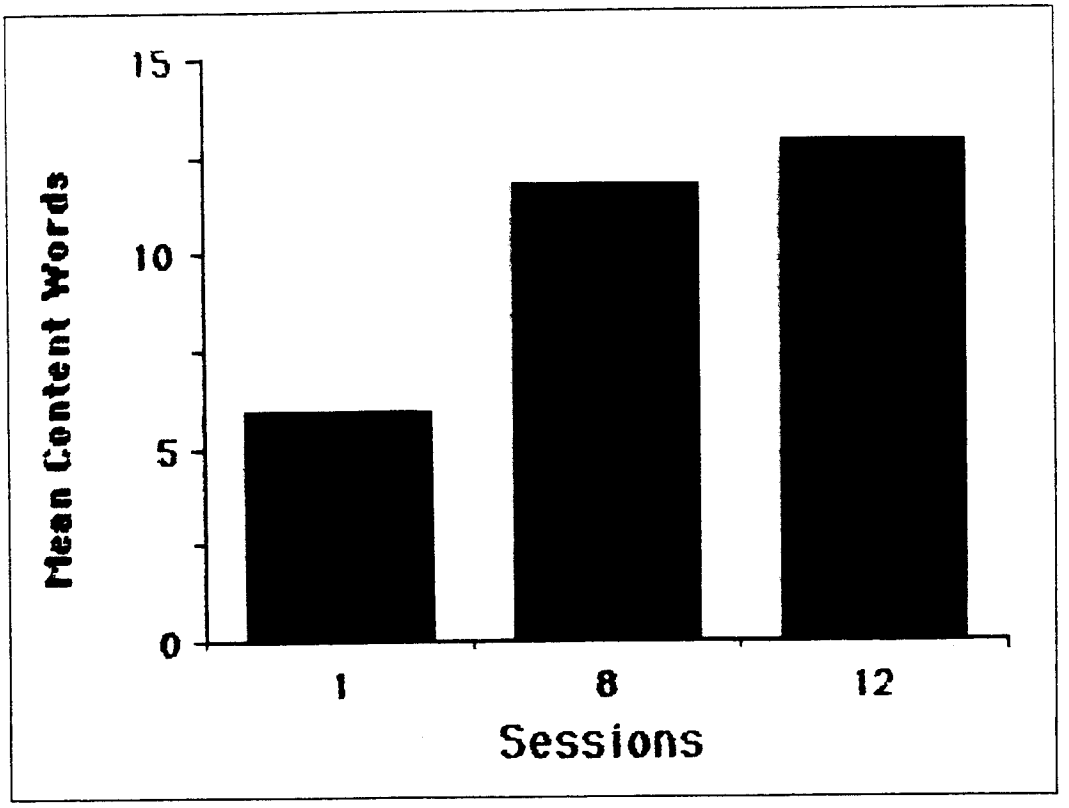


**Figure 17-7.** Generalization to structured spontaneous speech for subject J.M. Mean number of content words produced before (probe 1), during (probe 8), and after RET (probe 12).

ance on follow-up probes, improvements on all three sets of stimuli were maintained for up to 5 months (*Xs*).

Figure 17-9 represents R.W.'s performance on the structured probes when they were administered by his spouse at home (Xs) and in the clinic (*open squares*). The subject's performance with the treatment clinician are displayed for comparison purpose (*filled squares*). Examination of the figure reveals a marked similarity in performance across the three probe conditions. R.W.'s pattern of generalization across people and settings closely parallels his performance with the treatment clinician. Moreover, examination of the data demonstrates that he maintained his generalized responding on the 4-month follow-up probes administered at home by his spouse (Fig. 17-9, *right*).

