



Using Behavioral Skills Training to Teach Interview Skills to Young Adults with Autism

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Abstract

With unemployment rates for adults with autism as high as 85%, it is important for young adults to learn necessary prevocational skills (e.g., interviewing) to help them succeed in their search for employment. There is little research showing that individuals with autism can be taught to respond appropriately during an interview to secure future employment opportunities. We replicated the results of Stocco et al. (J Appl Behav Anal 50:495–510, 2017. <https://doi.org/10.1002/jaba.385>) who evaluated the effects of behavioral skills training on the interview skills of college students. We used a multiple baseline design across three responses (i.e., asking questions, answering questions and appropriate body language) to extend these results to three young adults with autism. During baseline, responding was low across all three responses for all three participants. Behavioral skills training consisted of role-playing simulated interviews, providing feedback and performance rehearsals. For two of the participants, behavioral skills training alone was effective at increasing all three responses. For the third participant, we added textual cues and reinforcement during behavioral skills training to reach criterion performance. Results demonstrated that adults with autism can benefit from modified behavioral skills training to improve interview skills and employment opportunities. Social validity of responses was assessed by asking community members to rate video-taped segments of the interviews.

Keywords Autism spectrum disorder · Behavioral skills training · Interview skills · Prevocational

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Introduction

An estimated 50,000 teens with autism enter adulthood each year and unemployment rates for adults with autism are as high as 85% (Autism Speaks 2017). Given this eye-opening statistic, it is important for young adults to learn necessary prevocational skills, such as interviewing, to help them succeed in their search for employment. Arguably, if one is employed, he or she has the potential to live independently, create friendships with coworkers, as well as contribute to the greater community. However, the process of applying for a job is difficult for any individual looking for work. Performing the job search, determining if the position is a good fit, submitting the application and the eventual call for an interview require a lot of time, effort and patience. More specifically, for a job seeker with autism, the stress of applying for a job coupled with communication difficulties can make it challenging for an applicant to excel in a job interview.

Roux et al. (2017) reported that employment was the least common outcome for individuals with diagnoses of autism spectrum disorder (ASD) with only 14% of individuals with ASD holding paid employment in their communities. An earlier report by the same authors noted that 90% of individuals who worked in high school continued to work in their early 20s after graduating from high school (Roux et al. 2015). Based on this information, it makes sense to focus on programming that provides individuals with ASD with work experiences in high school, including the responses necessary to secure employment during an interview. While it is commonly assumed that a successful interview is more likely to lead to employment than an unsuccessful one, little research has been done to show best practices for teaching individuals with ASD interview skills. Conversely, many studies have focused on improving job-related skills once employment has been obtained. Behavioral skills training (BST) has been demonstrated to be an effective approach to teach various job-related skills such as communication, prevocational and vocational skills. Ryan et al. (2017) used BST to teach six young adults with ASD various social skills such as approaching a peer, greeting the peer, posing a question or making a statement, waiting for a response and ending a conversation. They provided training in dyads on each targeted skill until criterion was met. After criterion was met in training, further training sessions were completed in an in situ work environment with the addition of access to a preferred item as reinforcement. With this approach, all six participants reached mastery within 4-15 sessions.

In another evaluation, Grob et al. (2019) utilized BST to teach job-related social skills for three young adults with ASD. Prior to BST, each participant was assessed on their abilities to (a) make confirming statements (e.g., "Consider it done."; "I can do that."), (b) ask for a task model (e.g., "Can you show me how?"), (c) apologizing (e.g., "I'm sorry,." "My mistake."), (d) ask for help with materials (e.g., "I need more _____. Can you help me?") and (e) ask for clear feedback (e.g., "Can you show me what is wrong?"). Researchers used BST and textual prompts to teach participants the target responses. Results showed that BST was partly effective, but booster training sessions and additional textual prompts were required to reach mastery.

Morgan and Wine (2018) applied BST to teach vocational skills to one young adult diagnosed with ASD. Using a task analysis of each targeted task (e.g., loading a dishwasher, rolling silverware, cleaning a bathroom, bussing tables), the trainer read through each of the steps, then modeled each step. The participant was then asked to rehearse each step. Feedback was provided in the moment and incorrect steps were interrupted in the moment. The participant learned all four skills to mastery, maintained these skills and generalized the skills to other work environments.

Past research has focused on utilizing BST for teaching interview skills to college students and individuals with developmental disabilities (Hall et al. 1980; Kelly et al. 1980; Schloss et al. 1988; Hollandsworth et al. 1977). Much of this research did not focus on individuals with ASD, typically evaluated BST as part of a treatment package, was lacking in measures of maintenance, and focused mainly on vocal verbal responses, leaving non-verbal behavior relatively unaddressed.

Morgan et al. (2014) utilized a combination of discussion, role-play, video feedback, peer review and games in a 12-week group delivered intervention for thirty-three adults with ASD to increase social-pragmatic skills. An emphasis was placed on increasing interview skills leading to a successful job interview. Participants were provided two opportunities (pre- and post-treatment) to practice their interview skills in a mock interview session. Results showed that short-term effects on interview skills were demonstrated and 78% of their participants secured employment either within the timeframe of the program, or shortly thereafter, however long-term maintenance of these skills was not assessed.

