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TEACHING COLLEGE STUDENTS HOW TO ANSWER INTERVIEW QUESTIONS: CONTENT, FLUENCY, AND SOCIAL VALIDITY

Jennifer Wahonick
University of the Pacific

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By

Jennifer Wahonick

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Jennifer Wahonick

APPROVED BY:

Thesis Advisor: Corey Stocco, Ph.D.

Committee Member: Matt Normand, Ph.D.

Committee Member: Megan Heinicke, Ph.D.

Department Chair: Matt Normand, Ph.D.

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Abstract

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Poor interview performance may be one factor contributing to the unemployment and underemployment of recent college graduates, and content and fluency of interview answers seem to be especially important. Although decades of research have shown improvements in interview skills using instructions, modeling, rehearsal, and feedback, researchers have noted that the duration of training could limit the practicality of using these procedures in college classrooms or career centers. Additional time could be saved if teaching one skill led to collateral changes in another. Although previous research reported collateral changes in speech disfluencies after targeting elements of answer content (Hollandsworth et al., 1978), this study examined the reliability, validity, and generality of these findings. Training effects were evaluated using simulated interviews with the experimenter acting as the interviewer. To evaluate the durability of changes in answer content and fluency, students participated in simulated interviews one week after completing training (maintenance) and with an individual who frequently conducts interviews before and after training (generality). Answer content improved for all 3 participants after only 2 training sessions, and these improvements maintained after a week and during generality probes. However, there were no collateral improvements in speech disfluencies.

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Getting a job is one of the main reasons why college students pursue a degree (Eagan et al., 2016). However, roughly 5% of college graduates are unemployed (Gould et al., 2019), and an additional 34% of college graduates are working jobs that do not require a college degree (i.e., underemployed; Federal Reserve Bank of New York, 2019). Although gaining employment is dependent on many factors, employers commonly use interviews to inform hiring decisions (Macan, 2009). Poor interview performance may be one factor contributing to the unemployment and underemployment of recent college graduates (Abel et al., 2014). The Chronicle of Higher Education and American Public Media's Marketplace (2013) surveyed 700 employers from various professions and found that 67% suggested that recent graduates should improve their interview performance. Interview answers seem to be an especially important aspect of interview performance because 79% of employers rated oral communication skills as one of the top five most important skills for recent college graduates. Moreover, because hirability has been correlated with content and fluency of interview answers (Gillen & Heimberg, 1980; Hollandsworth et al., 1979), there is a need to evaluate training programs that improve these aspects of interview performance.

Although there are many variations reported in the literature, reviews by Galassi and Galassi (1978), Gillen & Heimberg (1980), Latham (1987), and Macan (2009) suggested that effective training typically includes four components: instructions, modeling, rehearsal, and feedback. This combination of procedures has sometimes been referred to as social skills training (Gillen & Heimberg, 1980) or the teaching interaction procedure (Phillips et al., 1974), but more recently, researchers have described these procedures as behavioral skills training

(BST; Miltenberger, 2012). In addition to repeatedly demonstrating improvements in interview skills over the past 40 years, research has shown that training comprised of instructions, modeling, rehearsal, and feedback is often necessary to produce the best outcomes (Gillen & Heimberg, 1980). In a recent example, Brazeau et al. (2017) measured the effects of training derived from Acceptance and Commitment Therapy on the simulated interview performance of three individuals diagnosed with developmental disabilities. Researchers used a checklist to measure indices of comfort (e.g., posture, eye contact) and appropriate answers to interview questions. During training, participants engaged in activities like walking while attending to external and internal stimuli or scanning the body to bring awareness to each part and accepting sensations in a nonjudgmental manner for 15 min before completing a simulated interview. Despite reporting improvements in indices of comfort (e.g., posture, eye contact) after training, two of the three participants required instructions, modeling, rehearsal, and feedback to meet mastery criteria for appropriate answers to interview questions.

Decades of research have also established the generality of outcomes produced by interview training comprised of instructions, modeling, rehearsal, and feedback. Training that included all four components has improved the interview performance of prison inmates (Speas, 1979), teenage mothers (Schinke et al., 1978), psychiatric patients (Furman et al., 1979), individuals diagnosed with autism spectrum disorder (ASD) or intellectual disabilities (Grinnell & Lieberman, 1977; Hall et al., 1980; Kelly et al., 1980; Rosales & Whitlow, 2019; Schloss et al., 1988; Smith et al., 2014; Strickland et al., 2013), college students (Hollandsworth et al., 1977; Stocco et al., 2017) and a recent college graduate (Hollandsworth et al., 1978). Research has also shown improvements in a diverse array of interview skills, such as answer content (Furman et al., 1979; Hollandsworth et al., 1978; Kelly et al., 1980; Rosales & Whitlow, 2019;

Schinke et al., 1978; Smith et al., 2014; Speas, 1979; Stocco et al., 2017; Strickland et al., 2013), asking questions (Hollandsworth et al., 1978; Kelly et al., 1980; Stocco et al., 2017), eye contact (Furman et al., 1979; Grinnell & Lieberman, 1977; Hollandsworth et al., 1978; Schinke et al., 1978), posture (Grinnell & Lieberman, 1977; Stocco et al., 2017), smiling (Stocco et al., 2017), appropriate gestures (Furman et al., 1979), and fluency of speech (Hollandsworth et al., 1978; Strickland et al., 2013).

Despite establishing the generality of training outcomes across various populations and interview skills, little is known about how to improve the content and fluency of answers to interview questions when training the general population of college students. Most studies have involved teaching interview skills to at-risk populations such as individuals with disabilities, prison inmates, and psychiatric patients (Gillen & Heimberg,1980; Latham, 1987; Macan, 2009). However, results from studies on teaching interview skills to at-risk populations may have limited external validity when considering interview training for typical college students. Most studies have shown improvements in answer content that do not represent socially valid outcomes for college students (Wolf, 1978). For example, Schloss et al. (1988) taught individuals diagnosed with developmental disabilities rote answers to straightforward questions (e.g., "Where were you born?"). In a notable exception, Hollandsworth et al. (1978) reported improvements in the content and fluency of answers for a recent college graduate following training. Researchers did not directly address speech disfluencies (e.g., "ah") in training. However, they reported decreases in speech disfluencies that corresponded with training of self-correcting statements (e.g., "let me start over"), as well as increased subjective ratings of the fluidity and clarity of answers to questions during simulated interviews. Still, it is difficult to draw valid conclusions about the outcomes for several reasons. Hollandsworth et al. evaluated

the effects of training on the interview performance of only one participant. Therefore, little is known about the generality of training effects across individuals. It is also possible that answer content and fluency improved because the researchers used the same five questions in all training sessions and simulated interviews. When researchers assessed content and fluency with four novel questions, several data points overlapped with baseline performance[1]. Moreover, the data depicting answers to the trained questions showed a gradual decrease in speech disfluencies across baseline and posttraining interviews that could be the result of repeatedly practicing answers to the same interview answers (i.e., testing; Petursdottir & Carr, 2018). All other reported measures of improvements in content and fluency consisted of subjective rating scales.

