Efficiency of Training Volunteers to Converse with Elders with Aphasia

Interventions that increase social interaction for nursing home residents with aphasia are needed. An initial investigation training four volunteers with two residents resulted in clinically significant changes in volunteers' use of multi-modality communication, resulting in improved quality of conversations (Hickey, Bourgeois, & Olswang, 2004). This paper will describe results and efficiency of a training program used to train volunteers to use multi-modality communication in conversations with nursing home residents with aphasia. Hickey et al. (2004) used five components of training; here, up to four components were used in order to determine if the number of components in the training program can be reduced without compromising the effectiveness of the program. Research questions included: (1) Is multi-modality communication training effective in changing the proportion of volunteers' multi-modality utterances during probe conversations? (2) How many training components are necessary to reach criterion? (3) Do residents' proportions of comprehensible utterances increase after volunteers are trained to use multiple modalities? (4) Are results clinically significant, as determined by ratings of unfamiliar judges?

Method

Participants/Setting

Six undergraduate student volunteers (SVs) were recruited from various majors. One student dropped out of the study before beginning baseline, leaving five participants. SVs had typical communication abilities, and no prior experience with aphasia. Three nursing home residents with aphasia (RAs) were recruited. Each RA had a primary diagnosis of stroke with moderate to severe aphasia, two also had apraxia of speech, and none had a history of cognitive or psychiatric disorders. Training and probe conversations took place at the nursing homes. Two RAs were paired with two SVs and one RA was paired with one SV (due attrition of one SV). Additional participant description will be provided in the presentation.

Training

The examiner, a speech-language pathologist, administered the training, using a manual to keep training procedures consistent. The training program included up to four components: (A) didactic education on aphasia/communication modalities, (B) SV identification of modalities in videotaped conversations of others, (C) SV self-evaluation in videotape review, and (D) live modeling of modalities. Training proceeded from one component to the next when the SV reached criterion for each component and had stable or decreasing multi-modality communication in probes. SV1 and SV2 received training in the order listed above. SV3, SV4, and SV5 received training components in the following order: A, D, B, C.

Data Collection

Target behaviors for SVs included the modalities of communication (i.e., speaking, drawing, gesturing, pointing to visual stimuli, or writing) used in each utterance, coded from transcripts and videos, resulting in proportion of **general modality** used (i.e., speech only v. multi-modality). General modality was the primary dependent variable for movement through the phases of the study. RA utterances were coded for **comprehensibility**, and proportion of comprehensible v. incomprehensible utterances were obtained. Social validation measures were conducted with 15 judges unfamiliar with aphasia.

Design

An ABA multiple baseline across subjects (SVs) and partners (RAs) design (Barlow, Hayes, & Nelson, 1984) was employed, including baseline [A], training SVs [B], and post-training [A] phases. Throughout the study, probe conversations were conducted one to three times per week, using the multiple probe technique to reduce the total number of probes needed (Kazdin, 1982). In the training phase, training sessions also occurred once per week, with probe conversations immediately after each session and additional probes twice per week. Baselines began concurrently for all dyads. Initiation of training was staggered across SVs and was based on stability of target behaviors in baseline probes. Movement from training to post-training phases occurred after the SV reached criterion for proportion of multi-modality utterances in probes (60% in 3 consecutive probes). The post-training phase ended after at least three post-training probes were collected for the last dyad.

Data Analyses

Questions 1 and 2 were addressed by visual inspection of the dependent variables across experimental phases with regard to changes in level, slope, and trend (Barlow et al., 1984; Hersen & Barlow, 1976). Question 3 will be addressed similar to questions 1 and 2, but these coding and analyses are not yet complete. Question 4 was addressed by comparing pre-training post-training results of social validity rating scales using paired samples t-tests.

Reliability

Thorough treatment fidelity procedures were used (Moncher & Prinz, 1991), including procedural reliability, which remained over 95%. Transcription reliability was over 90% for all participants in all phases of the study. Reliability for coding of the primary dependent variable, students' modality, was over 90% for all SVs and all phases of the study. Reliability measures will be conducted for comprehensibility coding.