O'Neill et al. (2015) evaluated a selection-based instructional protocol to promote the emergence of topography-based verbal behavior using a powerpoint format to present an interview question and a variety of responses to that question. Lag reinforcement schedules were also included to increase the variability of responses to the interview questions. Rosales and Whitlow (2019) evaluated an interview skills training package utilizing BST and a web-based platform called InterviewStream© to record oneself while preparing for an interview. These studies further the effectiveness of using behavioral skills training to teach verbal responses during an interview but did not focus on the important nonverbal responses during an interview.

In a study with neurotypical college students, Stocco et al. (2017) used BST to prepare students for an interview for graduate school or for employment upon graduation. Simulated interviews were used to evaluate the effectiveness of BST on vocal responses such as answering and asking questions during an interview as well as nonvocal responses, such as body language. A multiple-baseline-across-skills design was used to assess the effectiveness of BST on acquisition of interview skills. The three skills targeted were answering questions, asking questions, as well as appropriate posture and smiling. After training was completed, social validity data were obtained from the participants as well as university staff who provided instruction on interviewing. A minimum of two simulated interviews were completed in baseline prior to beginning training. The five participants each chose the type of interview (e.g., accounting jobs; TV production; psychology graduate programs; biology jobs; psychology jobs) they trained for and set goals (e.g., decreasing nervousness) for themselves. After a brief simulated interview, the participants were asked to write a self-evaluation of their performance before receiving feedback from the trainer. This

approach was used to promote maintenance of the skills participants learned in training. Training then commenced for all three skill areas using BST. During training for appropriate answers, a trainer gave a piece of paper with an interview question on it to the participant. The participant wrote their answer down and then read it aloud and the trainer provided feedback on their response. During training for appropriate questions, general types of questions asked during an interview were described and specific examples were given. Smiling was trained using rules such as (a) smile at naturally occurring times, (b) insert words or phrases that make you smile and (c) if you find yourself stumbling with an answer, pause, smile and provide a clarifying statement. Posture was targeted by teaching participants to sit back in their chair with their hands folded. When criterion was reached in training, post-training sessions identical to baseline were conducted. Booster sessions were provided for three participants who did not show a significant increase in performance after the first dose of training. Video self-modeling was used as a self-management technique to assist one participant evaluate her skills in smiling and posture. At the completion of training, all students improved upon their interview skills and found this approach to be helpful as reported via social validity measures. For two of the students, BST alone improved all skills, while the other two students required booster sessions as well as self-management techniques to reach criterion performance.

Learning the responses required for interviewing is essential for people with ASD to obtain employment. It is clear from the literature that BST can improve various job-related repertoires including interviewing for a job. Research has focused more on the verbal responses during an interview rather than the nonverbal responses that are also of great importance. Furthermore, there is a paucity of research focused on teaching young adults with ASD interviewing skills. Thus, the purpose of the current study was to replicate and extend the results of Stocco et al. (2017) to young adults with ASD to improve their interview skills as well as assess maintenance and social validity of those responses.

Method

Participants and Setting

The participants were three young adults with ASD who attended a community transition program where the primary teaching was based on applied behavior analysis. All participants had met academic requirements in a public high school setting and enrolled in the transition program for additional career exploration and social skills training. None of the participants had previous training, or experience, in interviewing for a job or have ever held a paid position. All participants received small-group instruction on various career-related topics such as developing a resume, completing a job application and performing a job search. Participants were invited to participate in this study because they had career goals that would require an interview to land a future position. The first author obtained written informed consent from participants' parents that included a description

of the study, the voluntary nature of participation, limits to confidentiality and anticipated benefits and risks to participation. Table 1 summarizes participant characteristics for this study.

Adam was 20 years old at the time of the study. His age equivalent score on the Expressive Vocabulary Test (EVT-II) (Williams 2007) was 10 years 1 month. On the Domain Level Teacher Form of The Vineland Adaptive Behavior Scales, Third Edition (Vineland 3; Sparrow et al. 2016) Adam ranked in the 25th percentile in communication skills and 39th percentile in social skills and in the 12.5 percentile for daily living skills. Adam previously held an internship at a hospital through his high school work program but was not hired for a position when the internship ended. He and his family desired additional work experiences and career preparation to help him obtain a suitable career once he graduated from the current program.

Sara was 20 years old at the time of the study. Her age-equivalent score on the EVT-II (Williams 2007) was 23 years 11 months. On the Domain Level Teacher Form of Vineland Adaptive Behavior Scales, Third Edition (Vineland 3; Sparrow et al. 2016), Sara ranked in the 91st percentile in communication skills and 21st percentile on social skills and in the 15th percentile for daily living skills. Sara held one, short-term, volunteer internship performing office work at a local community center prior to attending the current program. She expressed a desire to work on her confidence, social skills and explore various careers to help her determine where she might want to work. Sara was an artist and hoped to create art for a living.

Edward was 19 years old at the time of the study. His age equivalent score on the EVT-II (Williams 2007) was 12 years 5 months. On the Domain Level Teacher Form of the Vineland Adaptive Behavior Scales, Third Edition (Vineland 3; Sparrow et al. 2016), Edward ranked in the 2nd percentile in communication skills and 1st percentile on social skills and in the 12th percentile in daily living skills. Edward experienced one very brief volunteer internship at an ice cream shop but expressed he would prefer a position more aligned with his interests in movies and coffee. Edward's expressed goals in the current program were to further develop his social skills so that he could hold conversations with colleagues and develop additional skills in support positions such as maintenance work and organization of materials.

