IMPROVING THE INTERVIEW SKILLS OF COLLEGE STUDENTS USING BEHAVIORAL SKILLS TRAINING

COREY S. STOCCO

BRIAR CLIFF UNIVERSITY

RACHEL H. THOMPSON AND JOHN M. HART

WESTERN NEW ENGLAND UNIVERSITY

AND

HEIDI L. SORIANO

BRIAR CLIFF UNIVERSITY

Obtaining a job as a college graduate is partly dependent on interview performance. We used a multiple baseline design across skills to evaluate the effects of behavioral skills training with self-evaluation for five college students. Training effects were evaluated using simulated interviews as baseline and posttraining assessments. All participants acquired targeted skills, but we observed some individual differences. Participants were satisfied with training outcomes and rated the procedures as acceptable. Furthermore, ratings from university staff who provide interview training indicated that training improved performance across several skills for the majority of participants.

Key words: behavioral skills training, college students, interview skills, interview training, verbal behavior

There is an upward trend in unemployment and underemployment of new college graduates (Abel, Deitz, & Su, 2014). Employers value candidates with a degree, but 52% of employers report that it is difficult to find recent college students who are qualified for jobs (Chronicle of Higher Education and Marketplace, 2013). The application process typically includes descriptions of candidate qualifications in a variety of formats (e.g., applications or letters of recommendation), but interviews are the most preferred and frequently used assessment of an applicant (see Macan, 2009, for a review). Despite the widespread use of interviews in the application process, they are imperfect predictors of job performance (Barrick, Shaffer, & DeGrassi, 2009) and they can lead to missing out on a well-qualified candidate that lacks interview skills.

To increase their chances of employment, recent college graduates might participate in common interview services available at career centers on campus (National Association of Colleges and Employers [NACE], 2014). At career centers, students might find pamphlets containing lists of common interview mistakes, typical interview questions, and what to wear to an interview. In addition, students might have the opportunity to participate in practice interviews. In a recent survey, 79% of new college graduates reported that they used career services during their final year of school, and they reported that practice interviews were among the most helpful services (NACE, 2013). However, 67% of employers suggest recent graduates need to improve their interview performance (Chronicle

of Higher Education and Marketplace, 2013), suggesting there is a need to improve interview training at colleges.

Reviews of the literature suggest that best practices in interview training include variations of instructions and models of target skills, followed by practicing those skills and receiving feedback (Galassi & Galassi, 1978; Latham, 1987; Macan, 2009); behavior analysts would recognize these procedures as behavioral skills training (BST). Although several studies have evaluated interview training for college students (Campion & Campion, 1987), a majority used group designs and statistical analyses that overlooked the effects on individual performance (Gillen & Heimberg, 1980). For example, Hollandsworth, Dressel, and Stevens (1977) demonstrated that a 4-hr workshop composed of BST or presentation and discussion produced greater improvements in the average ratings of skills (e.g., eye contact or skill explanation) than a no-intervention control group. However, statistical analyses, such as the one in Hollandsworth et al, conceal the individuals for whom training was ineffective (Sidman, 1960). In short, these studies do not demonstrate how to improve the skills of any particular college student, especially those who request one-on-one services through a career center on campus. Single-subject analyses are most useful for evaluating interview training aimed at improving the performance of an individual.

In correspondence with the results of group studies, single-subject research provides further evidence supporting BST as an effective strategy to teach interview skills (Hall, Sheldon-Wildgen, & Sherman, 1980; Hollandsworth, Glazeski, & Dressel, 1978; Kelly, Wildman, & Berler, 1980; Schloss, Santoro, Wood, & Bedner, 1988). However, most studies taught individuals with disabilities to engage in skills that may not translate to effective and practical interview training for college students (Gillen & Heimberg, 1980; Macan, 2009). For example, Schloss et al. (1988) taught two individuals with

intelletucal disabilties to respond to interview questions with one-sentence answers. There are few single-subject analyses that demonstrate how to improve the interview performance of individual college students. In a notable exception, Hollandsworth et al. (1978) used BST to improve the interview performance of a recent college graduate. Experimenters used simulated interviews to identify target skills and to assess the effects of training. A multiple baseline across responses demonstrated decreases in filled pauses (e.g., "um" or "ah"), increases in the number of questions asked by the participant, and increases in experimenter ratings of focused answers given by the participant. Due to a lack of replication across participants, it remains possible that effects of BST are highly idiosyncratic. In addition, little is known about the practicality and social validity of using BST to improve the interview skills of college students on an individual basis.

In addition to offering individualized services to those in need, colleges need a comprehensive training program that teaches interview skills to every student. Response to Intervention (RTI) is a three-tiered intervention model that is used to treat problem behavior in educational settings (Gresham, 2004); it might be summarized as teaching for all (Tier 1), some (Tier 2), or one (Tier 3). Children progress from Tier 1 to Tier 3 based on need. An RTI approach to interview performance might consist of training within a first-year course taken by all students (Tier 1), training embedded into a core course within a major (Tier 2), and highly individualized training offered by behavior analysts through the career center (Tier 3). The results of existing group designs could inform procedures used to teach skills to a large number of college students in Tiers 1 and 2 (e.g., presentation and discussion; Hollandsworth et al., 1977). By contrast, there is little research to inform Tier 3 interview training at colleges.

The purpose of this study was to evaluate the effects of BST on the interview skills of

college students. Similar to Hollandsworth et al. (1978), the goal was to develop individualized training for college students. We extended Hollandsworth et al. by replicating effects across individuals and interview contexts (i.e., job or graduate-school interviews). Because the adoption of behavioral interventions depends on social validation (Wolf, 1978), we assessed the acceptability of our procedures and outcomes. In addition, we reported the time expenditure required to implement our procedures. Single-subject analyses were used to evaluate the reliability and generality of training outcomes across individuals and skills.

METHOD

Participants and Setting

We recruited five undergraduate students (four female and one male) by visiting university classes and offering the opportunity to receive free interview training. Dean was a 20-year-old male. Amy was a 20-year-old female. Mary was a 21-year-old female. Rene was a 20-year-old female. Jill was a 24-year-old female. All sessions occurred 2 days per week in a university office, meeting room, or research room equipped with a table and two chairs.