More recently, Stocco et al. (2017) added to the existing literature by teaching college students interview skills, including answer content, and measuring the effects of training using more objective measures. During answer training, the participant was given the criteria for seven different answer categories. Each category grouped similar questions. For instance, one category included the question "Why do you want this position?" and questions that could be answered with similar information, for example, "Why are you interested in this job?". An answer was considered correct if the participant addressed all criteria within a category. For instance, if a participant was asked a question about their interest in the position, an answer would be counted correct only if they (1) complimented the company (2) mentioned their personal goals (3) focused on how the position could help the participant achieve stated goals. The experimenter asked one question from each category during simulated interviews and the authors reported the percentage of questions for which a participant provided a correct answer (out of seven). All

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[1] See the data on speech disturbances and focused response ratings reported in Figure 2 of Hollandsworth et al. (1978).

five students exhibited higher levels of correct answers after training in appropriate answers, with total answers correct averaging 19% in baseline and 72% in posttraining.

However, it remains unclear whether researchers have identified procedures that improve the content and fluency of college students' answers to interview questions. Despite showing increases in the percentage of answers that met objective criteria, questions remain about the viability of procedures and validity of outcomes. First, Stocco et al. (2017) did not address or measure fluency of speech. Second, teaching answers that met the criteria for seven categories of questions took an average of just over five hours per participant (range, 2 hr 43 min to 8 hr 21 min). This could be due to the complexity of the answer criteria. Participants were taught two to three answer criteria for seven different types of answers, requiring the participants to learn answers that met seventeen different criteria throughout the interview. Third, and moreover, when staff at a career center rated interviewer performance on a scale of one to seven from videos of baseline and posttraining interviews, ratings for four of the five participants improved by less than two points, on average, for answer quality. Therefore, training answers that meet criteria for different categories of questions may be impractical to implement in a college setting and may not produce optimal outcomes.

An alternative approach could include brief interview training focused on the facets of answer content and fluency that appear to be most important. Eike et al. (2016) reported that when staff at a career center watched recordings of college students answering interview questions and commented on areas for improvement, staff most commonly suggested that students should elaborate on specific experiences and mention specifics about the position or company. The second most common type of feedback involved suggestions to reduce distracting verbiage (e.g., "um," "uh"). Interview training that targets these commonly suggested areas for

improvement could produce meaningful changes in interview performance while saving time. Additional time could be saved if teaching one skill leads to collateral changes in another. Although previous research reported collateral changes in speech disfluencies after targeting elements of answer content (Hollandsworth et al., 1978), more research is needed to examine the validity and generality of these findings.

The purpose of this study was (a) to evaluate the direct effects of teaching college students to include statements about specific experiences and statements about the company or position in their answers to interview questions and (b) to measure the indirect effects on speech disfluencies. We used instructions, modeling, rehearsal, and feedback to teach these skills and conduced simulated interviews to measure changes in performance from baseline to training. We assessed the durability of learning over time and across more naturalistic interviews. To assess the social validity of procedures and outcomes, participants and a local employer completed questionnaires. Participants rated the acceptability of procedures, goals, and outcomes. The employer watched videos of participants' answers from before and after training and rated the content and fluency of answers and participants' relative hirability. Finally, because time expenditure may be paramount to the adoption of training programs on college campuses, we reported the duration of each assessment and training component.

CHAPTER 2: METHOD

Participants and Setting

Participants included 3 female undergraduate students. Participants were recruited

through announcements on course webpages. Participants received extra credit for class and a

$20 gift card for a retail store as compensation for participation. To further increase motivation

for learning target skills, participants identified job advertisements or graduate programs relevant

to their career goals for which to prepare during the study. Monica and Shannon were both

juniors majoring in psychology and planning to apply to graduate schools in the next few years.

Monica was 19 years old and reported that she received instruction on interview skills in a class

but never practiced or received feedback on skills. Shannon was 29 years old and reported

receiving instruction and peer feedback for job interviews in a course offered through the

military. Wendy was 21 years old and a business major. She graduated during the course of the

study and recently accepted a job in finance but expressed interest in interviewing for a

marketing position. Wendy reported participating in approximately 10 mock interviews offered

through an event put on by the campus career resource center and receiving feedback about her

performance after each interview. Two of the participants were African American and one was

Pakistani American. All participants reported that they had experience interviewing for jobs.

Wendy was the only participant who reported that she had been offered every job for which she

had interviewed. All sessions were conducted via the video conferencing software, Zoom.   The

experimenter did not have access to see what the participant was looking at on their screen

during the training sessions or simulated interviews[2]. During each session both the experimenter and the participant sat in private rooms, and the experimenter recorded the sessions on her computer.

Measurement and Interobserver Agreement (IOA)

Trained observers collected data from video recordings of sessions using paper and pencil (Appendix A). Observers recorded (a) statements about specific experiences, (b) statements about the position or company, and (c) speech disfluencies during answers to 5 types of interview questions. Table 1 includes examples and nonexamples of statements about specific experiences and statements about the position or company. Speech disfluencies were defined as nonsensical syllables like "um," "uh," "ah," or "er," as well as the word "like" when it is not grammatically correct. This definition was adopted from Mancuso and Miltenberger (2016) because these are common disfluencies that all three participants engaged in. To minimize the potential for interrupting a participant before finishing an answer, the experimenter allowed for at least approximately 3 s of silence before asking subsequent questions. The experimenter allowed for more than 3 s of silence if the participant engaged in gestures (e.g., shrugging) or facial expressions (e.g., looking at the ceiling) that indicated they were still in the process of answering the question.

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[2] It is unknown whether participants had any other materials on their screen during the simulated interviews, or if they could see their own video during the sessions.

