

*BEHAVIORAL INTERVENTION TO TREAT SELECTIVE MUTISM
ACROSS MULTIPLE SOCIAL SITUATIONS AND
COMMUNITY SETTINGS*

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We evaluated a behavioral intervention for a 9-year-old girl with selective mutism. The intervention consisted of role play and video self-modeling. The frequency of spoken initiations, responses to questions, and communication breakdowns was measured during three social situations (i.e., ordering in a restaurant, meeting new adults, and playing with new children) and in three community settings. Results demonstrated increases in spoken initiations and responses and decreases in communication breakdowns across all situations and settings.

Key words: selective mutism, role play, video self-modeling, communication intervention, community settings

Selective mutism is a childhood disorder in which speech occurs in some environments but not in others (American Psychiatric Association, 2000). For example, a child may speak normally at home, but not speak at school or the community park. Estimates of prevalence vary but are typically less than 1% of the population (Viana, Beidel, & Rabian, 2009). Selective mutism may result in social isolation and academic failure (Kolvin & Goodyer, 1982). Previous interventions for selective mutism have

involved contingency management (e.g., Watson & Kramer, 1992), practice or priming (e.g., O'Reilly et al., 2008), shaping (e.g., Masten, Stacks, Caldwell-Colbert, & Jackson, 1996), and systematic desensitization (e.g., Rye & Ullman, 1999).

The current study evaluated a behavioral intervention for selective mutism consisting of role play and video self-modeling (VSM). Role play involves practicing the desired behavior and receiving feedback and reinforcement. Role play has been shown to improve social skills in people with intellectual disability (e.g., Huang & Cuvo, 1997). VSM has been demonstrated to be a potentially efficient and effective intervention to improve social and communi-

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cation skills in children with emotional and behavioral disorders (e.g., Baker, Lang, & O'Reilly, 2009) and autism spectrum disorders (McCoy & Hermansen, 2007). The combination of these intervention components seems likely to improve speech in children with selective mutism.

To date, we are unaware of any behavioral intervention studies for selective mutism in which the effects of an intervention were evaluated outside the school and across multiple community settings and social situations. In this study, speech was measured during three social situations and in three community settings following role play and VSM.

METHOD

Participant and Setting

Leslie was a 9-year-old girl with selective mutism. She spoke clearly and frequently in her home but would not speak in many community settings. This absence of speech in the community had persisted for more than a year and interfered with activities (e.g., summer camp and swim lessons). Leslie had no previous history with the experimenter and had never received any systematic behavioral intervention prior to involvement in the study.

Three social situations in which speech was expected but in which Leslie did not speak were selected for intervention (i.e., ordering at a restaurant, meeting new adults, and playing with a new peer). Data were collected at two restaurants and an office building. Each setting was commonly visited by Leslie and her family prior to the study. Both restaurants required customers to stand at the counter and order from a large menu board hanging from the ceiling. The office building was on a university campus near Leslie's father's workplace.

Response Measurement, Interobserver Agreement, and Treatment Fidelity

Responses, initiations, and communication breakdowns were measured for all three social

situations. *Responses* were defined as spoken answers to questions that were loud enough to be heard and occurred within 5 s of the question. *Initiations* were defined as spoken statements that occurred after a period of 5 s or more without a spoken exchange, were loud enough to be heard, and were not in response to a question. *Breakdowns* were defined as failures in communication in which (a) the communication partner repeated a question, (b) the communication partner asked Leslie to repeat herself, or (c) Leslie did not respond within 5 s of being asked a question.

All sessions were recorded using a handheld video recorder, and videos were coded for dependent variables using frequency recording. Interobserver agreement was obtained for 33% of sessions. Interobserver agreement was calculated from the video recordings by dividing each recorded session into 30-s intervals and comparing the frequency of each dependent variable within each 30-s interval. Within each interval, the lowest number of total occurrences was then divided by the highest and the result was multiplied by 100% for each dependent variable. Mean agreement across intervals was 100% for all dependent variables during baseline. During the intervention, mean agreement was 89% (range, 80% to 100%) for responses, 87% (range, 66% to 100%) for initiations, and 98% (range, 90% to 100%) for breakdowns.

Treatment fidelity was assessed during 50% of intervention sessions using a checklist based on intervention components. The checklist combined experimenter presentation of intervention components and Leslie's participation and included the following: (a) Leslie watched the video (i.e., eyes open and head oriented towards screen), (b) Leslie spoke during role play (i.e., audible speech appropriate to the role-play scenario), and (c) the experimenter delivered praise (e.g., "Great work, I could hear you clearly!"). The occurrence or nonoccurrence of each component was recorded during

sessions in which treatment fidelity was measured. Treatment fidelity was 100%.

Design and Procedure

The intervention was evaluated in a multiple baseline design across the three social situations (i.e., ordering, meeting adults, and playing with peer).