Both the classroom teacher and the first author implemented the BST protocol and are referred to as trainers throughout the paper. A total of 12 different staff

Table 1 BST participant characteristics

| | EVT-II | Vineland domain level teacher form | | |
|--------|----------------|------------------------------------|---------------|---------------------------|
| | | Communi- cation skills | Social skills | Daily living skills |
| Adam | 10 yrs, 1 mo | 25 | 39 | 12.5 |
| Sara | 23 yrs, 11 mos | 91 | 21 | 15 |
| Edward | 12 yrs, 5 mos | 2 | 1 | 12 |

Vineland scores are reported in percentile rank

and community members associated with the program but unfamiliar to the participants acted as interviewers during generalization probes every three training sessions. Thus, each interviewer was used only once throughout generalization. Sessions were conducted in various classrooms and offices throughout the school building.

Measurement and Behavioral Definitions

All sessions were video-taped for data collection. For responding to interview questions, data were collected using a per opportunity measure and summarized as the percentage of appropriate responses to interview questions. For the number of appropriate questions asked, event recording was used, and observers marked a tally on the data sheet for each appropriate question asked. A 10-s momentary time sample was used to record appropriate body language during the interview. Data collectors reviewed operational definitions of each skill area and were trained to score data by the first author.

Appropriately answering interview questions was defined as the participant providing a clear, direct, answer to the question asked as well as additional detail about their work experience. For example, if the participant was asked, “Do you prefer to work alone or with other people?” a clear and direct answer with additional details might be “I prefer to work with others, because I enjoy being part of a team and helping other people.” A correct response was marked if the answer provided by the participant met both criteria (i.e., a direct answer to the question and additional details). This criterion was similar to that set forth by Stocco et al. (2017) study with college students and tailored further to meet the needs and repertoires of the participants of this study. Ten questions were identified as common questions asked during an interview based on the questions used by Stocco et al. (2017) as well as those used on career websites such as Indeed.com©. See Table 2 for a list of interview questions taught.

Appropriate questions were defined as questions seeking clarification of details of the position (e.g., “What is a typical day like?”; “How many hours does a shift last?”; “What are the job duties?”). If these questions were asked immediately after the interviewer provided this information (i.e., the participant asked how many hours in a shift after the interviewer stated the number of hours in a shift) it was not scored as an appropriate question asked. If the participant asked an inappropriate question, it was not scored. Inappropriate questions were defined as anything not related to the job (e.g., related to the interest of participants) and/or personal questions about the interviewer (e.g., questions about pictures in the interviewer’s office, about their age, families, etc.). See Table 3 for a list of questions trained as appropriate.

Appropriate body language was defined as sitting upright with shoulders elevated, orienting toward the interviewer, and remaining still without “fidgeting” (e.g., touching hair or face, tapping on the table, manipulating any items on the desk such as a pen or pencil).

Table 2 Examples of correct and incorrect responses to interview questions

| Interview questions trained using BST | Example: Correct response | Example: Incorrect response |
|--|---|---|
| 1. Tell me about yourself | My name is Sara, I went to Washington High School, and I am looking for a job in retail | My name is Sara |
| 2. Why do you want this position? | I enjoy organizing materials and have always enjoyed being in this store | I like this store |
| 3. Tell me about your work experience | I have worked in ABC Fabrics as an intern stocking materials and helping customers. I have also worked in an office while I filed and organized documents | I was an intern at ABC Fabrics and at an office |
| 4. Tell me about a time you were given instructions to do a job, but you did not understand the instructions. What did you do? | I was asked to put something away in the store, but did not know where it went. I asked a coworker for help and was able to put it away | I asked a coworker for help |
| 5. Do you prefer to work alone or with other people? | I like to work alone, but part of a team. I work best when I have my own task, but like to contribute to a team | I like to work alone |
| 6. How do you deal with a difficult co-worker or customer? | I would first try to solve the problem myself, but if I need help I would ask another coworker or manager to help me | I would try to solve the problem on my own |
| 7. Where do you see yourself in 5 years? | In five years, I hope to be working and maybe taking some college courses as well | I don't know |
| 8. How many hours per week do you want to work? | I would like between 10-15 h per week since I am still a student | I would like part-time work |
| 9. What are your salary requirements? | I am just starting my career and am open to hearing what you offer in this position | \$30 per hour would be best |
| 10. What questions do you have for me? | You have answered the questions I had, but if I have more can I call or email you? | I don't have any |

All questions were asked in variable order and the phrasing of the questions were changed for each interview

Table 3 Examples of questions to, and not to, ask of an interviewer*Questions to ask an interviewer (trained using BST)*

1. Can I ask you what you like best about this position?
2. How do your staff typically work here? (alone or as a team)
3. How many hours a week do your staff work here?
4. How long is a typical shift?
5. When will you be making your decision for this position?
6. Are there opportunities for growth in the company?
7. What is a typical day like?

Example questions not to ask an interviewer

1. What is the salary? (On the first interview.)
2. Do I get a discount working here?
3. Where do you live?
4. What is the job title? (The interviewee should know this beforehand.)
5. How quickly can I get a promotion here?

