The Effectiveness of Reciprocal Scaffolding Treatment in Anomic Aphasia

Reciprocal Scaffolding Treatment (RST) uses an apprenticeship model of learning that occurs between novices and a skilled partner. This project examined the effect of RST on improvement of word retrieval and conversational content for an individual with anomic aphasia. Novices were graduate student clinicians and the skilled partner was an individual with aphasia, who demonstrated facilitative communication techniques during conversational group treatment conducted by the novices. The individual with aphasia made positive changes in word fluency, correct information units and type-token ratio. Novice clinicians acquired training in facilitating conversational skills from a knowledgeable individual with aphasia.

Aphasia affects people in the midst of living their lives, and with little or no warning a person is thrust into a life that is permanently altered with immediate and long-lasting changes in language skills, employment, relationships, leisure activities, finances, and sense of self (Parr, Byng, Gilpin and Ireland, 1997). This obviously causes a shift in psychosocial satisfaction (Byng, Pound, and Parr, 2000) and the quality of one's life. Quality of life is a far-ranging concept including individual, social, and societal/community factors (Friedman, 1997). With respect to speech-language treatment, clinicians become advocates of quality of life by extending the scope of treatment beyond the clinic to include social and societal or community involvement. To maximize effectiveness theses approaches are designed to improve communication and sense of self (Lyon and Shadden, 2001; Simmons-Mackie, 2001; Avent, 1997) and require that treatment be conducted in appropriate settings, involve real communication, recognize the reciprocal nature of communication between a sender and receiver, increase participation in life, and focus on both the interactional (social) and transactional (information exchange) characteristics of communication (Chapey et al. 2001; Lyon and Shadden, 2001; Simmons-Mackie, 2001; Chapey et al. 2000; LaPointe, 1999; Lyon, 1999; Avent, 1997). Reciprocal Scaffolding Treatment (RST) was developed to explore the therapeutic value of increasing participation in life through natural language use with communicative partners during shared learning activities. The treatment focuses on an apprenticeship or reciprocal model of learning (Rogoff, Turkanis, and Bartlett, 2001; Rogoff, 1990), defined as learning that takes place in socially assembled situations where active novices (e.g. graduate student clinicians-in-training) learn skills and understanding through guided participation with more skilled partners (e.g. expert) (Rogoff, 1990). In RST, the more skilled partner is an adult with aphasia who is provided an opportunity to use current knowledge and language skills (Wepman, 1976) during routine teaching interactions with novices (Bruner, 1983). The context for RST is designed to be mutually beneficial for the participants so that the aphasic individual teaches the novices a skill while the novices provide natural and complementary language models for the aphasic individual during genuine interactions, i.e. reciprocal support or scaffolding. The merits of RST have been reported in a case study (Avent & Austermann, 2003) but have not been assessed in empirical study. Therefore, the purpose of this study was to investigate the effect of RST on improvement of word retrieval and conversational content for an individual with anomic aphasia.

Method

This pre-post assessment study took place in a university speech and language clinic. It was part of a larger multiple baseline across behaviors with multiple probes of language performance study. The independent variable was Reciprocal Scaffolding Treatment (RST) for the expert with aphasia (1 participant). The dependent generalization measures for the expert with aphasia were correct information units for obligatory content and type-token ratio of vocabulary diversity during 15-minutes conversational samples with an unfamiliar partner and verbal association fluency (FAS-Test). These measures were selected because they represent efficiency of word retrieval and utility within authentic communication exchanges.

Participants. AE (expert with aphasia) was a 53 year-old man who was 36 months postonset of injury due to a right frontal oligodendroglioma that was surgically removed. His WAB AQ score was 96.2 although by self-report and results of word fluency scores, he presented with anomia. He was a college graduate and employed for 24 years as an accountant. The unfamiliar

conversational partners were undergraduate students. All participants provided informed consent according to institutional policy.

Procedures. Conversational and FAS-Test samples were collected before and after the seven week treatment trial.

Treatment: Conversational group. The conversational group treatment during which RST was used took place twice weekly for seven weeks. Each session was 50-55 minutes in length and comprised of a graduate student clinician and 3 to 4 individuals with aphasia (discourse group treatment participants). Activities selected by the graduate student clinician during RST included conversations about current events, participants' leisure time activities, and life histories.

RST. During the treatment phase, AE was instructed to demonstrate facilitative communicative techniques. The dual goals of the session were for graduate clinicians to learn and employ facilitative communication techniques, and for AE to practice communicative skills in a predictable interchange. AE was requested to provide instruction to graduate clinicians using whatever means he chose.

Treatment schedule. AE demonstrated facilitative communication techniques to the one of the novice clinicians (randomly selected) during group treatment while the other clinicians remained in the baseline condition (no instruction by AE and conversational group treatment administered as planned by the novice clinician). After 3 sessions, AE instructed the second randomly selected novice clinician while the remaining 2 clinicians continued in the baseline condition. Following the next 3 sessions, the aphasic expert trained the next clinician, etc. The sessions were supervised according to ASHA standards including general written feedback for each graduate student clinician.

Reliability

The pre-post FAS-Test and conversational measures were independently scored by two of the investigators. Discrepancies were discussed until there was 100% agreement.

Results

Comparisons were analyzed quantitatively and qualitatively. Table 1 shows the FAS-Test and conversational scores. Before treatment the overall FAS-Test score was 23 (norms: Mean=43.7, SD=11.6) (Strauss, Spreen & Sherman, 2006). Following treatment, the overall FAS-Test score improved to 30. The pretreatment conversational measures were 81% CIUs and xx lexical diversity as measured by the type-token ratio. Post-treatment measures improved for CIUs (87%) and for lexical diversity (.33). Statistical analyses were not conducted due to the preliminary nature of the data.

	Pretreatment	Post-Treatment	Difference
FAS	23	30	+7
CIU	81%	87%	+6
Type-Token Ratio	.28	.33	+.05

Qualitative differences were noted in pre-post word recall and cohesion of the samples. In the FAS data before treatment, most of the word responses were nouns (61%). By the end of treatment, more word classes were observed with slightly more adjectives (37%) than nouns

(33%). In the conversational samples, there were fewer instances of false starts and incomplete utterances, e.g. word finding problems, by the end of treatment indicating improved language skills.

Discussions and Conclusions

The purpose of this study was to explore whether RST would improve naming and conversational content of an individual with aphasia. An aphasic individual with knowledge and expertise in facilitative discourse techniques was asked to teach these skills to novice graduate student clinicians. A pre-post treatment assessment approach was used to assess language skills. Analysis of FAS-Test verbal association fluency and conversational CIUs revealed that the aphasic individual's naming and conversational content was better following treatment. These findings, while preliminary in nature, show how the authentic use of language in structured reciprocal interactions such as teaching may improve language.

The value of a reciprocal scaffolding approach to social treatments is that it extends the therapeutic context of treatment to include mutually beneficial outcomes for all participants. As a result of the purposeful use of language during RST, an aphasic individual gained greater access and use of vocabulary and improved the content of his conversational skills. The graduate student clinicians acquired knowledge about conversational skills from a knowledgeable individual with aphasia.

Continued empirical validation is needed to define the scope and benefits of social approaches to treatment. Results of this study support social treatments of aphasia and provide evidence of improved language as a result of Reciprocal Scaffolding Treatment.

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Table 1. Pretreatment and Posttreatment Scores on Three Measures of Linguistic Performance

	Pretreatment	Post-Treatment	Difference
FAS	23	30	+7
CIU	81%	87%	+6
Type-Token Ratio	.28	.33	+.05