Figure 17-10 displays R.W.'s performance on probes of generalization to structured spontaneous speech samples at home. The graph depicts the mean number of content words produced in response to his wife's open-ended questions about daily activities. (The numbers above each segment of the bar graph indicate the average performance in that condition.) There was negligible change in performance from pretesting through

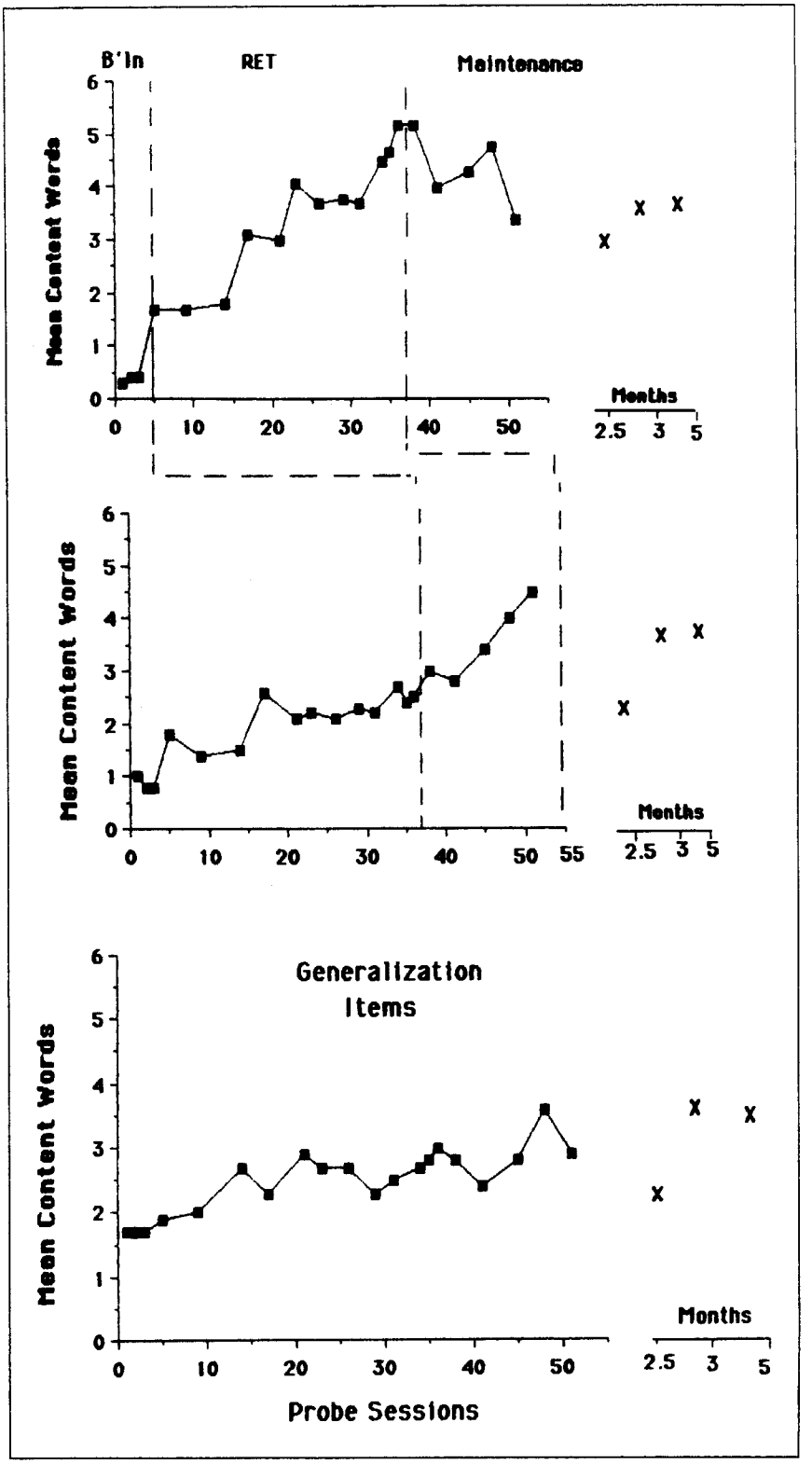


**Figure 17-8.** Mean number of content words produced for training (*top, middle*) and generalization items (*bottom*) for subject R.W.