Table 1

Examples and Nonexamples of Statements About a Specific Experience and Statements About the Company or Position

Nonexamples	Examples
Statements about a specific experience	
"I have worked in a lot of different settings"	"I have worked in classrooms grades K-12" "I have taught several different subjects "
"I have a lot of experience in this field"	"I have several years of experience as an appraiser" "I have participated in several curriculum development projects" "I served for 3 years on the board of directors"
"I am a hard worker"	"I graduated with a 3.9 GPA" "In my previous job I never missed a deadline"
"I have a lot of training in this field"	"I have my master's in criminal justice" "I have been trained to use three different programs to code medical software"
"I have worked in a collaborative environment"	"As a behavior specialist I was often expected to collaborate with other professionals on the treatment team"
Statements about the company or position	
"In this field" "In a hospital" "Doing Social Work" "In a people-helping profession"	"Working here" "Working for you" "Working as a Social Worker at this company" "Columbia University's Journalism program" "At ABC Autism Clinic"

All three responses were scored by dividing each session into 10-s bins. Due to the brevity of the responses, observers recorded the frequency of statements about the company or position and speech disfluencies. Because statements about specific experiences could last several minutes, observers scored each occurrence by recording the onset and offset and denoting the duration of statements per 10-s bin. For example, if a statement began at 0:11 and ended at 0:33, the observer would record 9 s, 10 s, and 4 s for bins 0:10–0:19, 0:20–0:29, and 0:30–0:39, respectively. We reported the frequency of statements about the position or company and statements about specific experiences as well as the percentage of answers (out of 5) that included these responses. Rate of speech disfluencies were calculated by dividing the frequency of disfluencies by the duration for which a participant spoke while answering questions each session. The onset of an answer was scored as the first sound the participant made after they are asked the interview question and the offset of an answer was be scored as the last sound the participant made in their interview answer. The total answer duration for each simulated interview was calculated by adding the durations of all five answers in the session.

Secondary observers collected data for 40% of sessions. Mean count-per-interval IOA was calculated for all measured behaviors. Agreement for each 10-s bin was be determined by dividing the smaller number of recorded occurrences by the larger number of recorded occurrences and multiplying by 100. The observer agreement for all of the bins was then averaged to determine IOA for the session. All coefficients were at or above 77%, more details can be found in Appendix B.

Supplemental Measures

Because smiling and eye contact have been correlated with likelihood of hire (Forbes & Jackson, 1980; Gillen & Heimberg, 1980; Hollandsworth et al, 1979), observers recorded

smiling and eye orientation during pre- and post-training generality probes to assess the extent to which these two untargeted aspects of performance corresponded with employer hirability ratings. Eye orientation was recorded when the participant directed the pupil of their eyes toward the camera. Observers used a 10-s momentary time sampling with a 3-s observation window. A secondary observer collected data for smiling and eye orientation for both generality probes. IOA was calculated by dividing the number of agreements over the total number of observation windows. All coefficients were at or above 75% (Appendix B).

Observer Training

The primary data collector provided the secondary data collectors with instructions and operational definitions, as well as examples and non-examples of each dependent measure. The secondary data collectors then practiced recording data and received feedback from the primary data collector until they obtained interobserver agreement of 80% or higher for three consecutive sessions.

Experimental Design

We used a nonconcurrent multiple baseline design across participants to evaluate the direct effects of an interview skills training program on statements about specific experiences and statements about the company or position and the indirect effects on speech disfluencies during interview answers. Monica and Wendy participated at the same time, and most of Shannon's baseline sessions were conducted during that time as well. However, due to a death in the family, there were 6 weeks between Sessions 15 and 16 for Shannon.

Procedure

Preassessment

Participants completed a questionnaire about their demographics, relevant history, and comfort with interviews (Appendix C). Participants reported their age, college major, sex, previous experience with interview training, and previous experience with job interviews (reported above). They also rated their confidence in interview skills and anxiety level in an interview setting. The participant was asked to choose a specific job or graduate program for which they would practice interviewing during the study. Participants identified a marketing job at a fashion magazine (Wendy), a psychology graduate program (Monica), and a social worker at a veteran's hospital (Shannon) as specific jobs or programs for which they were interested in interviewing. The experimenter told the participant to prepare for each simulated interview as if it was the first time interviewing for that job or program.

Baseline

The experimenter asked one question from five different categories of questions during simulated interviews (Appendix D). The order of categories and specific questions differed across interviews. After asking a question, the experimenter looked at the participant and waited for an answer. The experimenter responded with a neutral facial expression and said "thank you" at the end of each answer.

Training

The experimenter taught the participant how to include statements about specific experiences and the company or position using instructions, examples and non-examples, rehearsal, and feedback. Instructions included vocal descriptions of operational definitions and the rationale for increasing these types of statements (Appendix E). The experimenter provided

the participant written and vocal examples and nonexamples of the statements and told them the average rate at which they engaged in those target statements during the most recent simulated interview. After describing the target behaviors, the experimenter provided the participant with video examples and non-examples of statements about specific experiences and mentioning the company or position from their previous simulated interview. The experimenter would share their screen, play the video, and state why the answer was an example or nonexample of the trained skill. If the participant did not have any clips that contained examples or nonexamples from their previous interview, the experimenter provided a vocal model for them. The participant then had an opportunity to rehearse and receive feedback. Feedback was delivered after the participant completed their answer (see Appendix F for examples). Rehearsal and feedback continued until the participant provided an answer that included a specific experience and mentioned the position or company.

Once the participant completed rehearsal and feedback, they participated in a simulated interview that was video recorded and used to collect data on the subject's performance. The simulated interviews in the training phase were identical to those in baseline. After the simulated interview, the experimenter shared their screen with the participant and played a video from their simulated interview from that day and the participant completed a self-evaluation form (Appendix G) on which they recorded the occurrence of trained responses. After completing the self-evaluation form the participant shared their screen with the completed form and the experimenter took a screenshot of the form.

Maintenance

One week after participants completed training, participants completed simulated interviews that were identical to baseline in that they were not immediately preceded by a

training session. Additionally, the experimenter did not deliver any feedback and the participant did not complete a self-evaluation form.

Generality Probes

The participant completed a simulated interview with an individual who frequently interviewed job applicants during baseline and after the final maintenance session. During these sessions the experimenter added both the interviewer and the participant in a Zoom meeting, introduced them, explained that the participant would be completing an interview, then turned off her camera and muted herself while the interview took place. At the start of the baseline interview, the interviewer was instructed to conduct the interview as they normally would. Prior to the posttraining interview, the experimenter emailed the interviewer the list of interview questions that were asked in the baseline interview and instructed them to ask those same questions. If the questions differed, performance during baseline and posttraining generality-probes would not be comparable.

Employer Ratings Procedure

After all participants completed the study, an individual who frequently conducted job interviews rated the likelihood that they would hire a participant based on observing videos of baseline and posttraining generality probes. The rater was a 50-year-old Caucasian male with 16 years of conducting interviews as a school superintendent who was blind to the purpose of the study. The order in which videos were played was randomized using Random.org. After watching each video, they rated the answer content and fluency of the interview answers as well as the likelihood of hiring the individual based on their interview performance (Appendix H). The purpose of this questionnaire was to assess the social significance of the outcomes (Wolf, 1978).

Participant Ratings Procedure

After the participant concluded all training and assessments, they were asked to complete a questionnaire to assess the social validity of the training program (Appendix I).