Baseline. Baseline for ordering in a restaurant was conducted in Restaurant 1. Leslie was taken to the restaurant by an experimenter and her mother, given money, and asked to order anything she wanted. Leslie's mother sat at a table a minimum of 5 m away from Leslie, and the experimenter stood next to Leslie. When Leslie approached the counter, the employee asked her if she was ready to order (or a similar question). After the occurrence of two communication breakdowns, the session was terminated and the experimenter ordered for Leslie and completed the transaction. Sessions were terminated early to avoid unnecessarily embarrassing Leslie. Early termination occurred in all three baseline sessions for all three social situations because Leslie did not speak. Therefore, each baseline session lasted less than 2 min.

Baselines for meeting a new adult and playing with a new child were conducted in the office building, and each session occurred with a different person not previously met. Leslie's mother was in a different room out of sight, and the experimenter stood a minimum of 5 m away. The adults were doctoral students who volunteered to participate in a social skills intervention and were told that they would meet for 5 min with a child. Leslie was brought to the adult's office, and the experimenter said to the adult, "I have someone I would like you to meet." The adults had been told this would be the introduction and to behave as they normally would when meeting a child. Five-minute sessions were planned, but early termination following two communication breakdowns ended baseline sessions in less than 2 min.

Peers were children of staff or doctoral students. Peers were told that the purpose of the study was to investigate the way children played together. Leslie and the peer were given a table, two chairs, and a board game both children knew how to play. Peers were unaware that Leslie's participation was any different than their own. The session was ended after 10 min or two communication breakdowns.

Role play and video self-modeling. Prior to the intervention, the experimenter asked Leslie which social situation she would like to work on first. Leslie chose to work on ordering in a restaurant first, meeting adults second, and playing with peers last. Therefore, intervention implementation was staggered across social situations in that order. Intervention sessions consisted of role play, video observation, and reinforcement and were implemented at Leslie's home. Data were collected at the restaurants (for ordering) or office building (for meeting new adults and playing with peers) using the same procedures as in baseline, including the session-termination criterion. However, no sessions ended early because communication breakdowns rarely occurred during the intervention.

The experimenter and Leslie met at Leslie's home and discussed the social situation they would role play. Leslie was given suggestions regarding how to respond to specific questions that would be asked during role play (e.g., "Do you want this for here or to go?" when ordering in a restaurant) and on possible ways she might initiate (e.g., "Hi, what's your name?" when meeting a new person). During role play, the researcher pretended to be the communication partner (e.g., cashier at restaurant). Leslie was able to speak without difficulty during role play and was videotaped. Leslie then watched the role-play video and video from the previous session taken at the restaurant or office building (except the first session for each setting because only a role-play video was available). Leslie was able to identify her responses, initiations, and