Measurement

All data were collected from video recordings of sessions. Trained observers used pencil and paper to collect data on vocal responses (i.e., appropriate answers or appropriate questions) and nonvocal responses (i.e., smiling or posture). Data collectors reviewed operational definitions with the first author and recorded data on practice videos until they obtained interobserver agreement of 80% or higher for four sessions. The primary and secondary observers for each participant were constant across sessions. The specific dependent measures varied slightly across participants based on our initial open-ended indirect assessment and baseline interviews (see below).

Vocal responses. Criteria for appropriate answers and appropriate questions were derived from the interview skills literature (e.g., Frequently Asked Questions About Graduate School, n.d..; Greenwood, 2010; Hansen, Oliphant, Oliphant, & Hansen, 2009; Hollandsworth, Kazelskis, Stevens, & Dressel, 1979) and refined through feedback from the director of a career center at a university (see Supporting Information for specific questions and answers). Given one of the seven types of interview questions, an appropriate answer was scored as correct if the answer met all criteria. For example, given the question, "What kind of experience do you have in the field?" an answer to this type of question was scored as appropriate if it met two criteria. First, the answer must include academic or job experience related to the specific job or field of study. Second, the answer must highlight how those experiences led to skill development that matched those required for the job or graduate school. To ensure that the skills described in participants' answers matched the positions or programs, observers referred to printed job advertisements or descriptions of graduate programs provided by the participants. We held all participants to the same criteria, but the organization of an appropriate answer was free to vary. An answer was recorded as incorrect if it met some or none of the criteria listed for a given answer type. From these data, we calculated a percentage of appropriate answers. An appropriate question was recorded if it matched any of four categories. For example, interviewees were to ask questions demonstrating that they had read information on the company's or university's website, but the answers to those questions should not be found on a website. Observers looked at the company's or university's website to verify that answers to questions were not retrievable. An appropriate question of this type might sound something like this, "According to your website, most students start practicum in their second year; what are some of the

practicum experiences that are currently available?" (Types of inappropriate questions are listed in Supporting Information). We recorded the frequency, or count, of appropriate questions asked by participants.

Nonvocal responses. To measure smiling or posture, we used 10-s momentary time sampling with a 3-s observation window. We thought this measurement system was appropriate because interviewers might informally time sample interviewee behavior during an interview. That is, interviewers commonly look away to take notes or read materials (e.g., interviewee's résumé) and glance intermittently at the interviewee. Appropriate posture was defined as sitting with the participant's back against the chair and the absence of fidgeting (e.g., touching hair, face, or shirt) or manipulating materials (e.g., opening and closing a folder that contained the participant's résumé).

Interobserver agreement. A secondary observer independently collected data on all targeted skills for at least 20% of simulated interviews in each condition for all participants. Observer agreement on appropriate answers was compared for each type of appropriate answer and converted to a percentage. For appropriate questions, we compared the type of appropriate or inappropriate question recorded across observers and converted to a percentage. A disagreement was recorded if the type of question did not match across observers. Interobserver agreement for smiling and appropriate posture was assessed on an interval-by-interval basis. Interobserver agreement averaged 91% (range, 71%-100%) for appropriate answers, 100% for appropriate questions, 86% (range, 68%-100%) for smiling, and 99% (range, 97%-100%) for appropriate posture.

Experimental Design

The effects of training were assessed through simulated interviews. We used a multiple-baseline-across-skills design to compare participant performance before and after training. We used this design because it allowed us to teach skills sequentially but still demonstrate a when-and-only-when relation between training and skill improvement. After we addressed all target skills, we obtained social validity data from participants and university staff who provide interview training.

Baseline

To identify target responses for each participant, we conducted an open-ended indirect assessment and a minimum of two simulated interviews before proceeding to training. Because Jill's performance was not stable across any of the targeted skills after two simulated interviews, we conducted a third.

Each participant met with the first author before the start of sessions and answered questions regarding their academic major, career interests, previous interview experiences, and the skills that they wanted to target during training. Participant answers were used to identify the specific wording of questions included in simulated interviews (i.e., questions for graduate school or job interviews) and the goals for each participant (i.e., the skills that they requested to work on). This initial meeting was also useful to establish rapport with participants before beginning training, during which the experimenter would be providing feedback about their performance. Following this initial meeting, participants were instructed to email three to five job advertisements or descriptions of graduate programs to the first author.

We assessed participant performance by simulating interviews for jobs or graduate schools that they emailed to the first author. We notified participants of the specific job or graduate school that would be simulated during a session at least 2 days in advance. Participants were instructed to prepare for the simulated interview in the typical way that they have prepared for

interviews in the past. During simulated interviews, the experimenter asked one question from each of the seven types of interview questions. The wording and order of questions varied from session to session. The experimenter responded to all participant responses with a neutral statement (e.g., "uh huh," "okay," etc.) and facial expression. After the interviewer finished asking questions, the participant was offered the opportunity to ask the interviewer questions about the graduate program or job ("Do you have any questions for me?"). The interviewer provided hypothetical answers to all participant questions and gave similar answers to similar questions both within and across participants. For example, if the participant asked the interviewer to describe the typical workday, the interviewer gave a generic description of a workday that consisted of working independently on tasks and attending meetings.

Individualized Training Components

Dean was interested in improving his answers for TV production job interviews. Dean reported that he recently interviewed for a TV production job, but he was not offered the position, despite qualifications that included academic coursework and experience at a previous job. We targeted asking questions, answering questions, and smiling.

Amy was interested in improving her answers and confidence for accounting job interviews. Amy reported that she failed several interviews in previous years and even received feedback from one interviewer saying that she didn't sell herself well. We targeted answering questions, posture, and smiling.

Mary was interested in improving her answers for graduate programs in psychology. Mary reported that she felt confident during previous job interviews but was unsure how to prepare for interviews for graduate school. We targeted asking questions, answering questions, and smiling.

Rene was interested in improving her answers for biology job interviews. She reported that she had never interviewed for a job before, but she felt very nervous about answering questions because she often went on tangents during casual conversation. We targeted asking questions, answering questions, and smiling.

Jill was interested in improving her answers and decreasing her nervousness for psychology job interviews. Jill reported mixed outcomes from previous interviews. We targeted answering questions, smiling, and asking questions.