CHAPTER 3: RESULTS

Individual Training Outcomes

Figure 1 illustrates the training results for all three participants. Baseline data for answers that mentioned the position or company were low (0 to 20%) for all participants. There was a small immediate increase to 40% for all three participants in their first training sessions. However, during the second training session and all proceeding sessions, statements about the position or company and statements about specific experiences were at high levels (80% or above) for all three participants. Increases in mentioning a specific experience were also seen for all three participants. In baseline, Monica included a specific experience for 40% of her answers in all four baseline sessions. After training and during maintenance sessions, Monica included a specific experience in 100% of her answers during all but one session, in which she included a specific experience in 80% of her answers. Wendy's baseline data for including a specific experience in her answers were more variable, between 0% and 80% of her answers with a mean of 33%. After training, Wendy included a specific experience in 80% to 100% of her answers every session. Shannon included a specific experience in up to 40% of her answers during baseline and levels remained low with a mean of 29%. During her first training session, Shannon included a specific experience in 40% of her answers. However, during the second training session and all proceeding sessions, statements about specific experiences were at high levels (80% or above) for all training and maintenance sessions.
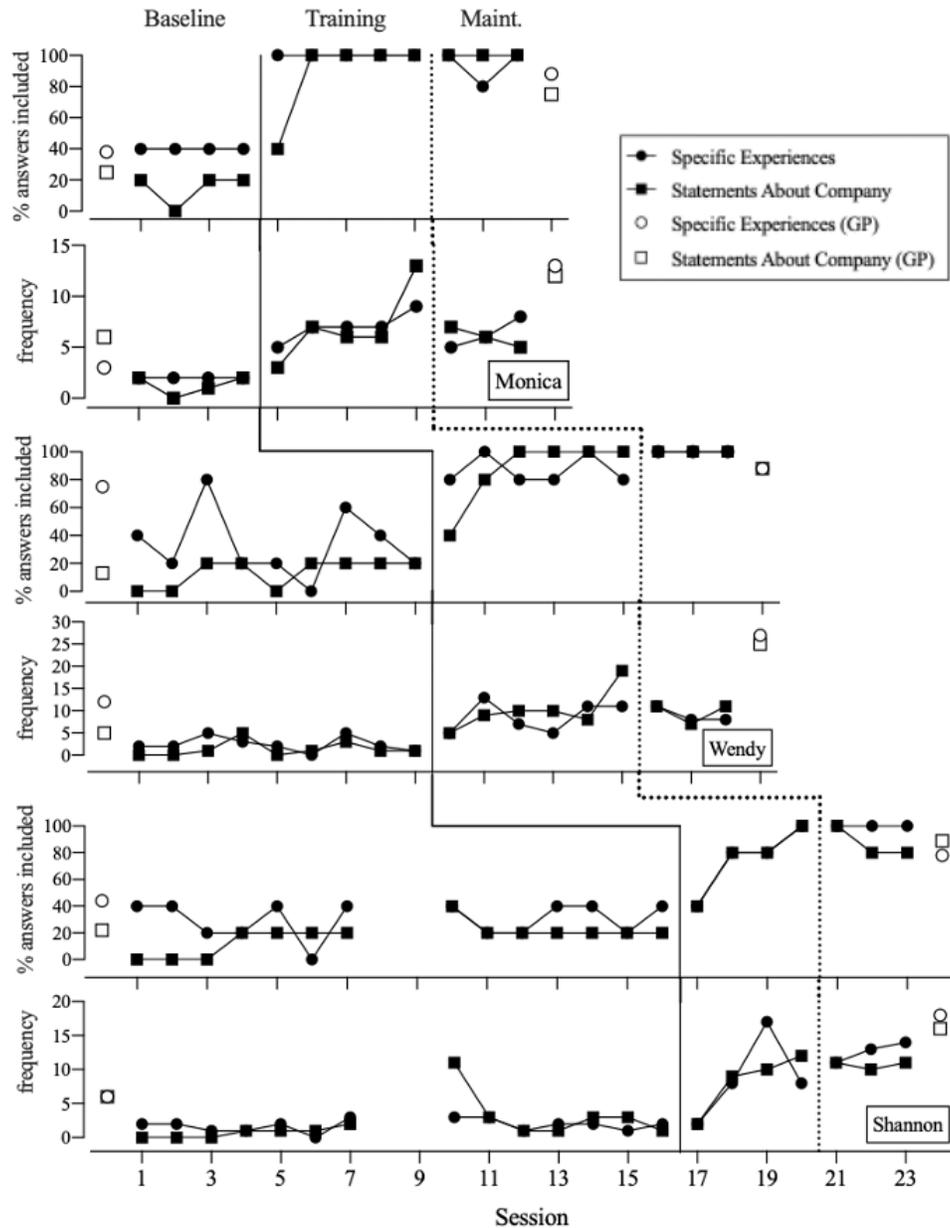
Figure 1. This graph shows frequency of the two target responses as well as percentage of answers that included the target responses. The top two panels depict Monica's performance, the middle panels depict Wendy's performance, and the bottom panels depict Shannon's performance. Open data points depict generality probes (GP).

Fluency

Figure 2 shows the number of speech disfluencies per minute emitted by the participants during each simulated interview. In baseline, disfluencies remained stable for Shannon with a mean of 8.9 (range, 6.3 to 12.4) and Monica with a mean of 10.4 (range, 7.4 to 13). There is an increasing trend during Wendy's baseline sessions with a mean of 12.5 (range, 8.1 to 16.3). However, levels of speech disfluencies remain about the same for all three participants after training.
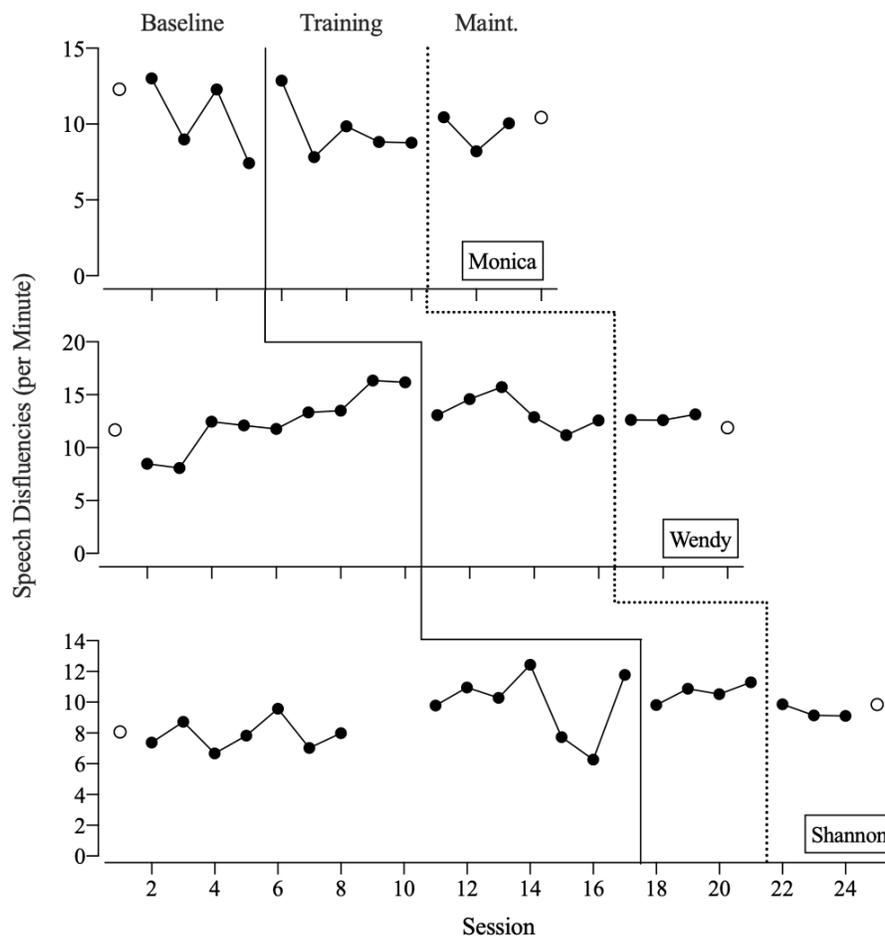
Figure 2. Speech disfluencies per minute emitted by participants during simulated interviews. Open data points depict generality probes (GP), and closed data points depict simulated interviews with the experimenter.

