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USING HABIT REVERSAL TO DECREASE FILLED PAUSES IN PUBLIC SPEAKING

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This study evaluated the effectiveness of simplified habit reversal in reducing filled pauses that occur during public speaking. Filled pauses consist of "uh," "um," or "er"; clicking sounds; and misuse of the word "like." After baseline, participants received habit reversal training that consisted of awareness training and competing response training. During postintervention assessments, all 6 participants exhibited an immediate decrease in filled pauses.

Key words: awareness training, competing response training, habit reversal, public speaking

Effective public communication skills are a valuable asset. Engaging and fluent public speaking is one of the keys to successful public relations (Spohr, 2009), the dissemination of research (Tate, 2005), and job success (Parvis, 2001). Recently, Friman (2014) extolled the importance of successful public speaking for behavior analysts. However, filled pauses (e.g., saying "uh," "um," or "er"; making clicking sounds; interjecting the word "like") are common when people make public presentations (Spohr, 2009; Tate, 2005; White, 1991). Due to their repetitive nature and potential negative social consequences, filled pauses during public speaking are similar to habits (Miltenberger, Fuqua, & Woods, 1998). Habits have been successfully treated with habit reversal procedures that consist of awareness training and competing response training (e.g., Azrin & Nunn, 1973, 1974; Miltenberger et al., 1998; Wagaman, Miltenberger, & Arndorfer, 1993).

Furthermore, the similarities between stuttering and filled pauses that occur during public speaking suggest that habit reversal may be an effective treatment for filled pauses. For example, stuttering and filled pauses both cause a temporary disruption in the flow of speech and involve repeated sounds or words (Clark & Tree, 2002; Miltenberger & Woods, 1998; Wagaman et al., 1993). When filled pauses occur during public speaking, they can decrease the speaker's credibility (Clark & Tree, 2002).

Due to the success of habit reversal for decreasing stuttering and other habits and the similarity between these repetitive behaviors and filled pauses, research is needed to evaluate the effectiveness of habit reversal for individuals who exhibit a high rate of filled pauses. Therefore, the purpose of this study was to examine the use of habit reversal to decrease filled pauses that occur during public speaking.

METHOD

Participants and Settings

Six female college students participated in this study: two undergraduate students (Amy and Jen) and four graduate students. Each participant rated her public speaking ability as average to below average, expressed a desire to improve her public speaking skills, and exhibited filled pauses at least twice per minute during public speaking activities (as observed during their baseline speeches). For every 2 weeks that participants attended all of their scheduled sessions, they received $10. Sessions occurred in a conference room with a table and chairs.

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Target Behaviors, Data Collection, and Interobserver Agreement

A filled pause occurred when a speaker uttered a nonsense syllable such as "um," "uh," "ah," or "er"; engaged in tongue clicking; or interjected the word "like." *Tongue clicking* was defined as the speaker placing her tongue on the roof of the mouth with pressure and then releasing that pressure creating an audible "tsk" or click sound. *Likes* were defined as the speaker using the word "like" when it was not grammatically correct. It was considered grammatically correct if the speaker was making a comparison or if the speaker used it to indicate enjoyment.

Data were collected through video recordings of baseline and postintervention assessment sessions. All sessions included 3- to 5-min speeches. Each speech was scored using a frequency-within-15-s-interval recording system. The rate (responses per minute) of filled pauses was then calculated for each session. Interobserver agreement was collected for 33% of all sessions using a frequency-within-interval agreement method. There was 87% agreement across all phases and participants. Speech topics were derived from a list of 25 general topics (e.g., my first job, my favorite movie, my favorite vacation) or a list of 22 topics in applied behavior analysis (chosen for the two participants who were masters students in the field). The researcher selected two topics randomly at the beginning of each session and instructed participants to choose one.

Social Validity

Participants completed a questionnaire about their public speaking ability, comfort, and confidence before the habit reversal training session and at the completion of the last assessment session. After the last assessment session, participants also completed a questionnaire that evaluated the acceptability, satisfaction, and ease of implementation of the intervention. The questionnaire, created by the first author, contained five questions related to public speaking: How comfortable are you?, How would you rate your overall ability?, How confident do you feel?, How often do you use fillers?, and How anxious are you? Social validity of the outcome of the intervention was evaluated by rating speech samples from baseline and postintervention assessments. Research assistants who were blind to the phase of the study scored baseline and postintervention videotaped sessions presented in random order. The checklist contained 12 questions and examined public speaking behaviors such as fluency, volume, comfort level, use of fillers, rate of speech, eye contact, and confidence. Both social validity measures were scored using a 5-point Likert-type scale (with higher score indicating a higher evaluation). The two social validity scales are available from the first author.