Training

We used BST (i.e., instruct, model, practice, and provide feedback) to teach skills but added a reflection component to the feedback portion. Before the start of training, the experimenter instructed participants to bring a notebook to these sessions. At the beginning of each training session, the experimenter provided rationale for the target skill(s) and then instructed and modeled examples and nonexamples of correct performance. Participants practiced target skills and received feedback on correct performance. Each training session ended with a brief simulated interview that focused on the skill targeted during training. Following a training session for smiling or body position, the experimenter asked three interview questions and provided students with the opportunity to ask questions. Brief interviews for answer training consisted of the experimenter asking each of the seven types of interview questions without an opportunity to ask questions. Question training concluded with the experimenter asking one interview question followed by an opportunity for participants to ask questions. To aid in data-based decisions about when to move on from training, we collected data on the skill targeted during training from brief interviews. These data are not presented because the brief interviews differed in structure from simulated interviews included in pre- and

posttraining sessions, but they are available from the first author.

After the brief simulated interview, students wrote self-evaluations that focused on the main points from training and how well they performed those skills during the brief interview. We included this self-evaluation component for two reasons. First, self-evaluations were used to occasion feedback from the experimenter. Before providing performance feedback, the experimenter asked participants what they thought they did well and what they might improve on. Second, it produced written notes and skills that students could use in the future. Self-evaluating interview performance is likely to promote maintenance of training effects because it is a skill that can be used after training in the typical setting and applied to a variety of interview skills (see Baer, Wolf, & Risley, 1968, for a discussion of generalized training outcomes).

We used these general training procedures across all skills, but the implementation of each component was slightly different depending on the target skill. During *appropriate answer* sessions, the experimenter gave the participant a paper copy of the appropriate types of answers and corresponding questions (see Supporting Information), but the copy did not include the untrained questions. We used BST to teach each type of answer one at a time during these sessions. The rehearsal and feedback component of BST consisted of the participant writing down possible answers to a question followed by reading the answers aloud and the experimenter providing feedback based on how well the answer met the criteria for each type of answer. However, we did not prepare specific answers in advance to teach participants. As a result, each participant developed unique answers despite experiencing the same training. *Appropriate question* sessions were conducted in a similar way by describing general types of questions accompanied by specific examples. Because increases in *smiling* might result in

socially inappropriate levels of smiling, we used BST to teach participants three strategies in succession. First, smile at naturally occurring times (e.g., "I really enjoy working with people"). Second, insert words or phrases that will make you smile (e.g., mention an experience or person that was particularly enjoyable). Third, if you find yourself stumbling with an answer, pause, smile, and provide a clarifying statement (e.g., "What I mean to say is..."). To improve *appropriate posture* for Amy, we taught her to sit back in her chair and to fold her hands on the table or in her lap. The order in which we targeted skills was determined by the stability of baseline performance and the complexity of the skills. For example, we never targeted smiling first because we wanted participants to have sufficient practice with what they were saying before adding this nuanced skill. Our criteria for moving on from training to posttraining included two consecutive sessions of performance above baseline levels with no apparent downward trend.

Posttraining

These sessions were identical to baseline; the only difference was that these sessions occurred after training. If participants requested feedback on their performance, the experimenter explained that the participant would not receive feedback during this phase, but they could review their written notes from training to answer any questions. We did not set quantitative criteria for mastering target skills.

Booster

These sessions were identical to previous training sessions. Decisions to reintroduce training were based on visually inspecting baseline and posttraining performance. Amy, Rene, and Jill received an additional dose of BST with self-evaluation because the first dose of training did not produce immediate or consistent performance in one or more target responses

during simulated interviews. Like previous training sessions, progressing from booster training to posttraining was based on two consecutive sessions of performance above baseline levels with no apparent downward trend. These data are also available from the first author.

Self-Management

For Jill, booster training did not maintain smiling, so we included a self-management (SM) intervention composed of goal setting, self-monitoring, and self-evaluation. In the first training session, the experimenter provided the rationale for smiling more frequently during an interview and showed Jill the graph that depicted her levels of smiling during interviews. Through a discussion with the experimenter, Jill set a goal of 40%-60% of intervals with smiling that was applied to performance during simulated interviews conducted during training. We did not use this criterion to assess smiling for any other participants or phases included in this study. We chose 40%-60% because we wanted a goal that would foster increases, but avoid excesses, in smiling. After a simulated interview, Jill watched a video of her performance and recorded the occurrence or nonoccurrence of smiling in the same manner as the experimenters (i.e., 10-s momentary time sampling). The experimenter verified Jill's calculations and initiated a discussion about meeting the goal. Jill's performance was within the range of 40%-60% for four out of five training sessions. Because we implemented these sessions in response to behavior change that did not maintain, our criteria for moving from training to posttraining was changed from two consecutive sessions to five consecutive sessions of performance above baseline levels with no apparent downward trend. In the event of a discrepancy between experimenter and participant collected data, the experimenter pointed out the discrepancy while looking at the graph at the start of the next session and reviewed

data collection procedures with the participant. Posttraining data are depicted in Figure 3; training data are available from the first author.

Follow-Up

To evaluate the durability of training outcomes for some participants, we evaluated participant performance during simulated interviews 9 weeks after training. Because all participants were students, sessions took place during the academic semester. We worked with Mary, Rene, and Jill during the fall semester and reassessed target skills after winter break, at the beginning of the spring semester. We retrained any skills that did not maintain. The fall semester ended before we could start question training for Jill. In the final follow-up session, participants completed a simulated interview in a university meeting room that differed from training; a new interviewer asked untrained questions. The interviewer was a professor who had extensive experience conducting interviews, and the room was a location that he typically used for interviews. We did not conduct follow-up sessions with Dean and Amy because we worked with them during the spring semester and they graduated shortly after the end of training.

Social Validity

In our final meeting, each participant rated the acceptability of our assessment and training procedures and their satisfaction with improvement in interview skills on a 7-point Likert scale. In addition, participants rated their confidence and anxiety during interviews on a 10-point Likert scale. Participants completed the questionnaires without the experimenter present. Responses were not anonymous.

One of three staff members, who provide interview training at a university career center, watched two baseline videos and two posttraining videos for each participant in a randomized order and rated participant performance of target skills on a 7-point Likert scale. We also asked staff to

rate how confident or anxious the participant appeared during the video. Finally, they rated the likelihood of hiring the participant given their interview performance. The same staff member viewed and rated the pre- and posttraining interviews for a single participant.

RESULTS

Individual Training Outcomes

During baseline, Dean provided no appropriate questions and little smiling or appropriate answers (left panels of Figure 1). Posttraining data for Dean show much higher levels of appropriate questions, appropriate answers, and smiling when and only when training was introduced.

