4

A Trip Down Easy Street

Nina N. Simmons

Ecological validity in assessment and treatment of aphasia ensures that changes effected in communication are meaningful, pertinent, and useful to an individual's daily communicative needs. The idea of taking an ecological perspective is not new to communicative disorders (Warren and Rogers-Warren, 1985). We readily admit that the study of language is relevant only in its relationship to the environment and the people who use it. Few aphasiologists would dispute that functional communication and social relevance are important considerations in designing treatment programs.

BACKGROUND ON A BROADER PERSPECTIVE

A number of suggestions pertinent to taking a broader perspective on aphasia assessment and treatment exist in the literature. For example, Holland (1977) and Davis and Wilcox (1985) incorporated the concept of ecological validity by encouraging clinicians to include parameters of natural communication in aphasia assessment and treatment. Similarly, Aten (1986) proposed "functional communication treatment" (FCT) as a means of promoting socially and personally relevant change. He suggested that functional communication treatment should be integrated *with* traditional language approaches *and* should extend beyond the period when language treatment, per se, is no longer effecting change (Aten, 1986, p. 267). Thus, the need not only to stimulate recovery of linguistic forms and structures but also to build strategies for communicating in "real life" in spite of residual problems is recognized in this approach. The issue of ecological validity is approached from a different perspective in the more behaviorally oriented aphasia literature. Here the concept of "generalization" of treatment effects from the treatment situation to other situations is stressed (Thompson, 1988). In other words, the emphasis is often placed on carryover of training to "functional" situations and natural contexts. Thus, concepts that are highly applicable to ecologically valid treatment such as functional communication, pragmatics, generalization, and social validity appear in a variety of recent publications (Aten, Caligiuri, and Holland, 1982; Davis and Wilcox, 1985; Holland, 1982; Kearns, in press; Simmons, Kearns, and Potechin, 1987; Thompson, 1988; Wilcox, 1983).

RESISTING ALTERNATE PERSPECTIVES

Interestingly, these concepts do not appear to have been broadly embraced in the routine practice of aphasia assessment and treatment. For example, a survey of 16 aphasia clinicians in the New Orleans area revealed that

none of the 16 assess or treat beyond the treatment room or the bedside, with other individuals, or by using naturalistic language sampling. In other words, many clinicians prefer traditional didactic approaches to aphasia management and rely on observation in the clinic, formal testing, anecdotal reports of family members, or structured treatment tasks to judge the patient's functional use of communication.

There are a number of possible reasons why clinicians might prefer traditional assessment and treatment within the clinic over treatment in "real life" contexts. One consideration is that it is far easier to create, isolate, and document change within a structured, controlled system. The multiple, changing, and interacting variables inherent in natural contexts make it difficult to control the stimuli, reliably score responses, and attribute improvement to specific components of treatment.

Also, natural communication encompasses an extraordinarily complex set of behaviors that are difficult to quantify objectively. The appearance of scientific objectivity is more readily achieved by measuring discrete components of language than by attempting to describe communication as a "whole." Therefore, with ever increasing demands for accountability and "numerical" evidence of improvement, the clinician might rely on traditional tools and scoring of discrete language units as the most objective means of demonstrating improvement.

Another possible reason to avoid assessment and treatment in alternate contexts is that didactic treatment within the clinic "feels" more cost- and time-efficient. The clinician does not have to contend with wasted time to get somewhere, the vagaries of untrained interactants, interruptions, and other horrors of the real world.

Or, perhaps clinicians are philosophically satisfied with the effectiveness of using the clinical microcosm to sample a patient's communicative world. In fact, there are little data to support one approach over the other. Research on the efficacy of "pragmatic" approaches is lacking, and our data on generalization of treatment effects from the clinic to other settings, people, and stimuli are certainly equivocal at best. With inadequate data in support of expanding evaluation and treatment to other contexts, perhaps it appears preferable to adhere to traditional methods.

On the other hand, perhaps narrow management has been a symptom of narrow-mindedness. Our literature tends to focus on clinical success stories. We report the good we do with this or that program and applaud reports of effective intervention techniques. Perhaps relying on clinical observation of treatment effects to predict real-life function is a symptom of complacency that has been reinforced by avoiding scrutiny of our clinical failures. Rosenthal (1979) and Damico (1988) suggest that failures as well as successes should be scrutinized to develop valid approaches. In this spirit, the following presentation will include two clinical vignettes to

demonstrate why we might need to expand our management ecosystems and will then introduce one of many possible options for doing so.