Design and Procedure

A nonconcurrent multiple baseline design across participants was used to evaluate the effectiveness of habit reversal in reducing filled pauses in public speaking.

Baseline. During baseline (and postintervention assessment) sessions, participants met individually with the researcher. Each meeting began with the researcher providing the participant with two topics from which to choose. After she chose a topic, the participant was told that she had 10 min in which to prepare and create an outline for a 5-min speech. For the two participants from the Applied Behavior Analysis program, a copy of a textbook (Miltenberger, 2012) was also provided during speech preparation. The researcher did not provide any guidelines for the speech outline. Each participant was allowed to use her outline during her speech. At 4 min into the speech, the researcher signaled that the participant had 1 min left to speak, and when 5 min had elapsed, the researcher signaled the end of the speech. If the participant attempted to end the speech before 3 min had elapsed or stopped speaking for more than 15 s, the researcher said, "please

continue." Speeches ended when 5 min had elapsed or when at least 3 min had elapsed and the participant ended the speech. No feedback was provided during or after the speech. The researcher listened to the participant but did not respond to any of the target behaviors.

Habit reversal. During habit reversal training, participants met individually with the researcher. Intervention included awareness training and competing response training. Awareness training included response description and response detection. During response description, the participant and researcher discussed the topography of the target behaviors. During response detection, the participant first practiced detecting the target behaviors in a 3-min video clip of one of her baseline speeches. Next, the participant practiced identifying the target behaviors while she gave a speech. Speech preparation was identical to baseline procedures. Before beginning the speech, however, the researcher instructed the participant to raise her right hand each time she engaged in any of the target behaviors and to raise her left hand when becoming aware that she was about to engage in any of the target behaviors. The researcher also raised her hand each time the participant engaged in any of the target behaviors to aid in the participant's awareness. The same speech was used throughout awareness training. Awareness training ended when the participant identified 100% of the occurrences of the target behaviors in one speech or when the participant identified at least 85% of the occurrences of the target behaviors in two consecutive speeches.

During competing response training, the researcher described and modeled the competing responses for the target behaviors. The participant then practiced engaging in each competing response. The competing response for saying "uh," "um," or "er" was a 3-s silent pause. The competing response for tongue clicking involved the participant placing her tongue so that it contacted the inside of the bottom front teeth and holding this position for 3 s. The competing response for interjecting "like" involved the participant beginning the sentence again without saying "like." Two new topics, different from those in awareness training, were provided from which the participant could choose. Before the speech started, the researcher told the participant to use the competing response contingent on the target behavior. The researcher prompted the participant to use the competing response if she exhibited one of the target behaviors without engaging in the competing response within 2 s. Competing response training ended when the participant presented a speech and exhibited an 80% reduction in the target behaviors from her baseline mean.

The first postintervention assessment took place no more than 3 days after intervention for each participant. If a participant did not exhibit at least a 75% decrease from her baseline mean in the target behavior during two consecutive assessment sessions, the researcher provided a booster session. Booster sessions were identical to habit reversal training in all aspects except that the participant did not practice identifying the target behaviors in a video clip during awareness training.

A follow-up assessment occurred 2 to 5 weeks after the last postintervention assessment.

Implementation Fidelity

Implementation fidelity was assessed for 33% of sessions during each phase and was 100% across participants and phases.

RESULTS AND DISCUSSION

The results showed that habit reversal greatly reduced filled pauses during public speaking (see Figure 1). In baseline, all six participants exhibited a moderate to high rate of the target behaviors ($M = 7.4$ responses per minute). Immediately after habit reversal training, participants exhibited the target behaviors at a much lower frequency ($M = 1.4$ responses per minute). These results were maintained at a 2- to 5-week