During baseline, Amy engaged in low levels of appropriate answers, appropriate posture, and smiling (right panels of Figure 1). Amy's inappropriate posture took the form of stiffly sitting on the edge of her chair and continuously fidgeting with her clothing, hair, or pen. After training on appropriate answers, and observing an increase in
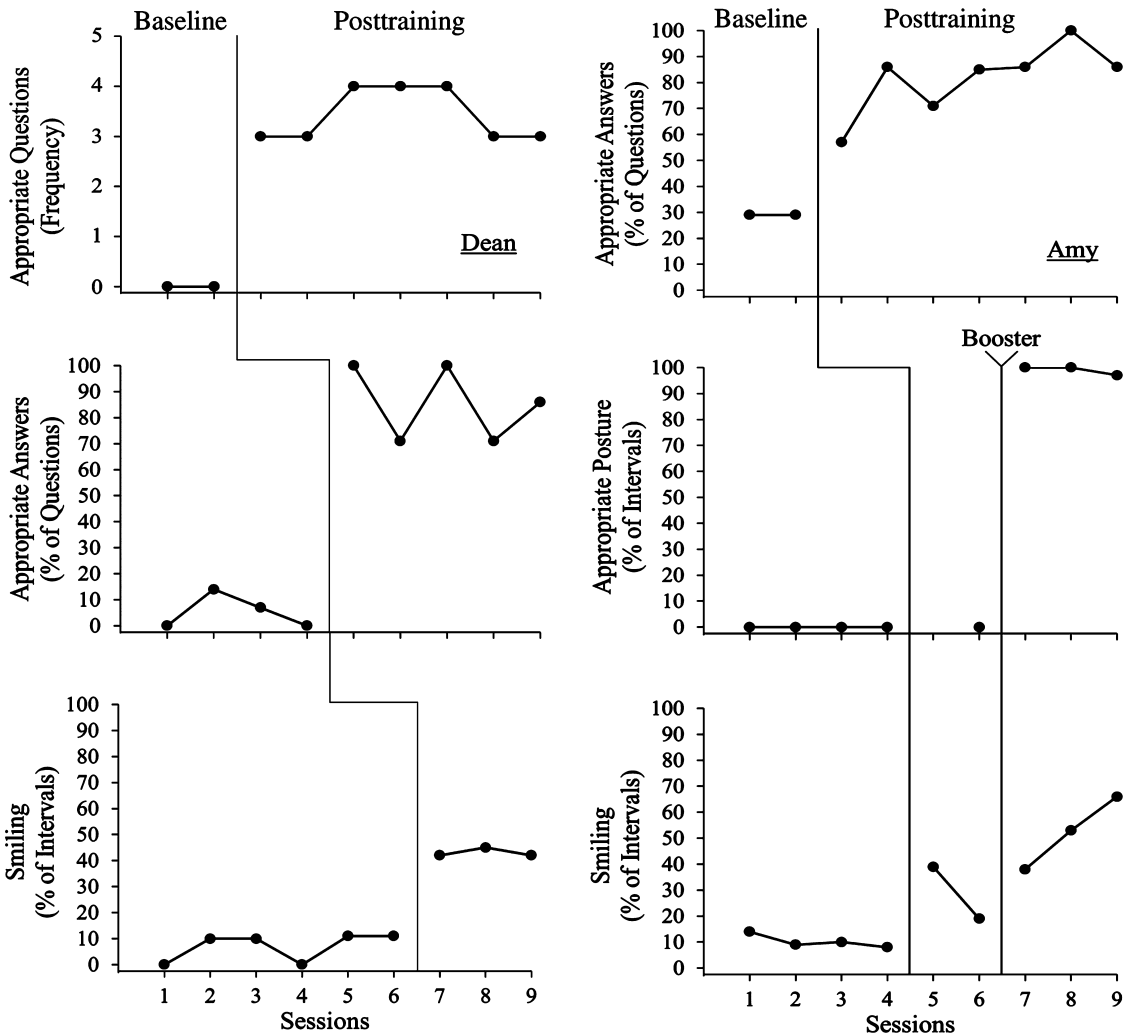

Figure 1.   Dean's and Amy's performance during baseline and posttraining simulated interviews.

these responses, we proceeded to simultaneously train appropriate posture and smiling. In two simulated interviews following smiling and posture training, we observed a modest change in smiling only. (In session 5, we could not record data on posture because Amy shifted her chair when she sat down, so we could not see if her back was against the chair.) Because there was no change in posture, and smiling was low, we returned to more training. After booster training, we observed improvements in both posture and smiling.