CLINICAL VIGNETTES: CASES IN POINT

CASE 1

First there is the case of E.B., a 65-year-old woman who was treated for moderate aphasia after a left-hemisphere cerebrovascular accident. After 6 months of treatment, Mrs. B improved from a Porch Index of Communicative Ability (PICA) (Porch, 1981) overall of 58 to 83 percent, where she "plateaued." She was to be discharged with "functional though compensated communication." Her discharge summary noted that she could successfully carry on a conversation with a variety of word retrieval and "go" strategies such as purposeful circumlocution or using gesture to self-cue. When informed of her discharge, Mrs. B's physician, who was also her nephew, was startled and said, "She can't talk at all. At family gatherings and social events she never says a word and relies totally on Mr. B to talk for her." Further investigation revealed that in fact, outside of the hospital, Mrs. B did not have functional communication.

What could have happened in the case of E.B.? Speculation might suggest several possibilities. Could this failure have been avoided by assessing Mrs. B's communication in other settings and with other people outside of treatment? Maybe factors that inhibited her carry-over of strategies to social situations could have been identified, and then intervention could have focused on these variables or situations.

Perhaps treatment did not go far enough. While Mrs. B was successful in the easy, supportive atmosphere of the clinic, the complexities and multiple variables influencing communication in real life were not accounted for in treatment. As Glosser, Wiener, and Kaplan (1988) demonstrate, aphasic patients communicate differently in different contexts, suggesting the need to sample language in a more complex social fashion. Under different, possibly more difficult or complex conditions, Mrs. B's level of language performance might have proved inadequate to support successful communication. Would further treatment aimed at other contexts and incorporating additional variables have stimulated a higher level of language recovery?

Was "progress" too narrowly defined by accepting improvement and plateau in functioning on a standardized test as a target measure? If the goal of treatment included teaching "compensations," how efficiently would successful use of these strategies be measured on a standard tool?

Did the clinician become satisfied with measuring acquisition of responses rather than looking at generalization of responses? Numerous questions arise that lead back to the issue of ecological validity in assessment and treatment. In other words, did the clinician fail to ask if treatment was making a difference to this individual's daily communicative life, and was treatment sufficient to ensure that it did make a difference?

CASE 2

Next is the case of S.M., a 37-year-old man with Broca's aphasia who scored at about the PICA 50th percentile. He received 2 years of therapy and was working on a final goal — to increase his use of a variety of sentence constructions. The treatment program was similar to the format of the Helm's Elicited Language Program for Syntax Stimulation (HELPSS) program (Helm-Estabrooks, 1981). S.M. was able to acquire targeted sentence constructions in treatment but did not seem to carry over these language structures to other tasks or situations. In fact, over the course of this treatment he began showing longer delays in initiating utterances in general.

This case is replete with speculative possibilities. First, there was the obvious failure to assess or treat across people or settings. Interestingly in this case, it resulted in failure to recognize success! That is, it turned out that S.M. was quite functional in communicating with family and friends. In natural settings he enhanced his communication by using shared knowledge, context, and situational redundancy that was not available during testing and treatment; so he did better in real life.

A related problem, recently described by Damico (1988), was the failure to view communication as a whole by adopting a discrete point approach to analysis — that is, isolating "syntactic structure formation" from communication as whole. This resulted in attempting to "teach" specific language units with an emphasis on accuracy rather than success of communication. This narrow approach also led to an inadequate understanding of the social appropriateness and natural rewards for accurate syntax. In fact, it proved to be quite socially acceptable and communicatively rewarding for S.M. *not* to use many of the sentence structures being targeted. In natural situations, the time and energy required to formulate an accurate construction reduced communication efficiency and often resulted in negative responses from his listeners; on the other hand, telegraphic utterances augmented by appropriate intonation and gestures were frequently rewarded. Each time S.M. left the clinic, naturally occurring contingencies were "undoing" what the clinician was attempting to promote.

Furthermore, it is known that treatment can produce positive or negative side effects. Balsam and Bondy (1983) and Epstein (1985) warn that

in the complicated business of treatment, change in one behavior can result in unexpected changes in another behavior or unanticipated side effects. This program appeared to produce verbal initiation delays as a negative side effect of treatment.