Generality Probes

All three participants showed increases in the number of trained statements as well as the percentage of answers that contained the trained statements from their first generality probe to their second generality probe. From baseline to maintenance, the percentage of answers that included statements about specific experiences increased by 132% (Monica), 17% (Wendy), and 77% (Shannon), and the percentage of answers that included mentions of the position or company increased by 200% (Monica), 577% (Wendy), and 305% (Shannon).

Social Validity

All participants reported that they were "extremely satisfied" with the improvement in their interview skills and that they found the simulated interviews and training procedures effective ($M = 6.8$ out of 7, range, 6 to 7). All participants reported that they had a positive reaction to the interview skills training. The confidence and anxiety ratings for Wendy and Shannon improved from baseline to posttraining ($M = +1.25$ points). Confidence ratings and anxiety ratings stayed the same for Monica, reporting she remains "slightly confident" (2 out of 5) and "nervous" (2 out of 5) during an interview.

Table 2 shows employer ratings of participant performance. The employer rated the content, fluency, and hirability as the same across baseline and posttraining interviews for Monica (4 out of 5). The employer scored both Wendy and Shannon's posttraining interviews higher than their baseline interviews when asked about the content of the participant's answers and the likelihood that they would hire the participant based on the interview. The employer also scored Shannon's fluency one point higher in posttraining than in baseline.

Table 2

Employer Ratings of Participant Performance During Baseline and Posttraining Generality Probes

Questionnaire Items by Participant	Baseline	Posttraining	Change Score
Monica			
Content	4	4	0
Fluency	4	4	0
Hirability	4	4	0
Wendy			
Content	3	4	+1
Fluency	4	4	0
Hirability	3	5	+2
Shannon			
Content	2	4	+2
Fluency	2	3	+1
Hirability	2	4	+2
Mean	3.1	4	+0.9

Table 3 shows the percentage of intervals with smiling or eye orientation during the generality probes for each participant.   During the baseline probe, Monica smiled for 50% of intervals, compared to 19% of intervals during the posttraining probe. She oriented her eyes towards the camera during 73% of intervals in baseline and 71% in posttraining. Wendy smiled for 14% of intervals in baseline, and 8% of intervals in posttraining. She oriented her eyes toward the camera 95% of intervals during the baseline probe and 90% posttraining. Shannon smiled during 27% of intervals in baseline and 38% posttraining and oriented her eyes toward the camera in 71% of her baseline probe and 97% posttraining.

Table 3

Smiling and Eye Orientation Towards the Camera During Generality Probes

Smiling and Eye Orientation by Participant	Baseline	Posttraining	Change Score
Monica			
Smiling	50%	19%	-31%
Eye Orientation	73%	71%	-2%
Wendy			
Smiling	14%	8%	-6%
Eye Orientation	95%	90%	-5%
Shannon			
Smiling	27%	38%	+11%
Eye Orientation	71%	97%	+26%

Time Expenditure

The mean duration of completing all components of the study was 4 hours (range, 2 hr 16 min to 5 hr 35 min) per participant. Monica participated in five training sessions with a mean of 19 min per training session (range, 15 min to 26 min) for a total of 1.5 hr in training. The nine simulated interviews, including the generality probes, that occurred outside the training sessions in baseline and maintenance phases took a total of 42 min to complete. Wendy had six training sessions with a mean of 27 min per session (range, 25 min to 29 min) totaling 3 hr 42 min. Wendy also spent 83 min in simulated interviews outside of training. Shannon completed four training sessions lasting a mean of 45 min (range, 36 min to 52 min) for a total of just over 3 hr in training. Outside of training, Shannon spent 2 hr 22 min in baseline and maintenance simulated interviews and generality probes.

CHAPTER 4: DISCUSSION

This study demonstrated the effectiveness of a brief interview training program focused on the facets of answer content that appear to be among the most important (Eike et al., 2016; Hollandsworth et al., 1979). After 1.5 to 3.75 hours of training, all participants demonstrated improvements in statements about specific experiences and the company or position from baseline to posttraining. These results extended beyond training and maintained one week after training. Moreover, all participants rated the procedures as acceptable, and an employer rated the content of interview answers higher for two of three participants. Despite improvements in answer content, there were no collateral improvements in fluency of speech. Based on these results, this form of interview training may be viable for improving what college students say during interviews. However, more research is needed on procedures that improve content *and* fluency as efficiently as possible.

This study included a training package with multiple components, though it is unclear which components are crucial to the effectiveness and the adoptability of these procedures. The results suggest that the use of video feedback may have been an important component. After training, statements about specific experiences and the company or position increased for all three participants in this study; however, for Shannon, the first session data point overlapped with baseline performance, and for all three participants, large changes in level were not observed until the second training session. This could be because the participant watched their video and completed their self-evaluation after the first simulated interview of the training phase. Therefore, it was not until the second training session that the participant saw themselves on video and evaluated their performance. It is notable that both Shannon and Monica wrote on

their social validity questionnaires that video feedback was particularly helpful. However, there is little research on teaching interview skills to college students using video feedback. Research has demonstrated improvements in the interview skills of people diagnosed with Autism and intellectual disabilities (Munandar et al., 2020; Smith et al., 2014), psychiatric patients (Furman et al., 1979), prison inmates (Speas, 1979), and people living in poverty (Barbee & Keil, 1973) using training programs that included video feedback. Moreover, video feedback has been shown to improve a variety of other skills in college students, such as playing the guitar (Boucher et al., 2020), nursing skills (Yang et al., 2019) and suturing skills (Naik et al., 2018). As a result, there is reason to suspect that video feedback is useful for teaching interview skills to college students, but further research is necessary.