The left panel of Figure 2 shows the training results for Mary. Baseline data show zero or low levels of appropriate questions and appropriate answers; smiling was on a decreasing trend. After training, Mary engaged in higher levels of appropriate questions and appropriate answers. Training produced an immediate, stable improvement in smiling. Follow-up demonstrated that training effects maintained 9 weeks after training and extended to an untrained interviewer and questions and new setting for all target skills.
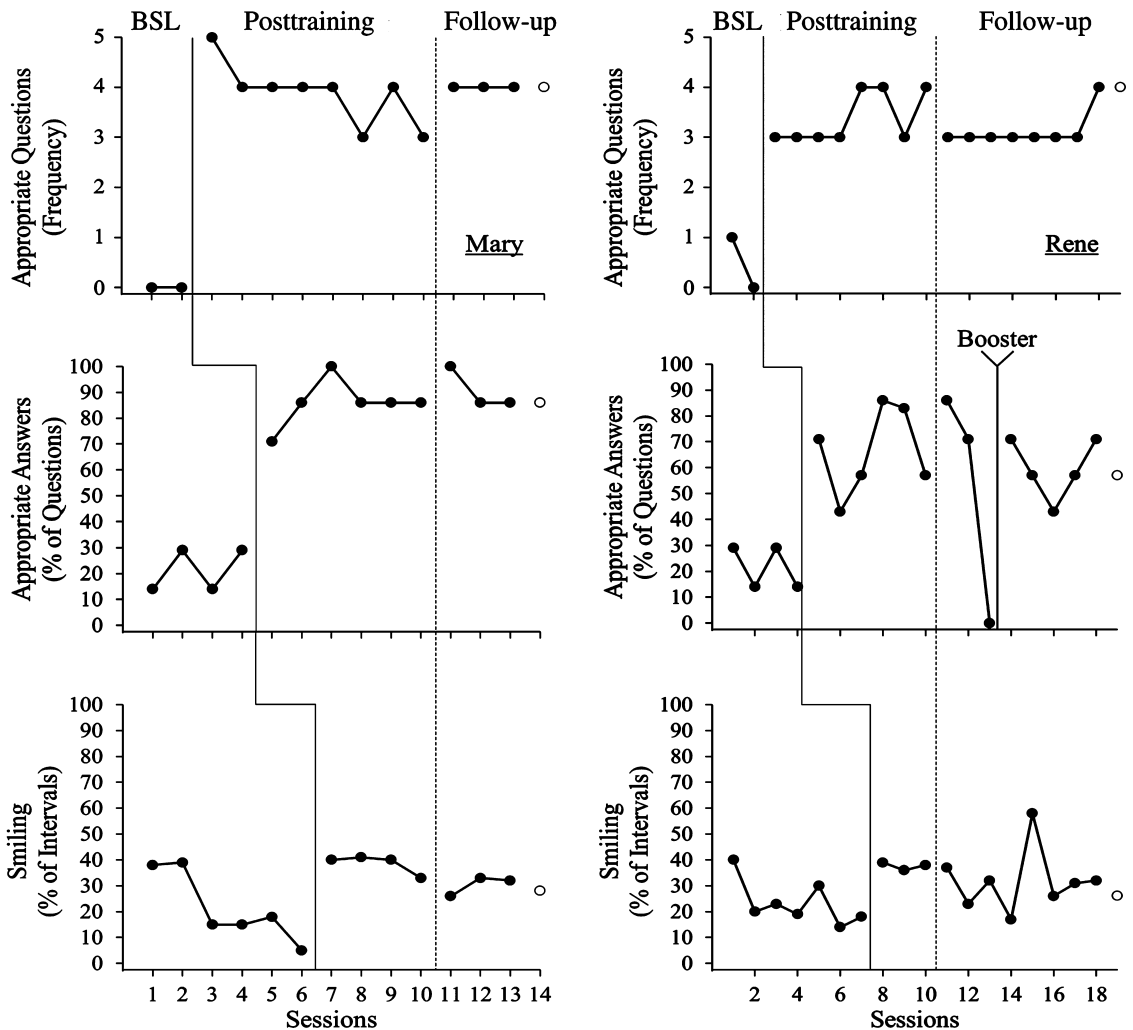

Figure 2. Mary's and Rene's performance during baseline, posttraining, and 9-week follow-up simulated interviews. The dashed line indicates winter break on the academic calendar. Open data points represent performance during a simulated interview that included a setting, interviewer, and questions that differed from training.

The right panel of Figure 2 shows data for Rene. Baseline data illustrate low levels of appropriate questions, appropriate answers, and smiling. Training produced higher levels of performance for all target skills, but appropriate answers were highly variable. In follow-up sessions, Rene engaged in similar levels of appropriate questions. Appropriate answers were similar to previous posttraining levels across two follow-up sessions but decreased to zero in a third session. Booster training produced a return to higher levels of appropriate answers for Rene. Despite variability in smiling during simulated interviews after booster training, there was a slight increase in the overall level of smiling and no downward trend. All target skills extended to a novel interview context.

Jill exhibited low levels of appropriate answers and smiling during baseline (Figure 3). Jill asked appropriate questions during some baseline sessions, but performance stabilized at zero. Training produced higher levels of appropriate answers, smiling, and appropriate questions. During follow-up, appropriate answers and questions maintained at levels higher than baseline. Smiling, however, decreased in follow-up sessions. Despite an immediate increase after booster training, smiling decreased in subsequent sessions. A combination of goal setting, self-monitoring, and self-evaluation (i.e., self-management) produced levels of smiling that stabilized over nine sessions. All training effects extended to a novel interview context.

Social Validity Assessment

All participants found the assessment and training procedures to be acceptable ($M = 6.4$ out of 7, range, 5–7), and they were satisfied with the improvement in their interview skills ($M = 6.6$ out of 7, range, 6–7). Participant confidence ratings increased from baseline to posttraining for all participants ($M = 3.4$ points out of 10). Anxiety ratings improved for four of five participants ($M = 4$ points out of 10); Mary's rating of a
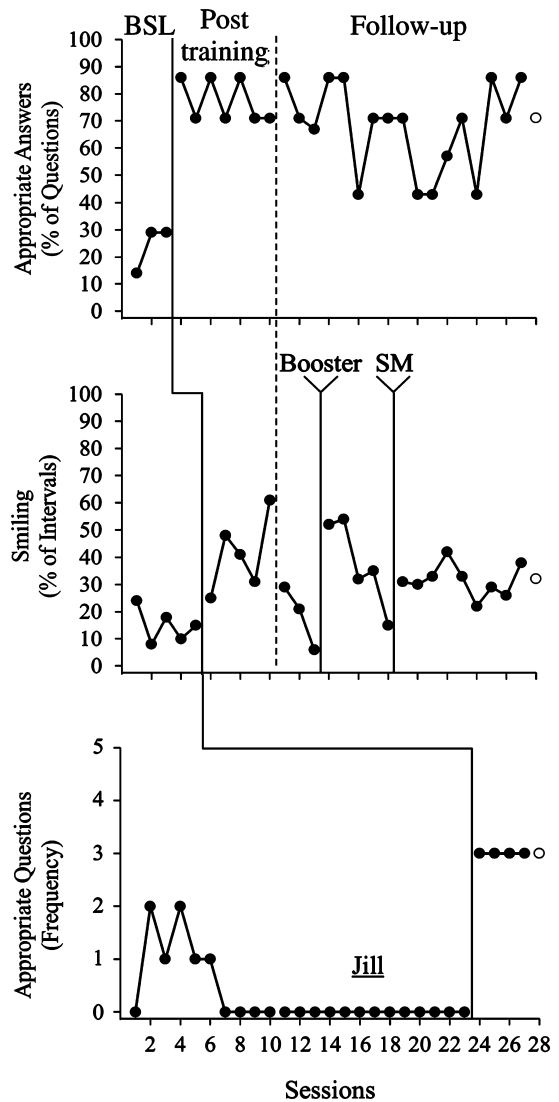

Figure 3.   Jill's performance during baseline, posttraining, and 9-week follow-up simulated interviews. Winter break occurred between sessions 10 and 11. The dashed line indicates winter break but does not extend to the bottom panel because question training occurred after the break. Open data points represent performance during a simulated interview that included a setting, interviewer, and questions that differed from training. SM = the introduction of self-management.