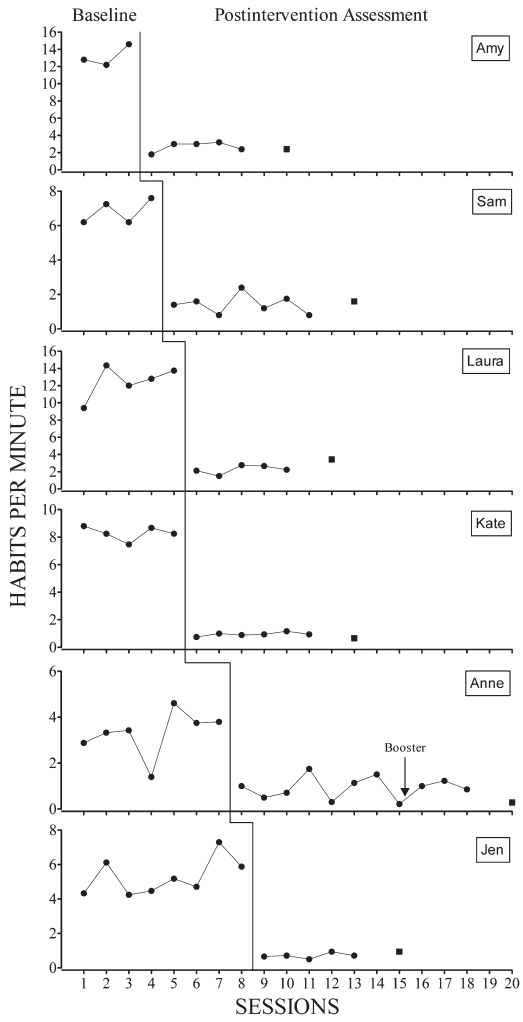

Figure 1. Rate of filled pauses across participants during baseline and postintervention assessments. The downward arrow represents sessions conducted after a participant received a booster session. The square data point represents a 2- to 5-week follow-up session.

follow-up for all six participants. The social validity measures also yielded positive results. Participants rated their overall abilities higher during postintervention assessment than they did during baseline (baseline $M = 2.26$; postintervention $M = 2.97$). The two items on this questionnaire that improved the most were "comfort level" and "use of fillers." On the questionnaire related to habit reversal training, participants indicated that they liked the procedures, found them acceptable, and found them to be somewhat to very effective in reducing their use of fillers ($M = 4.2$). The results of the social validity assessment from evaluation of baseline and postintervention videos showed that only one item improved after intervention: the use of fillers (baseline $M = 1.75$; postintervention $M = 3.7$).

The results of this study provide preliminary evidence for the effectiveness of habit reversal to reduce filled pauses during public speaking. Habit reversal was both effective and efficient in an analogue setting. All six participants exhibited a decrease in the target behaviors immediately after a single habit reversal training session. Only one participant needed a 25-min booster session. The present study, the first behavior-analytic study to address public speaking, adds to the large body of research that has demonstrated the efficacy of habit reversal across numerous behaviors and populations (Miltenberger et al., 1998).

There are two limitations of the present study; speeches were not presented in front of an audience, and no generalization probes were conducted. Due to the impromptu nature of the speeches, however, we believe these to be only minor limitations. In the current study, participants were given only 10 min to prepare a speech. In a natural setting, students often prepare and rehearse speeches well in advance. Thus, it is hypothesized that the results of this study would generalize to a more natural setting in front of an audience without issue. Future research should replicate the habit reversal procedure and examine its effects in longer speeches and generalization to a more natural setting.

Although decreases in filled pauses were maintained during the follow-up sessions, this finding is not necessarily an indication that the intervention produced permanent or even long-lasting change. Most behaviors that have been effectively treated by habit reversal are behaviors that can be engaged in at any time or location

(e.g., nail biting), so the person has the opportunity to practice using the competing response on a regular basis. Although the behaviors targeted in this study can occur at any time, habit reversal was administered only for speeches. If participants did not give a speech for an extended period of time, it is unlikely they would practice the competing response. Furthermore, they might continue to use filled pauses and interject the word "like" in their everyday conversations, and therefore these behaviors would be exhibited regularly without intervention. Thus, further investigation should be conducted on the long-term effectiveness of habit reversal on public speaking habits.

The present study employed both major components of habit reversal: awareness training and competing response training. During training, however, four of the six participants exhibited an 80% decrease in the target behaviors during the first speech they gave after awareness training and before competing response training was implemented. This finding suggests that for some people, awareness training alone may be sufficient to decrease filled pauses. Thus, future research should examine the effectiveness of awareness training alone.

This study also adds to the small body of literature in the area of public speaking skills. Although some research has been conducted on teaching these skills (e.g., Fawcett & Miller, 1975), this is the first study to focus on decreasing interfering speech behaviors. Future research should focus on decreasing filled pauses and improving speaker skills such as eye contact, posture, voice projection, and use of inflections. In this way, effective speech practices would be strengthened while interfering behaviors would be weakened.

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