The current study was conducted during restrictions due to COVID-19. Although using a video conferencing platform was a convenient and safe option, there were limitations to using Zoom to conduct sessions. First, the experimenter was unable to see what the participant was looking at on their screen during simulated interviews. For instance, the participant could have written up talking points before participating in simulated interviews. Although this could be a useful strategy to prepare for a video interview, it may limit the generality of outcomes across other interview formats that occur in person. Future studies could use software that limits the participant's ability to use other applications on their computer or notifies the experimenter of other applications being used by the participant during training sessions or simulated interviews. Second, training outcomes may have limited generality to face to face interviews. Although generality probes assessed the durability of these skills with a different interviewer and set of questions, it did not assess the participant's performance during an in-person interview. Finally, the experimenter turned off her video and muted herself during the generality probe, but her

picture was still displayed. Because the experimenter previously delivered praise for target skills, interview performance during generality probes may have been influenced by the presence of the experimenter's profile picture. An alternative procedure, such as having the interviewer record the session and sending it to the experimenter, may have limited reactivity.

Although certain components of this training program were effective in improving answer content, this training did not produce collateral improvements in fluency of speech. These results conflict with the findings of Hollandsworth et al. (1978), which reported collateral decreases in speech disfluencies during answer content training. There are two interpretations that could explain the discrepancies between these results. First, the procedures used in Hollandsworth et al. may have influenced the contingencies of reinforcement that maintained speech disfluencies. Miltenberger (2011) hypothesized that speech disfluencies are automatically maintained but are more likely to occur when the individual experiences "heightened nervous tensions" (p. 480). Answering novel questions in an interview context may function as an establishing operation for responses maintained by the removal or reduction of discomfort. In the procedures used by Hollandsworth et al., the participant learned answers to the same five questions. Under these conditions, the participant could have been reciting memorized answers (intraverbal chunks; Catania, 2013, p. 326). Therefore, disfluencies may have reduced during training because learning answers to the same questions produced the same reinforcement (e.g., reducing discomfort). In contrast, this study used different interview questions during each simulated interview, requiring the participants to answer a wider variety of questions. As a result, disfluencies, may have continued to be reinforced by removal or reduction of discomfort. Second, researchers taught participants to pause and think before speaking in Hollandsworth et al. Pausing has been shown to function as a competing response

for speech disfluencies in the habit reversal literature (Mancuso & Miltenberger, 2016; Pawlik & Perrin, 2019). Future research could evaluate the variables maintaining speech disfluencies and the effects of establishing competing responses for speech disfluencies during interview answers. For instance, the experimenter could instruct the use of a pause as a competing response for a speech disfluency. Additionally, similar to the procedures used in Pawlik and Perrin, the participants could raise their hand when they detect a speech disfluency during the self-evaluation portion of training, and when rehearsing their answer during training.

Although all three participants showed increases in the targeted statements after only a few hours of training, it is still unclear whether the skills targeted led to meaningful changes in hirability. Similar to the social validity ratings from staff at a career center in Stocco et al. (2017), the employer ratings varied across participants. The employer ratings indicated improvement in answer content and hirability for Shannon and Wendy but no change in outcomes for Monica. This could be because Monica was emitting too many statements about experiences and statements about the company after training. During Monica's second generality probe, she mentioned the company 5 times within one 40-s answer. Further research could pinpoint an optimal range of target statements to include in an answer to increase hirability.

Measures of smiling and eye orientation from generality probes suggest that employer ratings also could have been influenced by untargeted aspects of nonvocal responding. However, there were idiosyncratic differences that should inform future research. For Shannon, higher ratings of hirability (from 2 to 4 out of 5) corresponded with increases in smiling (from 27% to 38%) and eye orientation (from 71% to 97%) across baseline and posttraining generality probes. In contrast, an increase in hirability ratings from 3 to 5 out of 5 for Wendy coincided

with decreases in eye orientation (from 95% to 90%) and smiling (from 14% to 8%). It is not clear why there were similar increases in hirability ratings when changes in nonvocal responses increased for Shannon but decreased for Wendy. Interpreting the influence of nonvocal responses on hirability becomes more challenging when considering the outcomes for Monica. Hirability ratings were unchanged across baseline and posttraining generality probes for Monica (4 out of 5) and nonvocal responses decreased from 50% to 19% (smiling) and from 73% to 71% (eye orientation). Interpreting these idiosyncratic outcomes could be aided by a more robust understanding of how nonvocal responses contribute to hirability. Previous research has reported positive correlations between hirability, content, and nonvocal responses (Forbes & Jackson, 1980; Gillen & Heimberg, 1980; Hollandsworth et al, 1979), but little is known about the separate and combined effects of specific skills on hirability at the individual level. Certain nonvocal responses might impact hirability more than others. Based on these results, eye orientation (or contact) might be more influential than smiling for some interviewees. Although eye orientation decreased for Wendy, the change was relatively small (-5%), and it is important to note that Wendy's baseline and posttraining levels of eye orientation were similar to posttraining levels of eye orientation for Shannon. Wendy's higher levels of eye orientation could be why she received higher ratings of hirability compared to Shannon during baseline (3 v. 2 out of 5) and posttraining (5 v. 4 out of 5). As a result, increases in Shannon's hirability may have been due to the combination of increases in eye orientation and answer content, whereas increases in Wendy's hirability may be more related to changes in answer content. Monica's hirability ratings may have been the same because improvements in answer content from baseline to posttraining were offset by decreases in smiling or overall lower levels of eye orientation compared to Shannon and Wendy. However, conclusions based on studies evaluating

the potential influence of nonvocal responses on hirability may be outdated and are limited by the use of group designs and correlational analyses. For example, Forbes and Jackson (1980) reported that higher levels of smiling and eye contact were linked to acceptance into an engineering internship. A panel interviewed 101 applicants ages 15-17 and divided the applicants into 3 groups: accepted (43), put on a reserve list (37), or rejected (21). Researchers also coded nonvocal behavior of the applicants including body position, eye contact, facial expression, and head movement using 30 second time sampling. The results showed higher levels of smiling ($M = 5$ occurrences) and eye contact ($M = 20$ occurrences) for the 43 applicants who were accepted for the internship than measures of the same nonvocal responses for applicants who were put on the reserve list ($M = 2$ occurrences of smiling, $M = 13$ occurrences of eye contact) or rejected ($M = 1$ occurrence smiling, $M = 11$ occurrences of eye contact). However, these scores were reported as means, which conceal the individual differences between applicants. Outcomes from these studies suggest a relation between eye contact, smiling, and hirability, but they do not demonstrate the effects of these nonvocal responses on hirability. Experimental analyzing the separate and combined effects of nonvocal responses like eye contact and smiling on likelihood of hire using single-case designs would uncover plausible alternative explanations that could contribute to increases in hirability. For example, individuals who smile more could also be nodding their head more during an interview. An experimental design that manipulates one variable while holding all others constant would identify specific behaviors that should be targeted during interview training.