Questions *not* to ask are trained with the preface that these types of questions show interest more for the personal benefit of the potential employee rather than a genuine interest in the job. Also, some of the questions are too personal or that the candidate should know beforehand

Interobserver Agreement

Interobserver agreement (IOA) was calculated during baseline, training, generalization and maintenance. An agreement was counted if both the trainer and a second observer independently scored a response as correct or incorrect in the same trial. Interobserver agreement was calculated on a trial-by-trial basis for answering questions and asking questions by dividing the number of agreements by the number of agreements plus disagreements and converting the result to a percentage. Interobserver agreement was calculated on an interval by interval basis for appropriate body language. At the end of each 10-s interval, the teacher and second observer recorded whether the participant displayed appropriate body language at that time. IOA was calculated by dividing the number of intervals with agreements by the number of intervals with agreements plus disagreements and converting the result to a percentage. For Adam, IOA was collected during 30% of all sessions with a mean IOA of 98.5% (range, 88.5–100%). For Sara, IOA was collected during 29% of all sessions with a mean IOA of 98.4% (range, 86–100%). For Edward, IOA was collected during 30% of all sessions with a mean IOA of 98.7% (range, 86–100%).

Treatment Integrity

Treatment integrity (TI) data were collected on the accurate implementation of behavioral skills training during baseline, training and maintenance. An

independent observer used a checklist containing the procedures (e.g., presenting a rule/instruction for the skill to be displayed, modeling appropriate and inappropriate behavior, refraining from providing feedback during an interview probe and providing positive and corrective feedback with repeated rehearsals). Data on treatment integrity were collected during 18%, 21% and 19% of sessions for Adam, Sara and Edward, respectively, and mean TI was 100%.

Social Validity

Social validity data were obtained from local business owners, human resource staff members and managers who regularly interview to fill potential positions. Six, 2-min videos were created to show performance of the participant in baseline and in maintenance for the business owners and staff members to view. After all training and maintenance sessions were completed, one 2-min recorded interview from baseline and one 2-min recorded interview in maintenance of each participant were shown in random order to raters. For example, the raters viewed a video of Sara in baseline then Edward in maintenance, then Adam in maintenance and so on. The reviewers were asked to rate the performance of the participants based on a 7-point Likert scale. Raters assigned a score of 1 if they believed the participant was not performing the skill in question and assigned a score of 7 if the rater felt the participant performed the skill at mastery level. Raters were asked whether the participant seemed prepared for the interview, to rate the quality of their answers and questions asked, appropriate body language, as well as their likelihood to hire the individual. See Table 4 for the questionnaire used to measure social validity.

Materials

During training sessions, dry erase sheets were used as textual prompts. For example, the trainer wrote the target question on the top of the dry erase sheet and filled in possible responses to the question below it. Dry erase sheets were also used to write the sequence of steps: answer the question, wait, ask a question. For Edward, textual prompts, written on 7 cm × 12 cm cards, and a token motivational system were used to assist him in asking questions, and how many. All interview probes were recorded using an iPad for IOA, treatment integrity and primary data collection.

Table 4 Statements included in the social validity questionnaire rated by community members

Social Validity Questionnaire

1. This person seems well-prepared for an interview.
 2. Please rate the quality of answers provided by the interviewee.
 3. Please rate the quality of questions asked during the interview by the interviewee.
 4. Please rate the appropriateness of the interviewee's body language during the interview.
 5. Please rate your likelihood to hire this individual based on the interview you saw.
-

Ratings were provided by responders using a 7-point Likert Scale

Experimental Design

A multiple-baseline-across-responses experimental design was used to evaluate the effects of behavioral skills training on three responses: answering interview questions, asking questions and displaying appropriate body language.

Procedures

Baseline, Interview Probes and Generalization Probes

Prior to baseline, each participant met with the first author to determine what type of position they wanted to practice for. All participants mentioned they had never been interviewed for a job in the past. Adam and Sara both chose to practice interviewing for a position as a retail store associate; a position for which they had recently started an internship. Edward chose to interview for a position as an usher at a movie theater; a position he desired to have in the near future.

During baseline, two simulated interviews were conducted each consisting of ten predetermined questions. Trainers used a data sheet with ten questions on it and changed the order and wording in which they asked the questions to best match their own style of interviewing potential employees. Trainers repeated the question one time if participants indicated they did not hear the question and/or asked for the question to be repeated. If the participant could not answer the question after being phrased a second time, the trainer moved on to the next interview question. Baseline sessions lasted approximately 5–15 min depending on the length of the responses given by each participant.

Interview probes were conducted prior to each behavioral skills training session. The procedures were the same as baseline (i.e., no components of behavioral skills training were used, and textual prompts were not used).

To promote generalization, every third interview probe was conducted by a staff person at the program and on one occasion a community member unfamiliar to the participant.

Behavioral Skills Training

We used BST; (i.e., instruct, model, practice and provide feedback) to teach interview skills. At the start of each training session, the trainer stated the skill and a rationale (e.g., “Today, we will practice answering interview questions. When answering an interview question, it is important to give a clear answer to the question and give some additional detail regarding your skills or experience so the interviewer will get to know you better”). The trainer wrote the target question on the dry erase sheet (e.g., “Tell me about yourself.”). The trainer asked leading questions such as, “Should you tell them that you enjoy going to the beach or that you are taking courses to learn more about Microsoft Excel?” to help the participant identify an appropriate response. The trainer wrote an example of a correct answer on the top of

the dry erase sheet along with the incorrect answer on the bottom of the sheet. The trainer modeled examples and non-examples of correct performance through role play. For example, the participant was instructed to ask the target question of the trainer and the trainer modeled the correct response. Next, the trainer asked the participant to display the correct performance. The trainer provided feedback on correct and incorrect performance and goals were set for the next opportunity to practice. The role play was then repeated until the participant displayed correct responding. During each training session for answering questions, three of the ten questions were targeted to practice. In the following training session, another three questions were targeted until all ten questions were practiced and criterion was achieved. Criterion for answering questions was set at 90% during an interview probe. When criterion was met, the maintenance phase for answering questions was implemented and BST was introduced for the next response (i.e., asking questions).