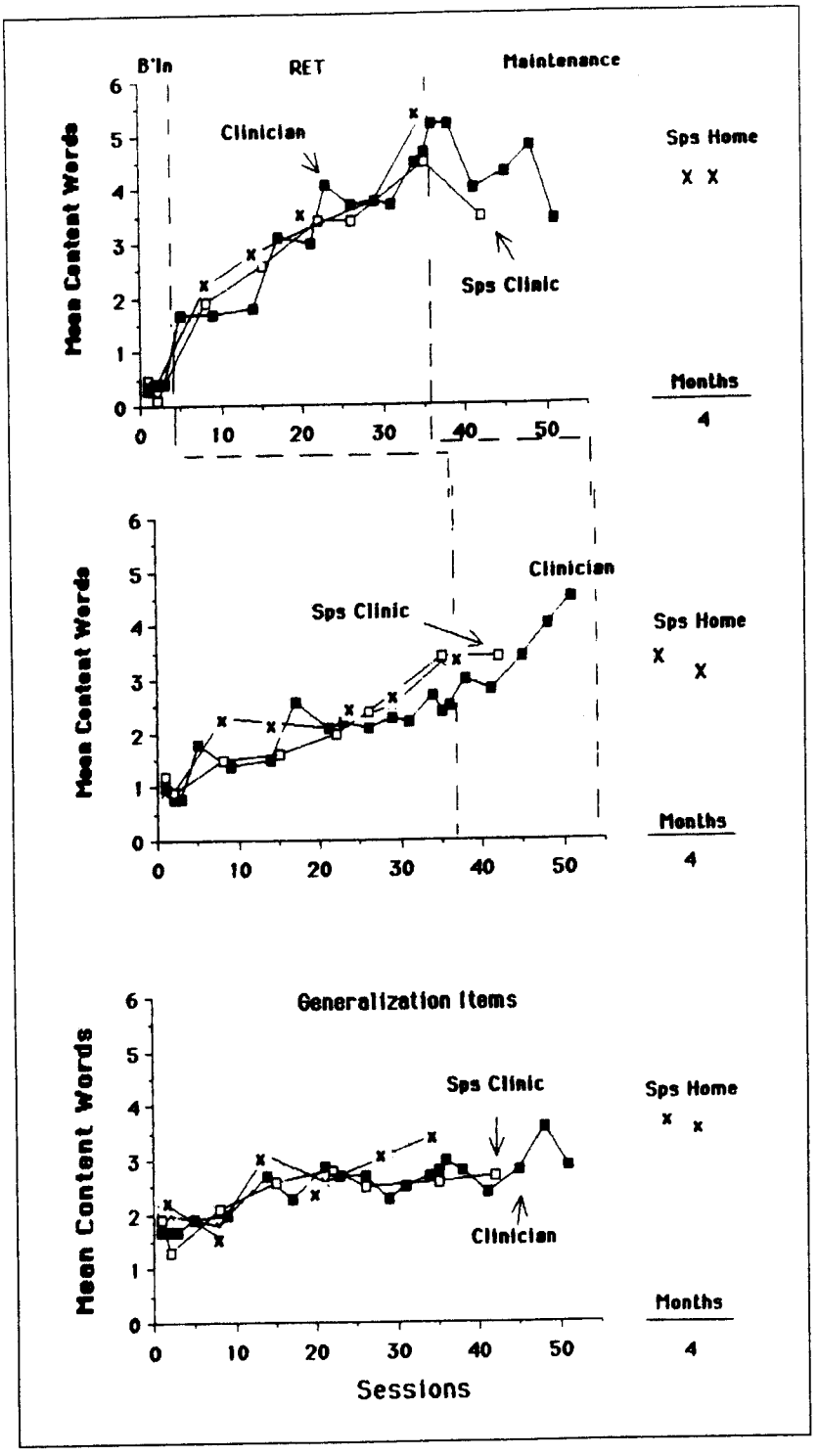


**Figure 17-9.** Generalization to spouse (sps) at home (X) and in the clinic (*open squares*) for subject R.W. Data for the treatment clinician (*filled squares*) are provided for reference. Mean number of content words shown for training (*top, middle)* and generalization items (*bottom).*