Interview performance can be a barrier for a college graduate entering the workforce, and there is a need for an efficient training program at universities. This training program took considerably less time than Stocco et al. to improve answer content, however it did not lead to

collateral decreases in speech disfluencies. Future research should examine ways to improve

answer content while simultaneously improving fluency of speech in order to create an interview

training program that could be feasibly implemented on college campuses.

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APPENDIX A: DATA SHEETS

Data Sheet 1: Statements about a Specific Experience

Participant: Session #:   Data Collector:

0:00-0:10	0:11-0:20	0:21-0:30	0:31-0:40	0:41-0:50	0:51-1:00
1:01-1:10	1:11-1:20	1:21-1:30	1:31-1:40	1:41-1:50	1:51-2:00
2:01-2:10	2:11-2:20	2:21-2:30	2:31-2:40	2:41-2:50	2:51-3:00
3:01-3:10	3:11-3:20	3:21-3:30	3:31-3:40	3:41-3:50	3:51-4:00
4:01-4:10	4:11-4:20	4:21-4:30	4:31-4:40	4:41-4:50	4:51-5:00
5:01-5:10	5:11-5:20	5:21-5:30	5:31-5:40	5:41-5:50	5:51-6:00
6:01-6:10	6:11-6:20	6:21-6:30	6:31-6:40	6:41-6:50	6:51-7:00
7:01-7:10	7:11-7:20	7:21-7:30	7:31-7:40	7:41-7:50	7:51-8:00
8:01-8:10	8:11-8:20	8:21-8:30	8:31-8:40	8:41-8:50	8:51-9:00
9:01-9:10	9:11-9:20	9:21-9:30	9:31-9:40	9:41-9:50	9:51-10:00

Start time: End Time:

Data Sheet 2: Statements about Company or Position

Participant: Session #:   Data Collector:

0:00-0:10	0:11-0:20	0:21-0:30	0:31-0:40	0:41-0:50	0:51-1:00
1:01-1:10	1:11-1:20	1:21-1:30	1:31-1:40	1:41-1:50	1:51-2:00
2:01-2:10	2:11-2:20	2:21-2:30	2:31-2:40	2:41-2:50	2:51-3:00
3:01-3:10	3:11-3:20	3:21-3:30	3:31-3:40	3:41-3:50	3:51-4:00
4:01-4:10	4:11-4:20	4:21-4:30	4:31-4:40	4:41-4:50	4:51-5:00
5:01-5:10	5:11-5:20	5:21-5:30	5:31-5:40	5:41-5:50	5:51-6:00
6:01-6:10	6:11-6:20	6:21-6:30	6:31-6:40	6:41-6:50	6:51-7:00
7:01-7:10	7:11-7:20	7:21-7:30	7:31-7:40	7:41-7:50	7:51-8:00
8:01-8:10	8:11-8:20	8:21-8:30	8:31-8:40	8:41-8:50	8:51-9:00
9:01-9:10	9:11-9:20	9:21-9:30	9:31-9:40	9:41-9:50	9:51-10:00

Duration (sec)		
Q1:	Q2:	Total Statements about Company or Position:
Q3:	Q4:	Total Duration in Min:
Q5:	Total:	**Statements about Company or Position per minute:**

Data Sheet 3: Speech Disfluencies

Participant: Session #:   Data Collector:

0:00-0:10	0:11-0:20	0:21-0:30	0:31-0:40	0:41-0:50	0:51-1:00
1:01-1:10	1:11-1:20	1:21-1:30	1:31-1:40	1:41-1:50	1:51-2:00
2:01-2:10	2:11-2:20	2:21-2:30	2:31-2:40	2:41-2:50	2:51-3:00
3:01-3:10	3:11-3:20	3:21-3:30	3:31-3:40	3:41-3:50	3:51-4:00
4:01-4:10	4:11-4:20	4:21-4:30	4:31-4:40	4:41-4:50	4:51-5:00
5:01-5:10	5:11-5:20	5:21-5:30	5:31-5:40	5:41-5:50	5:51-6:00
6:01-6:10	6:11-6:20	6:21-6:30	6:31-6:40	6:41-6:50	6:51-7:00
7:01-7:10	7:11-7:20	7:21-7:30	7:31-7:40	7:41-7:50	7:51-8:00
8:01-8:10	8:11-8:20	8:21-8:30	8:31-8:40	8:41-8:50	8:51-9:00
9:01-9:10	9:11-9:20	9:21-9:30	9:31-9:40	9:41-9:50	9:51-10:00

Duration (sec)		
Q1:	Q2:	Total Speech Disfluencies
Q3:	Q4:	Total Duration in Min:
Q5:	Total:	**Speech Disfluencies per minute:**

APPENDIX B: INTEROBSERVER AGREEMENT

Interobserver Agreement

	Monica	Wendy	Shannon
Statements about specific experiences	85% (78%–92%)	89% (77%–100%)	86% (78%–95%)
Statements about the position or company	94% (78%–92%)	93% (84%–100%)	95% (78%–100%)
Speech Disfluencies	89% (84%–98%)	86% (79%–91%)	82% (78%–89%)
Eye Orientation	80% (75%–84%)	95% (94%–96%)	93% (88%–97%)
Smiling	85% (84%–85%)	94% (91%–97%)	89% (88%–90%)

APPENDIX C: PARTICIPANT CONFIDENCE PRETRAINING QUESTIONNAIRE

1. How confident are you in your job interview skills?

    a. Not at all confident

    b. Slightly confident

    c. Somewhat confident

    d. Confident

    e. Very confident

2. How nervous or anxious do you feel during an interview?

    a. Very nervous

    b. Nervous

    c. Somewhat nervous

    d. Slightly nervous

    e. Not at all nervous

3. Have you sought out job interview skills training in the past?

    a. Yes, I have done job interview skills training _____ times. (fill in the number of times you have participated in job interview skills training)

    b. I have sought out job interview skills training, but have never actually attended and/or found one that was right for me.

    c. I have never sought out any form of job interview skills training.

APPENDIX D: QUESTIONS ASKED DURING SIMULATED INTERVIEWS

Question Type 1
1. What aspect of this job/program attracts you the most?
2. Why do you want this position/program?
3. Why are you interested in this job/program?
4. What do you know about our company/program?
5. Why do you think this particular position would be a good fit for you?