Results and Clinical Implications

As displayed in Figure 1, all SVs displayed 15-20% multi-modality utterances in baseline probes. All SVs responded to the training quickly, with increases of up to 60% multi-modality communication after the first training component. Also seen in Figure 1, the SV1 and SV2 needed all four components of training to achieve a stable level of multi-modality utterances and to reach criterion in the probe conversations (60% multi-modality utterances). When the order of training procedures was changed, SV3, SV4, and SV5 achieved criterion after three components of training. Data analyses are ongoing for comprehensibility of the residents. As can be seen in Table 1, results of social validity ratings demonstrated statistically significant differences between pre- and post-training conversations for most dimensions and most dyads.

The results of this study suggest that training volunteers to use multi-modality communication is an efficient way to produce clinically significant changes in their conversations with nursing home residents with aphasia. Furthermore, the order of training procedures may affect the efficiency of the training procedures. Live modeling of the multi-modality strategies may be more beneficial than videotape review of others. However, replication will be needed to verify this finding. Better understanding of the effects of training components will facilitate future research in which different types of volunteers, staff (e.g., activities staff, nursing assistants, nurses, social workers) and family members/friends will receive training. The most effective and efficient training procedures are needed to maximize cost-effectiveness and clinical significance. Findings from the study, differences from the original study, and clinical recommendations will be thoroughly described in this paper.

References

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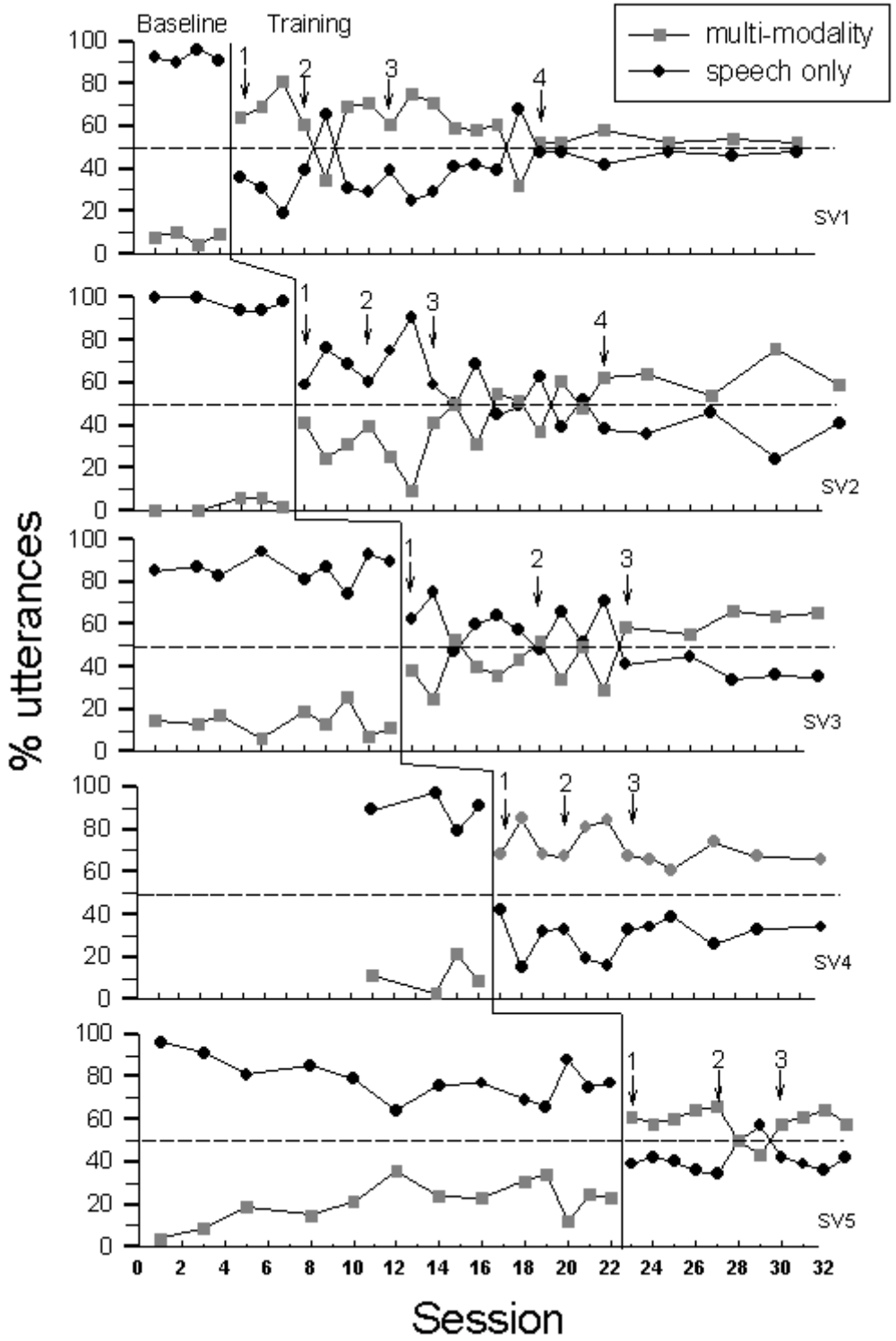