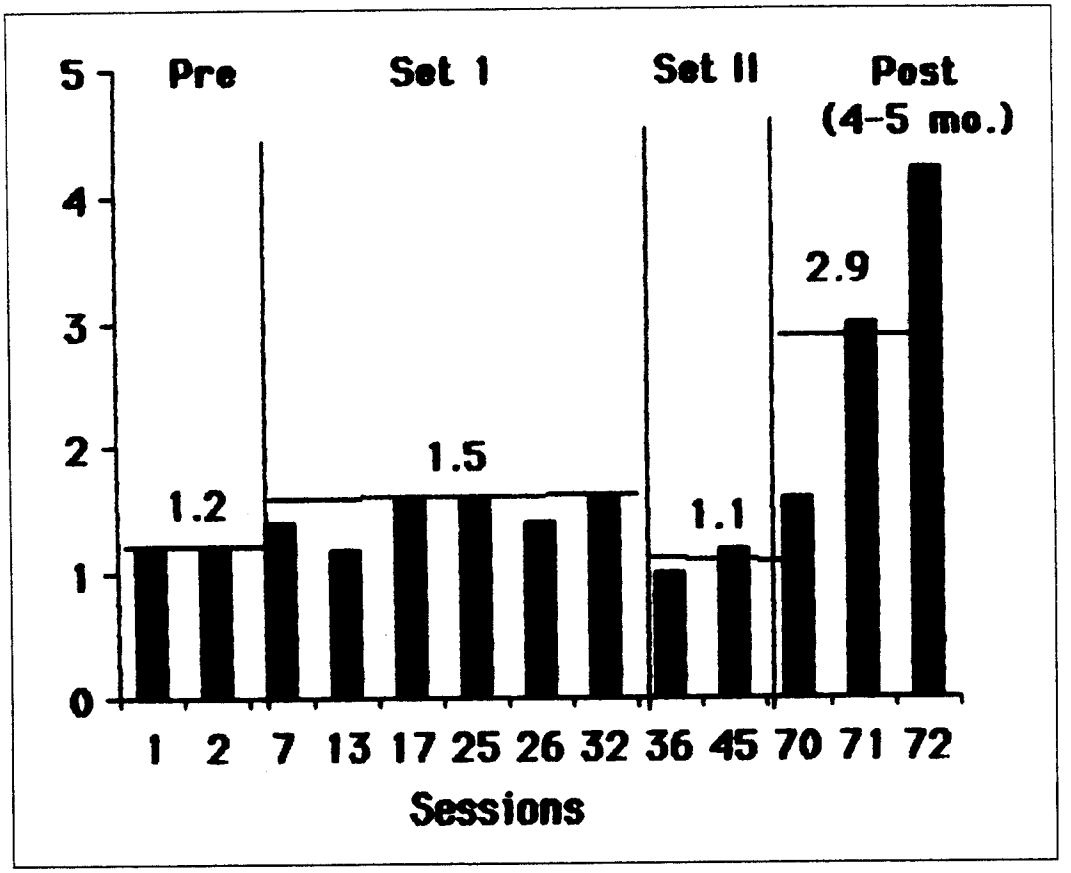


**Figure 17-10.** Generalization to structured spontaneous speech tasks for subject R.W. Probes obtained by his spouse at home. Mean number of content words produced prior to (pre), during (sets I, II), and after (post) RET.

training of set 1 (sessions 7–32) and set 2 items (sessons 36–40). There was, however, a clinically significant improvement on 4- and 5-month follow-up probes. Performance on these probes may have been confounded by R.W.'s continued enrollment in a treatment that was a variant of the RET procedure.

## SUMMARY AND CONCLUSIONS

The results of this study demonstrate that response elaboration training may be an effective means of increasing the number of content words produced by aphasic patients. In this study, positive training effects were evident for three patients who varied in severity and pattern of their language deficits. Further exploration is needed to examine the differential effects of RET for additional aphasic patients.