9—indicating that she did not feel anxious during interviews—remained unchanged after training. These data are available from the first author.

Table 1

University Staff Mean Ratings of Participant Performance During Baseline and Posttraining Simulated Interviews

Questionnaire Items by Participant	Baseline	Post-Training	ChangeScore
Dean			
Quality of answers to questions	1.5	5	+3.5
Quality of questions asked	2.5	5	+2.5
Appropriateness of body language	1.5	4	+2.5
Confident	2.5	5	+2.5
Anxious or nervous	3.5	5	+1.5
Likelihood of hiring this individual	1.5	5	+3.5
Mean	2.2	4.8	+2.6
Amy			
Quality of answers to questions	3	4	+1.0
Quality of questions asked	—	—	—
Appropriateness of body language	1.5	3	+1.5
Confident	3	4	+1.0
Anxious or nervous	2.5	4	+1.5
Likelihood of hiring this individual	2	4	+2.0
Mean	2.4	3.8	+1.4
Mary			
Quality of answers to questions	3	4.5	+1.5
Quality of questions asked	1	6	+5.0
Appropriateness of body language	5	6	+1.0
Confident	3	6	+3.0
Anxious or nervous	6	6	0
Likelihood of hiring this individual	2	4.5	+2.5
Mean	3.3	5.7	+2.4
Rene			
Quality of answers to questions	3.5	4.5	+1.0
Quality of questions asked	2.5	3.5	+1.0
Appropriateness of body language	5	4.5	−0.5
Confident	5	3.5	−1.5
Anxious or nervous	5	2.5	−2.5
Likelihood of hiring this individual	3.5	4	+0.5
Mean	4.1	3.7	−0.4
Jill			
Quality of answers to questions	3.5	4.5	+1.0
Quality of questions asked	3	6	+3.0
Appropriateness of body language	4	3.5	−0.5
Confident	4	4.5	+0.5
Anxious or nervous	4	4	0
Likelihood of hiring this individual	4	4.5	+0.5
Mean	3.8	4.5	+0.7

Note. Change scores were calculated by subtracting the baseline rating from the posttraining rating. (1 = low or very anxious and 7 = high or not anxious).

Table 1 illustrates staff mean ratings of participant performance during simulated interviews from baseline and posttraining. Staff gave higher ratings consistently to posttraining performance for Dean, Mary, and Amy. For Rene and Jill, staff ratings were inconsistent. Ratings of answers, questions, and likelihood of hiring were higher for posttraining performance, however, staff ratings indicated a worsening or no difference in body language (i.e., nonvocal behavior), confidence, and nervousness for Rene and Jill.

Time Expenditure

The time it took to complete the simulated interviews and training components for each participant is shown in Table 2. It took an average of just under 11 hr to complete the simulated interviews and training. Relative to all other components, we spent the most

Table 2
Time Expended in Training and Simulated Interviews for Each Participant

Components of Program	Participants					Mean
	Dean	Amy	Mary	Rene	Jill	
Training						
Appropriate Answers	2 h 43 m	3 h 41 m	6 h 45 m	8 h 21 m	4 h 59 m	5 h 17 m
Appropriate Questions	33 m	—	1 h 16 m	30 m	1 h 13 m	52 m
Smiling	1 h 2 m	—	1 h 22 m	1 h 2 m	3 h 26 m	1 h 42 m
Smiling & Posture	—	2 h 37 m	—	—	—	2 h 37 m
Total	4 h 18 m	6 h 18 m	9 h 23 m	9 h 53 m	9 h 38 m	7 h 54 m
Simulated interviews	2 h 13 m	1 h 17 m	3 h 43 m	2 h 12 m	5 h 4 m	2 h 53 m
Grand Total	6 h 31 m	7 h 35 m	13 h 6 m	12 h 5 m	14 h 42 m	10 h 47 m

Note. Training durations include time spent in booster or self-management training sessions.

amount of time training appropriate answers (just over 5 hr) and the least amount of time on training appropriate questions (just under 1 hr).

DISCUSSION

Our study demonstrates the efficacy and acceptability of using BST to teach interview skills to college students. We used an indirect assessment and simulated interviews to tailor training to the needs of five participants who rated the procedures as acceptable. All participants acquired targeted interview skills, and they were satisfied with training outcomes. We observed some individual differences in target skills and training effects. The initial BST procedure improved all skills for Dean and Mary, but Amy and Rene required booster BST to improve some skills. Even after booster BST, we needed to use a self-management procedure to produce consistent improvement in Jill's smiling. These individual differences illustrate the capacity of single-subject analyses to inform individualized training offered by behavior analysts.

Whether we are using BST or other behavioral interventions to teach interview skills, we must consider the effectiveness of interventions relative to alternatives. For instance, problem-solving strategies that mediate responses to interview questions might promote generality

of outcomes produced by answer training. Sautter, LeBlanc, Jay, Goldsmith, and Carr (2011) demonstrated that teaching mediating responses to children (e.g., "Say three groups, pick a group, pick another, say the last") produced a higher number of responses to requests about categories (e.g., "Tell me some animals"). Future researchers should compare the maintenance and generality of answers produced by training problem-solving strategies to training answers to meet criteria with college students. A problem-solving strategy for answers to questions about experience (e.g., "What kind of experience do you have in the field?") might include saying two groups (e.g., academic coursework and previous jobs), picking a group (e.g., academic coursework), and talking about relevant experiences and skills. Similarly, BST might not be the best procedure to teach smiling. BST produced changes in smiling for Jill that did not maintain over time, but performance did maintain after she experienced self-management training. Researchers should compare the outcomes of smiling produced by BST and other interventions (e.g., goal-setting, self-monitoring, and self-evaluation).