Training sessions for asking questions targeted three questions. The trainer started the session by saying, "Today, we are going to practice asking questions in an interview. It is important to ask questions during the interview to show the interviewer you are interested in the position." The participant was given a list of potential questions that could be asked during an interview as well as a list of questions that should not be asked during an interview. Participants were taught to answer a question, pause and then ask a related question. The trainer stated the context in which that question would be asked. For example, the trainer said, "Asking a question about the length of a shift could be asked after the interviewer asks you how many hours you are hoping to work." The participant was instructed to answer the question asked of them, pause briefly and then ask a question. The trainer modeled question asking (e.g., "Can I ask you how long a typical shift is here?") and how to pause prior to asking the question. After modeling, the participant practiced this sequence with the trainer. If the pause was too long or too short, the trainer provided descriptive feedback (i.e., "Remember to take just a one-second pause, let's practice 1 count.") and provided an additional opportunity to practice again through role play. Role play continued until the participant answered the question, took a brief pause and then asked a question. Criterion was set at three appropriate questions asked during an interview probe. Following mastery criterion for asking questions, the maintenance phase was implemented and training began for appropriate body language.

Training sessions for appropriate body language included stating the rationale for displaying appropriate body language, a model of such body language and then an opportunity to practice. The trainer started the session by saying, "It is important to have good body language during an interview. This shows you are a professional and are paying attention to the interviewer." The trainer instructed the participant to ask the trainer an interview question (e.g., "Why do you want this position?") and the trainer answered the question while displaying appropriate body language. Next, the trainer labeled the appropriate body language that they just modeled (e.g., "I sat up straight, my shoulders were back, my feet were on the floor, and my hands were flat and still in my lap"). If the participant had any questions about modifications that would feel more comfortable to them, the trainer and participant brainstormed ways to accommodate this. For example, one participant wanted to sit up at the edge of their seat since it

helped them to remain straight-backed while other participants wanted their back flat against the chair. Participants were asked a question by the trainer and given four, 10-s intervals to hold appropriate body language, while answering an interview question. The trainer provided feedback on appropriate and inappropriate body language by the trainer and opportunities to practice were provided until criterion was met for at least one, 10-s interval. Criterion was set at displaying appropriate body language for 90% of the intervals of an interview probe. When criterion was met, the maintenance phase was implemented.

After the completion of a training session, the participants were offered a 10-min break where they could choose a preferred activity (e.g., a break, taking a walk, listening to music).

Procedural Modifications for Edward

Edward did not reach criterion performance as demonstrated by a downward trend for answering and asking questions. A motivational system and textual prompts were used to reinforce correct responses and assist Edward in answering and asking questions. When the trainer asked Edward an interview question, she held up the textual prompt in order to prompt the correct response to the question. A box in Edward's motivational system was checked off when the question was answered at criterion. During training for asking a question, the trainer asked an interview question and Edward responded to that question. The trainer waited one second and then held up a textual prompt of an appropriate interview question for Edward to ask. When Edward asked the question, the trainer provided a check in one of three boxes on his motivational system. When all three boxes were checked Edward earned points toward the purchase of his favorite coffee drink.

Maintenance

Maintenance sessions were identical to baseline and interview probes. BST was not used. Sessions were conducted at, three, and six weeks after mastery criterion was met for each skill during training. If performance was below criterion in maintenance, a booster session using behavioral skills training was conducted.

Booster Session

A booster session was introduced when performance in maintenance was below previously set criterion for the targeted skill. Booster sessions were identical to training sessions. An additional interview probe was then conducted post-booster session to determine if the participant required additional training.

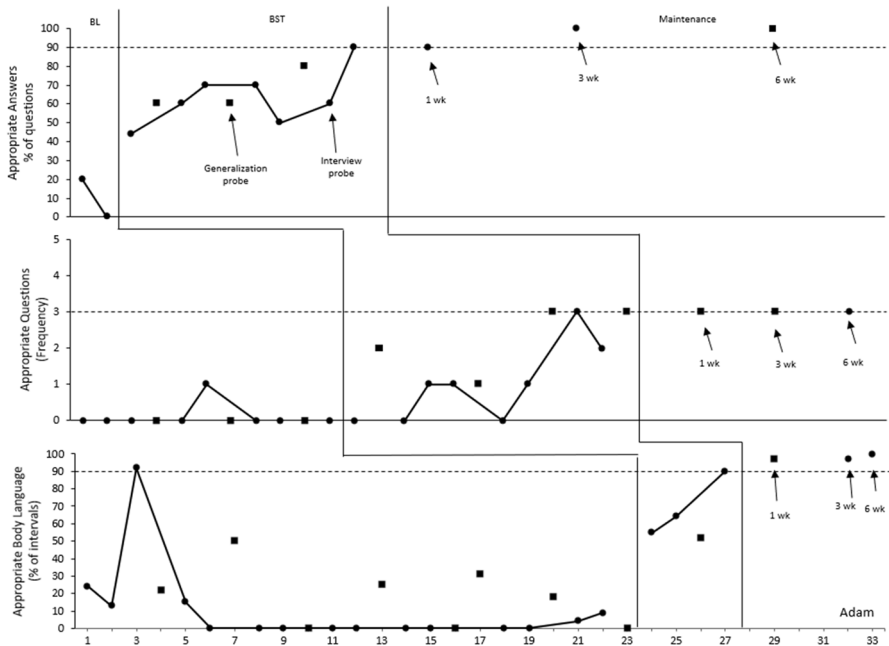


Fig. 1 The percentage of appropriate questions answered, the frequency of appropriate questions asked and the percentage of intervals scored with appropriate body language for Adam during baseline, behavioral skills training, generalization and maintenance. Circles represent interview probe sessions conducted prior to each training session and squares represent generalization probes. Horizontal, dotted lines represent criterion performance level