A moderate degree of generalization was found across untrained stimuli, people, and settings for the subjects of this study. Furthermore, generalization of more elaborate verbal responding to spontaneous interactions also occurred for two of three patients, although considerable individual variability was found. In general, these findings are encouraging because the results of previous aphasia treatment studies have reported limited or negligible generalization.

One factor that may have helped to facilitate generalization in this study is the fact that RET capitalizes on patient-initiated responses as the focus of treatment as opposed to restricting responding to a narrow range of clinician-selected target responses. This aspect of RET may send a subtle message to patients that indicates that their fractured communicative attempts have communicative value. By contrast, approaches that emphasize clinician-selected target responses may inadvertently suggest to patients that their imperfect communicative attempts are unacceptable. These convergent techniques may also discourage patients from initiating interations because they may feel that their responses are not as acceptable as the clinician-selected response forms. In short, overly didactic approaches that severely restrict patients' response options may encourage dependence on the clinician, and the end result may be that some aphasic individuals become "cue bound" rather than independent as a result of over-reliance on this type of therapy.

These observations are based on clinical intuition rather than scientific data, and they should therefore be viewed as speculative. Therapy approaches that lead the patient to a single, restricted set of responses, so-called convergent treatment approaches, have a proper place in the clinical management of aphasia (Chapey, 1981). However, data from the present study support the contention that RET and other divergent semantic approaches (Chapey, 1981) also deserve a place in our clinical armamentarium.

Another unique aspect of RET that deserves closer scrutiny as a facilitator of generalized responding is the use of stimuli that contain minimal contextual information. The patients in this study had to rely on their internal context (Davis and Wilcox, 1985) or previous experience to generate their verbal elaborations. Although RET was designed to elicit more elaborate verbal responding, the experimental stimuli provided minimal information. Consequently, patients were encouraged to develop logically plausible expansions of simple depictions of "running" or "swimming" and other everyday actions. Since the clinician provided mimimal assistance with the content of the verbal elaborations, the patient had to be creative by describing events or possibilities that were not pictured or described for him. In other words, patients had to accept the burden of communication to complete the treatment protocol successfully. RET and

other approaches, such as Cochrane and Milton's (1984) conversational prompting and Holland's (1986) conversational coaching, that give the "burden of communication" back to the patient deserve further exploration as viable treatment options.

## ACKNOWLEDGMENTS

This research was supported by a grant from the U.S. Veterans Administration Rehabilitation and Development Service. The helpful assistance of Ann Gaddie and Kathy Yedor is gratefully acknowledged.

## REFERENCES

Baer, D. M. (1981). *How to plan for generalization.* Austin, TX: Pro-Ed.

Chapey, R. (1981). Divergent semantic intervention. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia.* Baltimore: Williams & Wilkins.

Cochrane, R. M., and Milton, S. B. (1984). Conversational prompting: A sentence building technique for severe aphasia. *Journal of Neurological Communication Disorders, 1,* 4–23.

Davis, G. A., and Wilcox, M. J. (1981). Incorporating parameters of natural conversation in aphasia treatment. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia.* Baltimore: Williams & Wilkins.

Davis, G. A., and Wilcox, M. J. (1985). *Adult aphasia rehabilitation: Applied pragmatics.* Boston: College-Hill.

Hart, B., and Risley, T. R. (1974). Using preschool materials to modify the language of disadvantaged children. *Journal of Applied Behavior Analysis, 7,* 243–256.

Hart, B., and Risley, T. R. (1982). *How to use incidental teaching for elaborating language.* Lawrence, KS: H & H Enterprises.

Holland, A. D. (1977). Some practical considerations in aphasia rehabilitation. In M. Sullivan and M. S. Kommers (Eds.), *Rationale for adult aphasia therapy.* Omaha: University of Nebraska Medical Center Print Shop.