We also do not know if our procedures are more effective than the typical training offered to college students. Career centers commonly provide opportunities for students to practice interviews (NACE, 2013, 2014), but the existing literature does not provide a detailed

description of common practices. It is possible that our procedures are more time intensive and no more effective than what is typical. This seems unlikely, however, because two of five participants required booster training and another needed different training procedures to improve performance despite the fact that our procedures were in line with best practice (i.e., BST; Galassi & Galassi, 1978; Latham, 1987; Macan, 2009). It is possible that the efficacy of BST was influenced by our relatively lenient mastery criteria. We terminated training when targeted performance was above baseline levels with no apparent downward trend for two consecutive sessions. If we used more stringent criteria (e.g., meeting 100% of criteria for appropriate answers), BST might have produced optimal training outcomes for all participants, but it also would have been more time intensive. Based on our results, it seems unlikely that training offered by career centers would produce socially significant changes in performance without similar time expenditure.

Even if behavior-analytic technology is more effective than typical services, our interventions are unlikely to be accepted into mainstream higher education if they are impractial (e.g., Personalized System of Instruction; Ainsworth, 1979). The total time of our training ranged from 6 1/2 hr to almost 15 hr per participant, which is a considerable amount of time considering the large number of college students and the few career counselors in universities. A peer-mentoring program is one alternative way to disseminate individualized interview skills training efficiently. Peer-mentoring programs are standard in higher education (Colvin, 2015; Jacobi, 1991); however, many programs focus on cultivating social or academic development for underclassmen (e.g., Hughes & Fahy, 2009). Researchers should investigate formal training procedures to train peer mentors and the effectiveness of interview training delivered by peer mentors. As researchers move toward peer-implemented

training, measuring the fidelity of implementation will be critical.

Besides practicality, the adoption of behavior interventions in mainstream higher education will depend on socially validated goals, procedures, and outcomes (Wolf, 1978). Schwartz and Baer (1991) argued that the acceptibility of a training program relies on thorough assessments of social validity to guide the development and revision of program components. According to Schwartz and Baer, a thorough assessment should include (a) direct consumers, (b) indirect consumers, (c) members of the immediate community, and (d) members of the extended community. Examples of these categories for interview training include (a) students who receive services, (b) staff at a career center or parents of students, (c) interviewers, and (d) members of the board of trustees at a university. Our social validity data answer some questions but there are at least two limitations. First, even though students rated the procedures as acceptable, we did not include the opinions of staff at the career center on the viability of offering behavior analytic interview training on campus. We did not include these data because we are not proposing that these services should be offered by individuals without training in behavior analysis. However, behavior analytic involvement with interview training on college campuses should be informed by extensive assessment of social validity as described by Schwartz and Baer. Second, in contrast with objective measures and participant report, staff ratings did not show an improvement in Rene's performance. Based on the comments provided on the questionnaire, it appeared that untargeted but related aspects of Rene's behavior influenced the staff's ratings. According to the staff, Rene did not look like she listened to the interviewer's answers to her questions at the end of interviews. The absence of active listening could be a product of our experimental arrangement because the experimenter

responded to questions with hypothetical answers that were similar across sessions. It is equally likely that Rene needed training on what to do when an interviewer responds to her questions. To prevent similar outcomes in future work, researchers might ask staff at a career center to identify target skills before proceeding to training. After objective measures show improvement in performance, feedback from staff could be used to identify any additional skills for training. Incorporating an iterative social validity process might pinpoint the critical skills for an individual and improve training outcomes.

A deeper understanding of critical interview performance requires analyses and measurement systems that capture the parameters of socially acceptable performance. Previous research has linked answers, questions, smiling, and body posture with ratings of interview performance (Gillen & Heimberg, 1980), but there is little evidence to inform criterion levels of vocal and nonvocal responses. Latency to respond to questions and rate of speech appear to be important parameters of answers (Hollandsworth et al., 1978; Hollandsworth et al., 1979), and it is common to teach individuals to ask questions (e.g., Hollandsworth et al., 1978). In addition, Levine and Feldman (2002) reported higher ratings of likability for participants who smiled more often ($M = 31\%$ of a simulated interview) compared to those who smiled less ($M = 16\%$ of a simulated interview). However, researchers have not analyzed or measured socially valid levels of answers, questions, or smiling. As a starting point, researchers could collect normative data (e.g., Beaulieu, Hanley, & Santiago, 2014; Minkin et al., 1976) or evaluate some of the contradictory suggestions found in popular books or online resources (e.g., Amon, n.d., Neece, n.d., & Ryan, 2008). Along the same lines, future research could include measurement systems that are sensitive to socially valid levels of performance. For example, researchers

could measure the proportion of smiling that occurred during appropriate statements (e.g., "I really enjoy working with people"). Our training improved smiling to the appropriate levels indicated by Levine and Feldman, but our measurement system did not capture if smiling occurred at socially appropriate times even though we instructed participants to do so.

Not all skills or college students require highly individualized interview skills training. For example, we used an open-ended indirect assessment and simulated interviews to identify individualized target skills, but all participants requested training on appropriate answers—a common goal of do-it-yourself books on interviewing (e.g., Greenwood, 2010) and perhaps the characteristic of interview performance that is most influential on getting hired (Hollandsworth et al., 1979). Due to the social importance of training appropriate answers, it might be best for universities to adopt a universal system targeting this skill for all students. A personalized approach like the one described in this study might be reserved for students who self-report or are observed engaging in less than desirable interview skills. A tiered model of interview training might then prove to be a practical way to meet the needs of every student on campus and an excellent opportunity to get behavior analysis into the mainstream (Friman, 2010; Poling, 2010; Schlinger, 2010).

REFERENCES

Abel, J. R., Deitz, R., & Su, Y. (2014). Are recent college graduates finding good jobs? *Current Issues in Economics and Finance, 20*(1), 1–8. Retrieved from http://www.newyorkfed.org/research/current_issues/ci20-1.pdf

Ainsworth, L. L. (1979). Self-paced instruction: An innovation that failed. *Teaching of Psychology, 6*, 42–46.

Amon, M. (n.d.). *Kill the interview*. Retrieved from http://www.derekscruggs.com/wp-content/uploads/2014/11/Kill-the-Interview.pdf

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis.

Journal of Applied Behavior Analysis, 1, 91–97. http:// doi.org/10.1901/jaba.1968.1-91

Barrick, M. R., Shaffer, J. A., & DeGrassi, S. W. (2009). What you see may not be what you get: Relationships among self-presentation tactics and ratings of interview and job performance. *Journal of Applied Psychology*, *94*, 1394–1411. doi:10.1037/a0016532.