Results

Figures 1, 2 and 3 show the percentage of questions answered, the number of questions asked and the percentage of intervals scored with appropriate body language for all participants during baseline, BST, generalization and maintenance. All participants demonstrated an increase in responding over baseline with the introduction of training. For Adam and Sara, BST alone was effective at increasing all three responses. For Edward, we added textual prompts, a token motivational system and reinforcement during the 20th session of BST to reach criterion performance. During baseline, Adam (Fig. 1) showed little to no correct responding across all three responses. With the introduction of BST, Adam immediately showed an increase in answering questions, asking questions and displaying appropriate body language. Adam met criterion for answering questions during session 12. His performance increased to 100% during the third and sixth weeks of maintenance sessions. During baseline for asking questions, Adam showed zero levels of responding, except for session six when he asked one question during the interview. With the introduction of BST, Adam asked one question and then met criterion, asking three questions during session 20. He maintained performance at criterion through the six weeks of maintenance. Adam’s appropriate

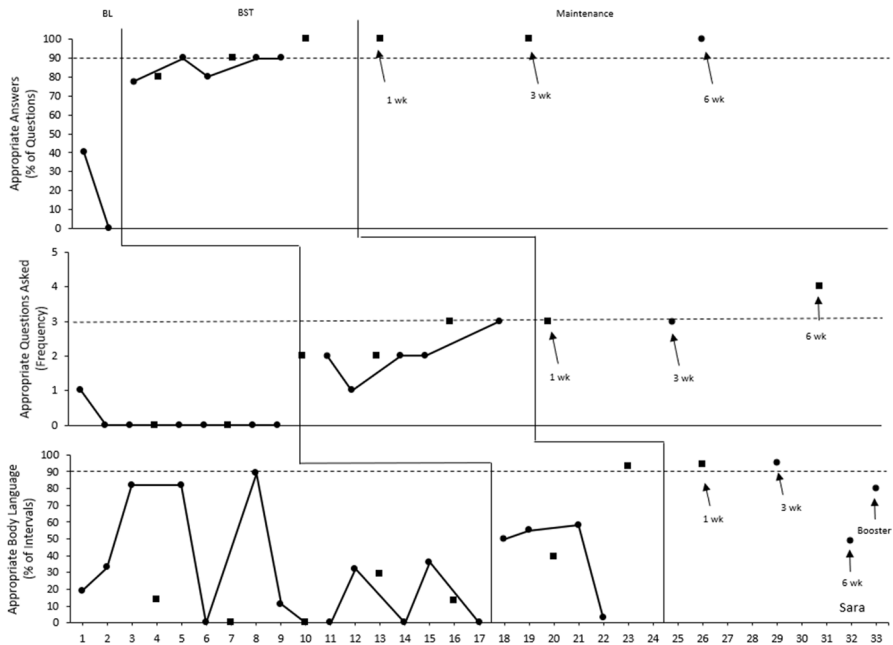


Fig. 2 The percentage of appropriate questions answered, the frequency of appropriate questions asked and the percentage of intervals scored with appropriate body language for Sara during baseline, behavioral skills training, generalization and maintenance. Circles represent interview probe sessions conducted prior to each training session and squares represent generalization probes. Horizontal, dotted lines represent criterion performance level

body language during baseline was variable and immediately increased to 55% of intervals scored with the introduction of BST. He met criterion for appropriate body language within four sessions and maintained criterion performance throughout the six-week maintenance period, with an increase to 100% of intervals scored at 6 weeks. Adam did not require any booster sessions to maintain his skills for six-week post-training.

Sara (Fig. 2) also displayed little to no correct responding for answering or asking questions during an interview in baseline and her appropriate use of body language was variable. With the introduction of BST, answering interview questions immediately increased to 77%, reaching criterion performance in the third session of training. Data increased to 100% at session 10 and maintained at this level through the six-week maintenance period. During baseline for asking questions, Sara asked one question in the first session and performance remained at zero until BST was introduced in session 10. Sara then asked two questions consistently until reaching criterion at session 16. Performance remained at, or above, criterion through the six-week maintenance period. The percentage of intervals scored with appropriate body language was variable throughout baseline until the introduction of BST at session 18 when the intervals scored increased from 0 to 50%. Her data showed one sharp decrease during session 22 and then an immediate increase to criterion levels during session 23. Sara remained at criterion performance for appropriate body language at