Figure 1. Proportion of student volunteers' (SVs) speech only (black circles) versus multi-modality (grey squares) utterances in 10-minute conversation probeswith residents with aphasia (RAs). During the training phase, the numbers indicate the step completed to the subsequent conversation probes.

Table 1 Results of social validity ratings by 15 unfamiliar judges in samples of baseline and withdrawal conversations for each student volunteer (SV) – resident with aphasia (RA) dyad.

	SV1-RA1	SV2-RA2	SV3-RA3	SV4-RA2	SV5-RA1
RA Comfort					
Baseline	5.6 (3.2)	7 (2.2)	5.9 (2.0)	4.1 (2.2)	5.5 (1.9)
Withdrawal	8.1 (2.0)**	7.9 (2.1)**	6.8 (2.0)*	5.2 (2.2)*	6.2 (2.0)*
SV Comfort					
Baseline	6.1 (2.8)	7.2 (1.9)	5.5 (2.0)	3.9 (2.5)	5.5 (2.4)
Withdrawal	8.6 (1.5)**	7.9 (1.7)**	6.9 (1.7)*	5.7 (2.1)*	7.1 (2.4)
RA Communicative Effectiveness					
Baseline	4.4 (3.6)	6.8 (2.8)	3.7 (2.4)	2.1(1.6)	3.6 (2.1)
Withdrawal	8.2 (2.2)**	7.8 (2.6)**	4.7 (2.6)*	3.4 (1.6)**	5.7 (2.7)**
SV Communicative Effectiveness					
Baseline	5.6 (2.6)	7.3 (1.9)	4.1 (2.8)	3.2 (2.2)	4.1 (2.1)
Withdrawal	8.7 (1.8)**	8.1 (1.9)**	5.3 (3.1)*	5.1 (2.4)*	6.8 (2.9)*
Topic Management					
Baseline	5.5 (3.5)	7.3 (1.6)	4.5 (2.5)	2.5 (2.3)	3.0 (1.7)
Withdrawal	7.5 (2.4)*	8.2(1.5)*	5.9 (3.0)	3.8 (2.8)*	5.2 (2.3)**
Overall Quality					
Baseline	4.4 (2.7)	6.7 (1.9)	4.4 (2.6)	2.2 (2.0)	3.4 (2.4)
Withdrawal	8.2 (1.7)**	8.1 (2.1)**	5.7 (3.2)	3.2(2.0)*	5.3 (2.8)*

**p<.05
* p<.005