One thing that all of these so-called failures (see Appendix) probably have in common is the failure to assess or treat adequately outside of the traditional treatment situation, with other people, contexts, and variables. Ideally one would consider that getting into "real life" would be the way truly to see our patients communicate and to evaluate if treatment gains are carried over, rewarded, and socially accepted. In fact, Holland (1982) pointed out the importance of just such an approach. However, jumping from treatment in the controlled environment of the clinic to the chaos of the world can be a rather large leap on the old task hierarchy. The "clinic" setting allows us to manipulate variables and provide positive feedback, a sort of nurtured practice setting where confidence can be built along with skills. The real world does not always afford such predictability.

USING A SIMULATED ENVIRONMENT

An "in between" format for expanding treatment is to use a "simulated" situation. Around the time that this author became interested in incorporating ecological "tests" to validate the appropriateness of treatment programs, our facility was embarking on a new venture. The project was initiated primarily as a fund-raising and marketing tool, but the clinical implications were obvious. We incorporated into our facility through a donor campaign a unique rehabilitation "environment" that is well suited to incorporating natural parameters into treatment, while affording a safe, convenient, and somewhat controlled therapy setting. The concept, known as "Easy Street Environments," was developed by Phoenix Memorial Hospital and has been marketed to facilities around the country. It is a replica of a city street and scaled down community that exists within the hospital as a self-contained structure. The concept was developed to duplicate the physical and visual obstacles associated with daily life. It includes simulations of a bank, grocery, theater, restaurant, bar, department store, and a city street complete with a bus and car. The environment is used simultaneously by occupational therapy, physical therapy, and speech pathology for functional training.

The idea of using simulations in aphasia treatment is not new. Holland's (1980) Communicative Abilities in Daily Living, Davis and Wilcox's (1985) pragmatic therapy and PACE, Ritter's (1976) "modular therapy," Aten's (1981) Functional Communication Treatment, and Thompson and

Warner's (1987) research using real and simulated real-life settings all include examples. The primary difference between simulating tasks within the traditional therapy areas and completing tasks in Easy Street is the overriding influence of a visually and physically "normal" situation. The Easy Street environment looks real. It provides situational redundancy, stimulates automatic responses based on our own internal histories and contexts, minimizes the boundaries between treatment and real life, and does not require the "imagination" and abstraction of traditional role-play situations. On the other hand, many variables that are "uncontrollable" in real settings can be controlled in a simulated setting, allowing for a hierarchical progression toward "real life." Mind you, this is not an attempt to "sell" Easy Street, but an effort to propose that simulations might be considered as alternative settings for assessment and treatment.

The topography of treatment in a simulated environment is similar to traditional treatment in many respects, for example:

1. Language targets or strategies are preselected and individualized; attention is still directed at the language stimulus and responses characteristics; stimulation and strategy training can proceed within an alternate context.
2. Ongoing assessment is carried out through baseline and treatment probes.
3. A hierarchy of difficulty is utilized to increase communicative independence gradually.
4. Principles such as shaping and modeling can be incorporated as appropriate.
5. Finally, feedback and reinforcement can be planned and implemented to facilitate communication success and/or accuracy.

Unlike traditional treatment, there is a "ready-made" context for assessing and treating across settings, enhancing the opportunity to deliver "ecologically" valid services. Because the environment is available and convenient, it can be time-efficient *and* cost-effective to "get at" generalization directly, early in treatment, either by using the environment to probe for carry-over or actually using it as a treatment setting.

Moreover, since the environment is rich in familiar context, it is more likely to get at "setting events" described by Wahler and Fox (1981) as a complex of interacting variables that influence behavior. Thus, we might be more likely to observe how a person responds in a complex matrix based on personal experience, motivations, and preceding events.

Whether one choses to use the environment for assessment or treatment, multiple variables can be manipulated to produce a variety of conditions. So, in addition to varying difficulty based on the usual param-

eters such as linguistic unit, stimulus-response interval, modality, and so on, difficulty is varied based on the purpose or need for communication, the setting, the people, the setting events, and natural contingencies.

Let us look at S.M.'s therapy as an example. Recall that he was working on specific sentence construction. For example, a task that had been used to develop *wh-* questioning involved instructing the patient to ask a "where" question for each picture card shown. If shown a picture of corn, he must say, "Where is the corn?" This contrasts with use of the simulated environment, where he might be given a grocery list and told to go to the grocery and get the items on the list. Conveniently the corn is missing from the shelf, so that he must ask the clerk, "Where is the corn?" Any number of "setups" can be arranged to provide similar opportunities to manipulate the "purpose" of communication. Setups involve arranging naturally occurring events to elicit target behaviors and provide opportunities for dealing with communication failure as well as success. This approach is used frequently with childhood language disorders (Lund and Duchan, 1988; Warren and Kaiser, 1986; Wulz, Hall, and Klein, 1983; Hart and Risley, 1980, 1982) but is rarely discussed in the aphasia treatment literature.