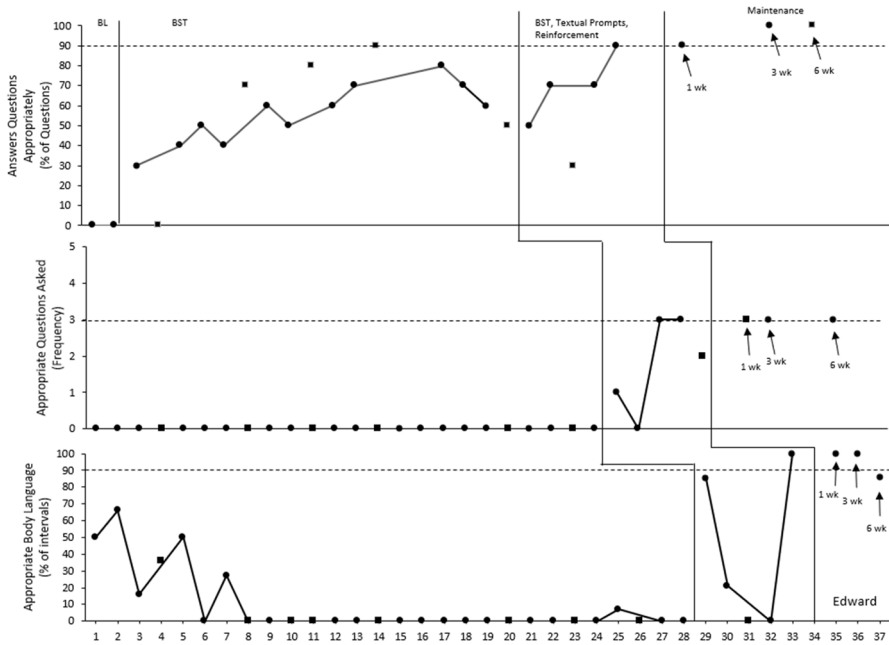


Fig. 3 The percentage of appropriate questions answered, the frequency of appropriate questions asked and the percentage of intervals scored with appropriate body language for Edward during baseline, behavioral skills training, generalization and maintenance. Circles represent interview probe sessions conducted prior to each training session and squares represent generalization probes. Horizontal, dotted lines represent criterion performance level

weeks one and three for maintenance until her performance decreased at week six to 49% of the intervals scored with appropriate body language. A booster session identical to a training session for appropriate body language was conducted. With the re-introduction of BST, the percentage of intervals scored with appropriate body language increased to 80%.

During baseline for answering questions, Edward (Fig. 3) displayed zero levels of responding. With the introduction of BST, his performance steadily increased, Edward interviewed for a position after session 18, was hired for the position, and a steady decrease in his performance was observed. After being hired for the position, Edward stopped responding to some of the questions asked during an interview and expressed he did not understand why he needed to continue interviewing. The instructor explained that it is important to know how to interview for a job, and keep practicing, because he will have other interviews in his lifetime. Edward decided he would like to know how to interview for a position at another company and decided to remain in the study. The addition of textual prompts and reinforcement was added during session 20. Performance steadily increased to criterion performance in six sessions. Answering interview questions then increased to 100% in maintenance and remained at this level throughout the six-week maintenance period. During baseline for asking questions, Edward's performance remained steady at zero until the introduction of BST in session 25. He acquired this skill within three sessions and

remained at criterion through the six-week maintenance period. The percentage of intervals scored with appropriate body language decreased to zero between sessions 1–28 during baseline. With the introduction of BST in session 29, the percentage of intervals scored with appropriate body language increased to 85% and decreased again to zero. The percentage of intervals scored with appropriate body language increased to 100% during session 33 and remained high through the three-week maintenance period. At six-week's maintenance, at the percentage of intervals scored with appropriate body language decreased to 86%. A booster session was not conducted because the difference between his performance and criterion was minimal.

Within six months of the completion of this study, Sara and Adam graduated from the community transition program and entered the adult services system. Prior to graduation, Sara and Adam both completed interviews with companies they completed internships with while in the program. Sara was offered a part-time position at her favorite retail store. Adam was offered a part-time internship in Quality Assurance, a different department within a company with which he was already interning with. Edward is continuing with his last year in the transition program and remains employed by the movie theater. He has taken on additional hours and responsibilities within the theater and is happy with his employment.

Time Expenditure

During baseline, session durations ranged between 5 and 15 min depending on the responses of each participant. Baseline consisted of interview probes only. The duration of each training session, depended on the participants' response times, and typically lasted between 15 and 30 min. Training sessions were scheduled for each participant three times per week and included one generalization probe each week. Adam completed all sessions, including maintenance, in 33 sessions. Sara completed all sessions, including maintenance, in 34 sessions. Edward completed all

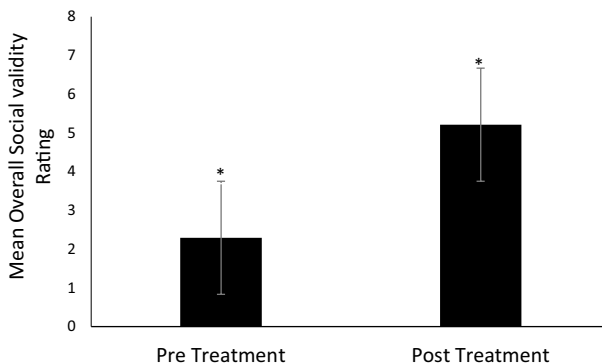


Fig. 4 The mean social validity ratings for baseline and maintenance and standard error of the mean. $t(14) = -17.44$, $*p < .0001$

sessions, including maintenance, in 37 sessions. With the addition of school breaks, the program was completed within 4 months' time.