Beaulieu, L., Hanley, G. P., & Santiago, J. L. (2014). Improving the conversation skills of a college student with peer-mediated behavioral skills training. *The Analysis of Verbal Behavior, 30*, 48–53. doi:10.1007/ s40616-013-0001-8

Campion, M. A., & Campion, J. E. (1987). Evaluation of an interviewee skills training program in a natural field experiment. *Personnel Psychology*, *40*, 675–691. doi:10.1111/j.1744-6570.1987.tb00619.x

Chronicle of Higher Education and Marketplace (2013). *Survey of employers who hire recent college graduates with bachelor's degrees*. Retrieved from http:// chronicle.com/items/biz/pdf/Employers%20Survey% 20-Annotated%20Instrument.pdf

Colvin, J. W. (2015). Peer mentoring and tutoring in higher education. In M. Li & Y. Zhao (Eds.), *Exploring learning & teaching in higher education* (pp. 207–229). Berlin, Heidelberg: Springer.

Frequently Asked Questions About Graduate School. (n.d.). Retrieved August 8, 2012, from http://www. apa.org/education/grad/faqs.aspx?item=3

Friman, P. C. (2010). Come on in, the water is fine: Achieving mainstream relevance through integration with primary medical care. *The Behavior Analyst, 33*, 19–36.

Galassi, J. P., & Galassi, M. D. (1978). Preparing individuals for job interviews: Suggestions from more than 60 years of research. *Personnel and Guidance Journal, 57*, 188–192. doi: 10.1002/j.2164-4918.1978. tb05142.x

Gillen, R. W., & Heimberg, R. G. (1980). Social skills training for the job interview: Review and prospectus. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), *Progress in behavior modification* (Vol. *5*, pp. 183–206). New York, NY: Academic Press.

Greenwood, M. (2010). *How to interview like a pro: Forty-three rules for getting your next job*. Bloomington, IN: iUniverse.

Gresham, F. M. (2004). Current status and future directions of school-based behavioral interventions. *School Psychology Review, 33*, 326–343.

Hall, C., Sheldon-Wildgen, J., & Sherman, J. A. (1980). Teaching job interview skills to retarded clients. *Journal of Applied Behavior Analysis, 13*, 433–442. doi:10.1901/jaba.1980.13-433

Hansen, K., Oliphant, G. C., Oliphant, B. J., & Hansen, R. S. (2009). Best practices in preparing students for mock interviews. *Business Communication Quarterly, 73(3)*, 318–327. doi:10.1177/ 1080569909336951

Hollandsworth, J. G., Dressel, M. E., & Stevens, J. (1977). Use of behavioral versus traditional procedures for increasing job interview skills. *Journal of Counseling Psychology, 24*, 503–510.

Hollandsworth, J. G., Glazeski, R. C., & Dressel, M. E. (1978). Use of social-skills training in the treatment of extreme anxiety and deficient verbal skills in the job-interview setting. *Journal of Applied Behavior Analysis*, *11*, 259–269. doi:10.1901/jaba.1978.1-259.

Hollandsworth, J. G., Kazelskis, R., Stevens, J., & Dressel, M. E. (1979). Relative contributions of verbal, articulative, and nonverbal communication to employment decisions in the job interview setting. *Personnel Psychology*, *32*, 359–367. doi:10.1111/ j.1744-6570.1979.tb02140.x

Hughes, A., & Fahy, B. (2009). Implementing undergraduate psychology mentoring program. *North American Journal of Psychology, 11*, 463–470.

Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research, 61*, 505–532. 10.3102/ 00346543061004505

Kelly, J. A., Wildman, B. G., & Berler, E. S. (1980). Small group behavioral training to improve the job interview skills repertoire of mildly retarded adolescents. *Journal of Applied Behavior Analysis, 13*, 461–471. http://doi.org/10.1901/jaba.1980.13-461

Latham, V. M. (1987). Interviewee training: A review of some empirical literature. *Journal of Career Development, 14*, 96–107. 10.1177/089484538 701400204

Levine, S. P., & Feldman, R. S. (2002). Women and men's nonverbal behavior and self-monitoring in a job interview setting. *Applied H.R.M. Research, 7*, 1–14.

Macan, T. (2009). The employment interview: A review of current studies and directions for future research. *Human Resource Management Review, 19*, 203–218. doi: 10.1016/j.hrmr.2009.03.006

Minkin, N., Braukmann, C. J., Minkin, B. L., Timbers, G. D., Timbers, B. J., Fixsen, D. L., … Wolf, M. M. (1976). The social validation and training of conversation skills. *Journal of Applied Behavior Analysis*, *9*, 127–139. http://doi.org/10.1901/jaba. 1976.9-127

National Association of Colleges and Employers. (2013). *The college class of 2013*. Retrieved from https://www. naceweb.org/surveys/student.aspx

National Association of Colleges and Employers (2014). *NACE 2013–2014 career services benchmark survey for colleges and universities*. Retrieved from https://www. naceweb.org/surveys/career-services.aspx

Neece, M. (n.d.). *Don't talk too much*. Retrieved from http://career-advice.monster.com/job-interview/ interview-preparation/dont-talk-too-much/article.aspx

Poling, A. (2010). Looking to the future: Will behavior analysis survive and prosper? *The Behavior Analyst, 33*, 7–17.

Ryan, R. (2008). *60 seconds and you're hired!* New York City, NY: Penguin Books.

Sautter, R. A., LeBlanc, L. A., Jay, A. A., Goldsmith, T. R., & Carr, J. E. (2011). The role of problem solving in complex intraverbal repertoires. *Journal of Applied Behavior Analysis, 44*, 227–244. doi:10.1901/jaba.2011.44-227

Schlinger, H. D. (2010). Perspectives on the future of behavior analysis: Introductory comments. *The Behavior Analyst, 33*, 1–5.

Schloss, P. J., Santoro, C., Wood, C. E., & Bedner, M. J. (1988). A comparison of peer-directed and teacher-directed employment interview training for mentally retarded adults. *Journal of Applied Behavior Analysis, 21*, 97–102. doi:10.1901/jaba.1988.21-97

Schwartz, I. S., & Baer, D. M. (1991). Social validity assessments: Is current practice state of the art? *Journal of Applied Behavior Analysis, 24*, 189–204. doi:10.1901/jaba.1991.24-189

Sidman, M. (1960). *Tactics of scientific research.* Oxford England: Basic Books.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*, 203–214. doi:10.1901/jaba.1978.11-203

SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's web-site