Holland, A. (1986). *Conversational coaching.* Paper presented at The American Speech-Language-Hearing Association Annual Convention, Detroit, MI.

Kearns, K. P. (1985). Response elaboration training of patient initiated utterances. In R. H. Brookshire (Ed.), *Clinical aphasiology* (Vol. 15). Minneapolis, MN: BRK.

Kearns, K. P. (1986). Systematic programming of verbal elaboration skills in chronic Broca's aphasia. In R. C. Marshall (Ed.), *Case studies in aphasia rehabilitation.* Austin, TX: Pro-Ed.

Kertesz, A. (1979). *Western Aphasia Battery.* New York: Grune & Stratton.

McReynolds, L. V., and Kearns, K. P. (1983). *Single-subject experimental designs in communicative disorders.* Austin, TX: Pro-Ed.

Porch, B. E. (1981). *Porch Index of Communicative Ability* (Vol. 2). Palo Alto, CA: Consulting Psychologists Press.

Stokes, T. F., and Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349–367.

Warren, S. F., and Kaiser, A. P. (1986). Incidental language teaching: A critical review. *Journal of Speech and Hearing Disorders, 51,* 291–299.

Yedor, K., and Kearns, K. P. (1987). *Establishing communicative drawing in severe aphasia through response elaboration training.* Paper presented at the American Speech-Language-Hearing Association Convention, New Orleans, LA.

# DISCUSSION

**Q = question; A = answer; C = comments.**

**Q.** Do you have a feeling for what happened to the elements that could not be counted as content words? Did you have a lot of utterances that couldn't be counted originally, and did they also decline over time?

**A.** Data are available from these three patients, as well as our experience with three others currently in the protocol and several patients that we've run previously. However, these data have not been formally analyzed. My hunch, however, is that there is a tendency towards more efficiency. It seems that patients tend to drop out some of the less contentive responses. These observations are very impressionistic, as we have only measured efficiency in one patient. This is a limited data base.

**Q.** Could you describe a typical therapy sesson with the first patient?

**A.** We used pictures from the Folks Sentence Builder Kit for stimuli. Stimuli were randomly presented to the patient. As each picture was presented, we asked him to "Tell us as much as you can about this picture or whatever it reminds you of." We started the project with Broca's patients and so that's probably the best way to describe the procedure. Upon being presented with a stimulus picture, a Broca's patient typically said, for example, "walking." The clinician would then provide verbal feedback and model a grammatically correct response. He might say, "Great! The man is walking." Next, a *wh-* cue would be provided to elicit a verbal elaboration. For example, "Why is he walking?" In response to the *wh—* question prompt, the patient might say, "walking bus." The clinician would then provide verbal reinforcement, a model, and then another *wh-* prompt in an attempt to elicit further elaborations.

There are two trials per stimulus item per treatment session. Of course, we periodically probed all of the generalization conditions.

We really attended to novel responses. We reinforced novel responses, tried to minimize rote responding, and attempted to get patients into a "conversational" exchange with the clinician. We started with fairly low-level patients, so it was difficult. However, we attempted to maintain a natural exchange between the patient and the clinician, and feedback was naturalistic. We've used the analogy that the patient is the therapeutic navigator in RET. The clinician simply makes sure that a proper course is maintained.

**Q.** You did not provide feedback or reinforcement during your probes, including the generalization probes?

**A.** No we did not.

**Q.** What impact does that have on that interaction?

**A.** I can't say that while asking open-ended questions the clinician didn't pay attention to the patient — of course they did. That in and of itself could have been reinforcing. However, we didn't reinforce specific content or specific responses.

There was not a large difference between our probe conditions and our treatment conditions, and consequently I don't think that there was a large degree of discrimination between those conditions. However, I don't think that the treatment gains and generalization were simply a result of our reinforcement schedule or programming techniques. Rather, I think it may come down to the fact that RET is another form of "stimulation therapy." We haven't examined the impact of each component of our treatment package, and so we cannot objectively say what effect, if any, the presence or absence of reinforcement had.