Social Validity

Ten independent observers rated the participants' performances in baseline and during a maintenance session while watching video clips of pre-recorded interview probes. Observers determined that all three participants improved in their interview skills and that they would hire the participant based on their performance during their maintenance session. Figure 4 displays the mean social validity ratings for baseline and maintenance. The mean rating for baseline was 2.3 and the mean rating for maintenance was 5.6. A correlated-samples *t* test was conducted to compare the two means. There was a significant difference in the scores for mean baseline ratings ($M=2.3$, $SD=.80$) and mean maintenance ratings ($M=5.6$, $SD=.39$ conditions; $t(14)=-17.44$, $p<.0001$).

Discussion

Our results show that BST is an effective way to teach young adults with ASD appropriate interview skills. We successfully replicated Stocco et al. (2017) and extended the results to three individuals with ASD. To our knowledge, we are the first to demonstrate BST as an effective approach to teaching interview skills, with a focus on both vocal and non-vocal responses, to young adults with ASD.

Two of the three participants acquired the skills with BST alone, while the third participant required the addition of a token motivational system and textual prompts. The modifications required for Edward are not surprising given the typical challenges of people with ASD such as deficits in communication, social skills and responding to social cues. Peters and Thompson (2015) applied BST to teach children to respond to their conversation partner's interest. Because reading social cues of others is difficult for most individuals with ASD, they implemented the use of textual prompts and positive reinforcement in combination with BST. Grob et al. (2019) also utilized textual prompts in combination with BST to teach job-related social skills. These approaches were also successful for Edward while learning interview skills. Future research could evaluate the use of a treatment package including textual prompts and reinforcement as a measure of determining whether this approach could be applied to a broader spectrum of individuals with ASD. Incorporating the use of assistive technology could also be evaluated for individuals with limited vocal verbal behavior. Additionally, it may have been beneficial to conduct a preference assessment for performance feedback prior to training. Perhaps doing so could have informed the use feedback during BST for Edward. Future research should study preference for feedback prior to implementation of BST.

BST was shown to be effective with a trainer providing feedback and reinforcement. An extension of this program could be to teach participants to self-monitor these skills and to do so in the absence of the trainer. Some job seekers may not

have the accommodation of a trainer in the job interview with them, thus making self-monitoring of skills to demonstrate during the interview an important skill. In this study, it was shown that over time participants were able to generalize the skills without the trainer to guide them. Assessing self-monitoring in addition to BST would be beneficial to future research in this area.

The interview skills taught in this study were geared toward entry level positions, but the same approach could be applied to higher level positions. While the three young adults in this study are not currently seeking higher level positions (e.g., manager, computer programmer, medical coder, etc.), BST can be easily individualized to the learner and adapted to various situations. Future research should include additional questions and situational scenarios that would apply as an employee aims to move up the career ladder in their chosen industry. As demonstrated in Stocco et al. (2017), this approach was successfully used to teach college students to prepare for graduate programs, and other employment interviews. The same could be applied to students with ASD in college settings who are preparing to advance their education and/or prepare for their careers post-graduation.

Future research in this area may include the use of both virtual reality and BST to teach interview skills. Strickland et al. (2013) described a program called JobTIPS in which they applied video modeling, visual supports and virtual reality sessions to teach interview skills to individuals diagnosed with high functioning ASD. While they were able to demonstrate this approach as effective in teaching appropriate verbal responses in an interview, they noted the need for additional training in nonverbal responses as this did not increase post-intervention.

In this study, we were able to train nonverbal responses. Using BST in combination with virtual reality may allow for additional focus on nonverbal responses, such as body language and additional opportunities for generalization of skills.

It may be argued that the future of job interviews may not require face-to-face interviews; however, the benefits of training will still be applied and transferable. While some companies are now adapting their hiring process to better showcase the talents of individuals with ASD through group work, project completion and other training programs (Lam 2018; Felicetti n.d.), it is still commonplace for a candidate with ASD to be required to excel in a job interview to obtain employment. During the study, Edward interviewed for a position in a movie theater that adapted their interview approach to be a casual conversation while touring the theater. While Edward did not speak much during the interview, or appear to be highly motivated, he was still offered the position. The movie theater was aware of the supports and accommodations the community transition program would provide to help Edward in his role if offered. Prior to the interview, the staff also shared information about Edward's desire to work in a movie theater, his personality and work ethic. Accommodations were also provided for Sara when she went for her interview at a retail store. Prior to the interview, the manager provided the transition program staff with the questions that would be asked during the interview. The staff practiced these questions with Sara prior to her interview. We believe these types of accommodations for individuals with ASD will be beneficial to others, both individuals and companies alike, during the hiring process.

The students participating in this study are only a small cohort of individuals with ASD who were seeking employment and prevocational training opportunities. This study focused on the interview process alone; however, the students were also receiving training on the process of applying for a desired position, as well as experiencing various internships to help them determine what career path they would like to pursue. It is important to note that the interview is a crucial part of the process of obtaining employment, but exposure to various fields and an understanding of the career the individual would like to pursue is also of utmost importance in succeeding during the interview. Thus, although this research is an important demonstration of the effectiveness of behavior analytic interventions for increasing interview skills, there are additional employment-related repertoires that are still understudied. This study is a step in the direction of including vocational training in behavioral treatment programs for young adults with ASD.

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Compliance with Ethical Standards

Conflict of interest The authors declare no conflicts of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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