Manipulation of the "people" variable can take the form of not only assessing or treating with different people but also systematically altering the number of people, their familiarity with the patient and the disorder, their roles, their personal characteristics, and their attitudes. For example, the grocery store clerk might be the clinician, a family member, another patient, a friendly volunteer, or an "impatient other."

The context within the settings can be varied also. For example, linguistic and situational redundancy can be increased with signs, written labels, and congruent background noises; conversely, distractions can be programmed such as intrusive background noise, clutter, or weird lighting.

Easy Street is also a prime location for looking for side effects of treatment and exposing which targeted behaviors are useful, functional, and socially acceptable. For example, S.M.'s substitution of "Corn?" for "Where is the corn?" was a readily acceptable question to the store clerk. When assessed in a "simulated natural" situation, S.M. was using what appeared to be a socially viable, though not clinician-dictated structure, to communicate his questions, and he was rewarded with communicative success. This allows the clinician to assess what the natural reinforcement might be for responses and provide opportunities for the patient to deal with a range of possible contingencies. The clinician might program situations in which the patient communicates with untrained volunteers who react like "real" people instead of like understanding clinicians, thereby building into treatment a natural community of varied reinforcement — the kind of expected and unexpected feedback we might get in real life.

Carry-over can be further enhanced by attempting to simulate situations that are expected in the patient's life, that is, programming stimuli common to treatment and the individual's environment. Thus, family members or friends are introduced into the program not only as interactants in the role playing but also to learn how to facilitate communication and carry-over in a variety of situations. Other members of the rehabilitation team can serve as interactants and in so doing become carry-over facilitators. The speech pathologist no longer works only in protected secrecy, but alongside other therapists and patients in a dynamic environment. Our role is extended to consultant and a teacher of carry-over facilitators (Frassinelli, Superior, and Meyers, 1983). The clinician gains the opportunity to observe and document whether treatment is actually resulting in generalized improvement and if the improvement reflects a meaningful, relevant, and socially acceptable change. In this way, role playing in simulated situations might be considered a useful option for promoting ecologically valid management.

It must be noted, however, that this is *not* a substitute for traditional language therapy. Traditional approaches remain the foundation of aphasia management, where formal testing is completed and structured treatment is delivered. Simulated "realistic" situations serve as an extension of assessment and treatment to broaden our horizons and keep us ever cognizant of the need to consider function as well as form. Thus, the role of standardized tests and traditional clinic-based treatment is not in dispute. Rather, we ask, do traditional approaches provide sufficient information to determine if our services are significantly influencing the patient's communication at home and in the community? We might wonder if confining our treatment to the clinic is a bit like sampling and manipulating the ecosystem of a puddle to learn about the ocean. Perhaps our feet have become sufficiently wrinkled (Rosenbek, 1979) by standing entrenched in our clinical pools, and the time has come to sample the eddies and currents of communication beyond the clinic. Thus, this book seeks to encourage a broader, more "ecologically valid" approach to patient management and provide some possible options for doing so. In summary, it is obvious that good aphasia treatment is no trip down easy street, but using a simulated environment might be one way of helping us make good on our promise of ecologically valid treatment.

REFERENCES

Aten, J., (1986). Functional communication treatment. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia*. Baltimore: Williams & Wilkins.

Aten, J., Caligiuri, M., and Holland, A. (1982). The efficacy of functional communication therapy for chronic aphasic patients. *Journal of Speech and Hearing Disorders, 47,* 93–96.

Balsam, P., and Bondy, A. (1983). The negative side effects of reward. *Journal of Applied Behavior Analysis, 16,* 283–296.

Damico, J. (1988). The lack of efficacy in language therapy: A case study. *Language, Speech and Hearing Services in Schools, 19,* 51–66.

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

Epstein, R. (1985). The positive side effects of reinforcement: A commentary on Balsam and Bondy (1983). *Journal of Applied Behavior Analysis, 18,* 73–78.

Frassinelli, L., Superior, K., and Meyers, J. (1983). A consultation model for speech and language intervention. *ASHA, 25,* 25–30.

Glosser, G., Wiener, M., and Kaplan, E. (1988). Variations in aphasic language behaviors. *Journal of Speech and Hearing Disorders, 53,* 115–124.