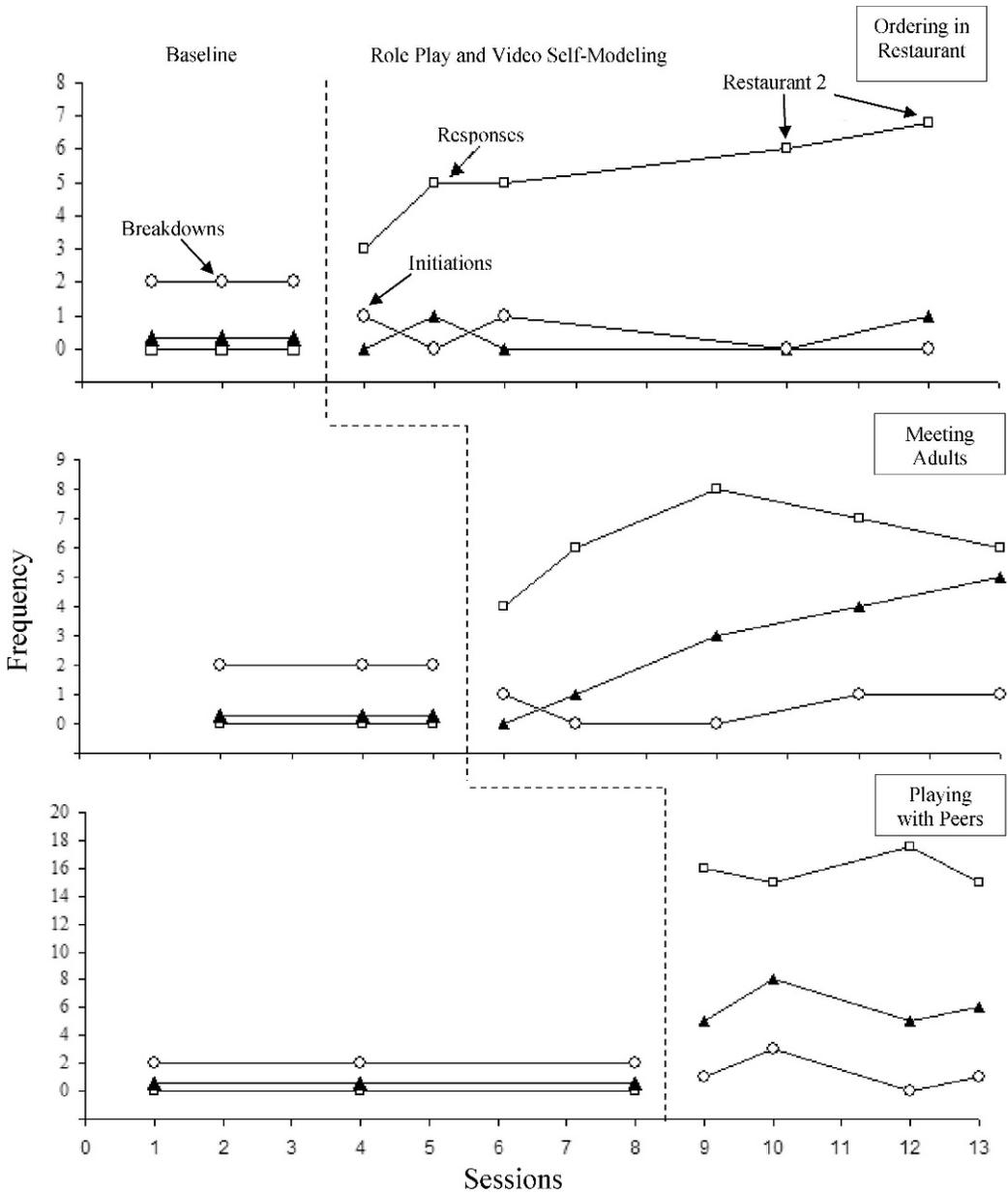


Figure 1. Frequency of spoken initiations, responses to questions, and communication breakdowns across three social situations.

breakdowns in the videos. The researcher praised Leslie for all occurrences of responses and initiations observed on the videos. Role play and VSM lasted 30 to 45 min. Session duration varied from 2 to 4 min ($M = 2.5$ min) for ordering in Restaurant 1 and from 3 to 5.5 min when ordering in Restaurant 2 ($M =$

4 min). Meeting new adult sessions were set at 5 min and playing with peers at 10 min.

RESULTS AND DISCUSSION

Figure 1 displays the frequency of the dependent variables in baseline and interven-

tion. Baseline confirmed the report that Leslie did not speak in the identified social situations and settings. Following the intervention, Leslie spoke in all three social situations and in all three settings. Responses per session increased from 0 in baseline to means of 5 for ordering in a restaurant, 6 for meeting adults, and 16 for playing with peers. Initiations increased from 0 in baseline to means of 0.3 for ordering in a restaurant, 4 for meeting adults, and 5 for playing with peers. Few initiations occurred when ordering in a restaurant because the cashier quickly asked questions (e.g., "How can I help you?") and Leslie needed only to respond to questions. Communication breakdowns were rare during intervention ($M = 0.7$). In baseline, communication breakdowns were the result of not speaking, but they occurred during intervention because Leslie sometimes spoke too softly to be understood. It is important to note that Restaurant 2's menu and routine required the cashier to ask more questions than in Restaurant 1. Therefore, the increase in responses from Restaurant 1 to Restaurant 2 is explained by the increase in opportunity. Although her mother reported that Leslie did not speak in any restaurant, the absence of baseline data in Restaurant 2 also restricted interpretation of those results as generalization.

Previous research has conceptualized selective mutism as a type of phobia (e.g., Cohan, Chavira, & Stien, 2006). From a behavioral perspective, selective mutism is an example of restricted stimulus control. Specifically, speech would appear to be under control of setting-specific stimuli as opposed to the usual social stimuli (e.g., presence of a listener) and motivating operations that evoke speech. This behavioral interpretation is supported by the current study because speech did not increase in a social situation until intervention directly targeted that situation. For example, baseline levels for meeting a new adult remained stable even after speech when ordering in a restaurant

increased, suggesting that generalization across settings may not occur even when the social situations are similar. Based on this interpretation, future behavioral interventions for selective mutism should involve procedures designed to transfer stimulus control from irrelevant setting-specific stimuli to relevant social stimuli.

The intervention described here increased the frequency of speech quickly during targeted social situations. Previous research involving the treatment of selective mutism suggests that long treatment durations are not uncommon (Standart & Le Couteur, 2003), with many studies reporting durations of more than 1 year (Cohan et al., 2006). By contrast, improvement was observed in this study after very few intervention sessions. Despite this efficiency, the need to target each social situation individually is a substantial limitation for individuals with selective mutism who require intervention across numerous social situations. The behavioral interpretation of selective mutism described above may facilitate the design of future interventions that promote generalization by focusing on transferring stimulus control to social discriminative stimuli.

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