**Q.** I wondered if not providing reinforcement or feedback during a probe affected the naturalness of that interaction. How does that influence a patient's behavior during the probes?

**A.** That's a good point. I think that is an important issue. Data for one of the patients demonstrated that performance on the spontaneous probes trailed off during the course of the study. The absence of reinforcement in that probe condition may partially explain his pattern of responding. I would love to know what patients would do if we reinforced them in the probe conditions. However, that is a different approach and probably a new study altogether.

**C.** I wonder though if naturalistic, pragmatically appropriate feedback during the probes is important for facilitating generalization and

whether adding reinforcement might better approximate what happens in the real world.

**A.** In a follow-up study we're taking patients like R.W., who didn't generalize to the home setting, and we're looking for ways to get them to generalize. For example, we are trying to use videotaped news segments as stimuli in an attempt to elicit spontaneous discussion. We are then applying RET. Thus we are "sequentially modifying" the target behavior (elaboration skills) in other conditions using a loose training procedure. In general, from the outset we opted to try and see if this treatment procedure (RET) was powerful enough in and of itself under the more structured protocol to result in generalized responding. The issue of whether additional reinforcement during the probe conditions would affect responding cannot be resolved without further research.

**Q.** What happens to grammar? What forms do the elaboratons take?

**A.** Well, the nature of the elaborations tends to vary. One patient, who was not reported in this study, managed to reach criteria while producing a fairly limited verbal repertoire. That's obviously not what we are after. Other patients seem to produce considerably more variety in terms of both vocabulary and grammatical constructions. I'm trying to be a little careful here because we haven't objectively documented this observation.

For example, R.W., the chronic Broca's patient, could say very little during baseline. He was enrolled in the study partially out of frustration because we didn't have a lot of other patients around that fit our selection criteria. In any event, he improved more than we expected, and he also seemed to be a little more fluent. In fact, his wife and other people commented that he is also initiating more. Again we can't comment much on the nature of the elaborations because they haven't been fully analyzed.

It is interesting to note that Betty Hart found that her Incidental Teaching program prompted her clients to say more and also to say it better. That is, they produced more content and variety.

**C.** You mentioned "novel responses" a couple of times, and I don't know what you mean by that in this context.

**A.** Novel responses were defined as those responses that were not previously produced by a patient in response to a given stimulus picture or, more importantly, vocabulary items that hadn't been previously produced. Using the previous example, if a patient consistently said "running" in response to a stimulus picture and then began saying "running bus," then "bus" might be considered a novel response. If he subsequently said "running school bus," then "school" would ini-

tially be considered novel. What we are trying to do is pay patients off for being divergent and creative.

**Q.** What if the patient had said, "Adidas — running Adidas"?

**A.** Great! The clinician should really reward that kind of novel responding.

**C.** I'm really intrigued with these mimimal stimuli because of the richness of our internal contexts. I think that it is a really neat idea. I don't mean to sound contradictory but I'm going to suggest an alternative to you. I've been doing a lot of work recently with this type of approach; I'm taking off from what I know about your method. As an alternative, however, I've been using movie star pictures. Movie star pictures seem to have a lot of internal context for most people. I think it might be really interesting for you to try these kinds of stimuli as well because there is a face validity a normal reaction that occurs in talking to people about these types of sitmuli.

**A.** I agree. We want to go in the creative directions that you are suggesting. At the present time, however, we need replication at the simple level that we started with. Our recent efforts to use news segments as stimuli is a meager attempt to address the type of issue that you've brought up.

**C.** I'm not sure I read your last couple of graphs correctly. It looked like the baseline was pretty variable and climbing for the second target behavior.

**A.** This patient's baseline was initially stable, but there was increased variability on the second behavior following intervention on the first behavior. We would have liked to have seen a flatter baseline, but given the number of replications within and across patients and given the fact that there was an acceleration in rate, slope, and the level of acquisition following treatment, we are confident in the data. In addition, don't forget that we had a multiple probe component to the multiple baseline design of this study. This added an additional element of experimental control.