Hart, B., and Risley, T. (1980). Incidental teaching of language in the preschool. *Journal of Applied Behavior Analysis, 8,* 411–420.

Hart, B., and Risley, T. (1982). *How to use incidental teaching for elaborating language.* Austin, TX: Pro-Ed.

Helm-Estabrooks, N. (1981). *Helm's Elicited Language Program for Syntax Stimulation (HELPSS).* Austin, TX: Exceptional Resources.

Holland, A. (1977). Some practical considerations in aphasia rehabilitation. In M. Sullivan and M. Kommers (Eds.), *Rationale for adult aphasia therapy* (pp. 167–180). Lincoln, NB: University of Nebraska Medical Center.

Holland, A. (1980). *Communicative abilities in daily living.* Baltimore: University Park Press.

Holland, A. (1982). Observing functional communication of aphasic adults. *Journal of Speech and Hearing Disorders, 47,* 50–56.

Hughes, D. (1985). *Language treatment and generalization: A clinician's handbook.* Boston: College-Hill.

Kearns, K. (in press). Methodologies for studying generalization. In L. V. McReynolds and J. Spradlin (Eds.), *Generalization strategies.* Toronto: Decker.

Lund, N., and Duchan, J. (1988). *Assessing children's language in naturalistic contexts.* Englewood Cliffs, NJ: Prentice-Hall.

McCauley, R., and Swisher, L. (1984). Use and misuse of norm-referenced tests in clinical assessment: A hypothetical case. *Journal of Speech and Hearing Disorders, 49,* 338–348.

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

Prutting, C., and Kirchner, D. (1987). A clinical apprasial of the pragmatic aspects of language. *Journal of Speech and Hearing Disorders, 52,* 105–119.

Ritter, E. G. (1976). Modular therapy: A practical approach to life situations. In R. Brookshire (Ed.), *Clinical aphasiology* (Vol. 6, pp. 200–203). Minneapolis: BRK.

Rosenbek, J. (1979). Wrinkled feet. In R. Brookshire (Ed.), *Clinical aphasiology* (Vol. 9, pp. 163–176). Minneapolis: BRK.

Rosenthal, R. (1979). The "file drawer problem" and tolerance for null results. *Psychological Bulletin, 86,* 638–641.

Simmons, N., Kearns, K., and Potechin, G. (1987). Treatment of aphasia through family member training. In. R. Brookshire (Ed.), *Clinical aphasiology* (Vol. 17, pp. 106–116). Minneapolis: BRK.

Spradlin, J., and Siegel, G. (1982). Language training in natural and clinical environments. *Journal of Speech and Hearing Disorders, 47,* 2–6.

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

Thompson, C. (1988, June). *Generalization in the treatment of aphasia.* Paper presented to the Clinical Aphasiology Conference, Harwich Port, MA.

Thompson, C., and Warner, E. (1987). *Stimulus generalization of functional responses in aphasic subjects.* Paper presented at the annual meeting of the American Speech-Language-Hearing Association, New Orleans.

Wahler, R., and Fox, J. (1981). Setting events in applied behavior analysis: Toward a conceptual and methodological expansion. *Journal of Applied Behavior Analysis, 14,* 327–338.

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

Warren, S., and Rogers-Warren, A. (1985). *Teaching functional language: Generalization and maintenance of language skills.* Austin, TX: Pro-Ed.

Wilcox, M. J. (1983). Aphasia: Pragmatic considerations. *Topics in Language Disorders, 3,* 35–48.

Wulz, S., Hall, M., and Klein, M. D. (1983). A home-centered instructional communication strategy for severely handicapped children. *Journal of Speech and Hearing Disorders, 48,* 2–10.

APPENDIX

POSSIBLE "FAILURES" THAT THREATEN ECOLOGICAL VALIDITY IN APHASIA ASSESSMENT AND TREATMENT

1. Failure to assess and/or treat across people, settings, or contexts.
2. Failure to account for increased difficulty and multiple variables inherent in real-life situations (that is, complex social matrix; Glosser et al., 1988).
3. Narrow definition of progress:
    a. Terminating treatment based on results of standard tests.
    b. Terminating treatment when responses are acquired, rather than when they are used in appropriate situations (generalized).
4. Overestimating functional communication based on responses to artificial treatment tasks; Failure to view communication as a whole by adopting a discrete point approach to language analysis (Damico, 1988).
5. Failure to account for naturally occurring contingencies.
6. Failure to determine social validity of goals/treatment targets.
7. Failure to account for setting events.
8. Failure to look for side effects of treatment.