Question Type 2
1. What is the greatest contribution you can make to this firm/program?
2. What kind of experience do you have in the field?
3. If you were hired/admitted, what would you contribute to our company/program?
4. What is your greatest strength?
5. What can you offer us that someone else can not?

Question Type 3
1. Have you ever been in a real dilemma at work? What did you do?
2. How do you deal with problems that arise from working in a group (e.g., someone's not pulling their weight, difficulty communicating between groups members, etc.)?
3. How do you manage to work with people whom you are not comfortable with? What do you do in such situations?
4. Tell me how you handled a difficult situation at work/school.
5. What problems have you encountered at work?

Question Type 4

1. Tell me about one of the most challenging tasks you've experienced in the past and how you overcame the challenge (in school or at a previous job).

2. How do you decide which tasks take priority when organizing a complete project?

3. Give an example where you showed leadership and initiative.

4. What challenging projects have you handled

5. Tell me about an accomplishment you are most proud of.

Question Type 5

1. Do you prefer to work with people or alone?

2. What steps do you take to establish rapport with others?

3. Describe your work style when working with others or alone.

4. Is there a type of work environment that you prefer?

5. What are your co-worker pet peeves?

APPENDIX E: TRAINING CHECKLIST

Participant:

Date:

What you'll need:
- o Sample Interview Questions
- o Simulated Interview Script
- o Example videos (fill out below, pulled up)
- o Data Sheets (all three skills)
- o examples/ nonexamples table (pulled up)
- o self-evaluation form (pulled up)
- o screenshot of graph (pulled up)

What they'll need:
- o examples/nonexamples table
- o self-evaluation form

- o Set up SONA

Session #:_____
- o **start recording**

Training
Statements about specific experiences:
- o defined as a comment about a clearly identified past experience or education. Broad statements about skills or qualities (e.g., "I am a hard worker" or "I have a lot of experience in this field") will not be included as specific experiences.
- o give examples/nonexamples of specific experiences table
- o Including a specific experience helps the interviewer understand that the applicant is capable of the responsibilities of the job, as well as to make the interview more memorable by helping them visualize the experience of the applicant.
Statements about the position or company
- o coded when the participant mentions or refers to the company or position in their answer. This could include directly stating "this position" or referring to the job, for example "working here."
- o Mentioning the company or position in an answer helps the interviewer visualize you working for them and understand the benefits of hiring you.

- Tell participant the average amount they are including these in their answer and show them the graph

Video clips:
- Example of specific experience
  Start time:_____

- Example of mentioning position:
  Start time:_____

- Answer without specific experience:
  Start time:_____

- Answer that doesn't mention company:
  Start time:_____

- Give the participant an opportunity to rehearse

Feedback given:

- Rehearse until answer includes specific experience and mentions position or company

- Check that you are recording
- **Mock interview**

- ***stop recording***

2-minute break:
- Prepare video for review

Call Participant again
- o **start recording**

Self-Evaluation
- o Play video for participant
- o Take a picture of the self-evaluation form when complete
- o **stop recording**
- o Write in meeting log

- o Cut videos:
  - Session # Part 1
  - Session # interview
  - Session # Part 2

Total time: _____

- o SONA points delivered: _____

APPENDIX F: EXAMPLES OF CORRECTIVE AND POSITIVE FEEDBACK

Corrective	Positive
"In order to incorporate the company into you answer, you can tie your experiences back to the responsibilities of the role you are applying for." "I did not hear a specific experience in that answer. In a previous interview you told me about an event that you coordinated. That could be a great experience to mention in an answer to this question because it highlights your leadership skills." "Having a good personality can be a strength that you list in an interview, but in order to make this answer better you can mention an experience you have had that highlights this trait. For example, if in your current work place you have always had good relationships with your coworkers and you have never had to go to management about any interpersonal issues at work."	"That was a great example. Even though you do not have a ton of experience in this area, you were able to. identify an experience in a related area relevant to the position." "That was a great answer. You gave an experience that relates to the role and at the end mentioned why you though the company would be a good fit for you." "That was an excellent answer that included a specific experience and mentioned the company. The experience you included was a very unique experience that could help you stand out in the interview process." "That answer was great, you talked about how you have had to make tough decisions quickly at your current job and how those experiences will transfer well to the role you are applying for."

APPENDIX G: SELF-EVAULATION FORM

Participant Initials:
Session #:
Date:

Question #	Specific Experience	Mention Position
1	☐	☐
2	☐	☐
3	☐	☐
4	☐	☐
5	☐	☐

APPENDIX H: LIKELIHOOD OF HIRE ASSESSMENT

1. *Rate the answer <u>content</u> of this interviewee in comparison to interviews you*

   have conducted in the past

1	2	3	4	5
Worst I have seen		Average		Best I have seen

2. *Rate the answer <u>fluency</u> of this interviewee in comparison to interviews you have conducted in the past*

1	2	3	4	5
Worst I have seen		Average		Best I have seen

3. *How likely would you be to hire this candidate based on interview performance?*

1	2	3	4	5
Not at all Likely				Very Likely

APPENDIX I: SOCIAL VALIDITY ASSESSMENT

1. Before your training began, you rated your confidence in interview skills as _____.
How confident are you now?
    a. Not at all confident
    b. Slightly confident
    c. Somewhat confident
    d. Confident
    e. Very confident

2. Before training, you reported feeling_____ in an interview. How nervous or anxious do you feel in an interview now?
    a. Very nervous
    b. Nervous
    c. Somewhat nervous
    d. Slightly nervous
    e. Not at all nervous

3. Rate your satisfaction with your improvement in interview skills:
    a. Extremely Dissatisfied
    b. Moderately Dissatisfied
    c. Slightly Dissatisfied
    d. Neutral
    e. Slightly Satisfied
    f. Moderately Satisfied
    g. Extremely Satisfied

4. Please explain your rating:

5. Rate the acceptability of the interview skills training procedures used.
   a. Totally Unacceptable
   b. Unacceptable
   c. Slightly Unacceptable
   d. Neutral
   e. Slightly Acceptable
   f. Acceptable
   g. Highly Acceptable

6. Please explain your rating:

11. Overall, I had a positive reaction to the interview skills training
   a. Strongly Disagree
   b. Disagree
   c. Somewhat Disagree
   d. Neutral
   e. Somewhat Agree
   f. Agree
   g. Strongly Agree

12. Please explain your rating:

13. Rate the acceptability of the simulated interviews
    a. Totally Unacceptable
    b. Unacceptable
    c. Slightly Unacceptable
    d. Neutral
    e. Slightly Acceptable
    f. Acceptable
    g. Highly Acceptable

14. Please explain your rating:

15. Did we address all of your concerns about interview performance? If so, please elaborate. If not, please describe other concerns you have about your interview performance.

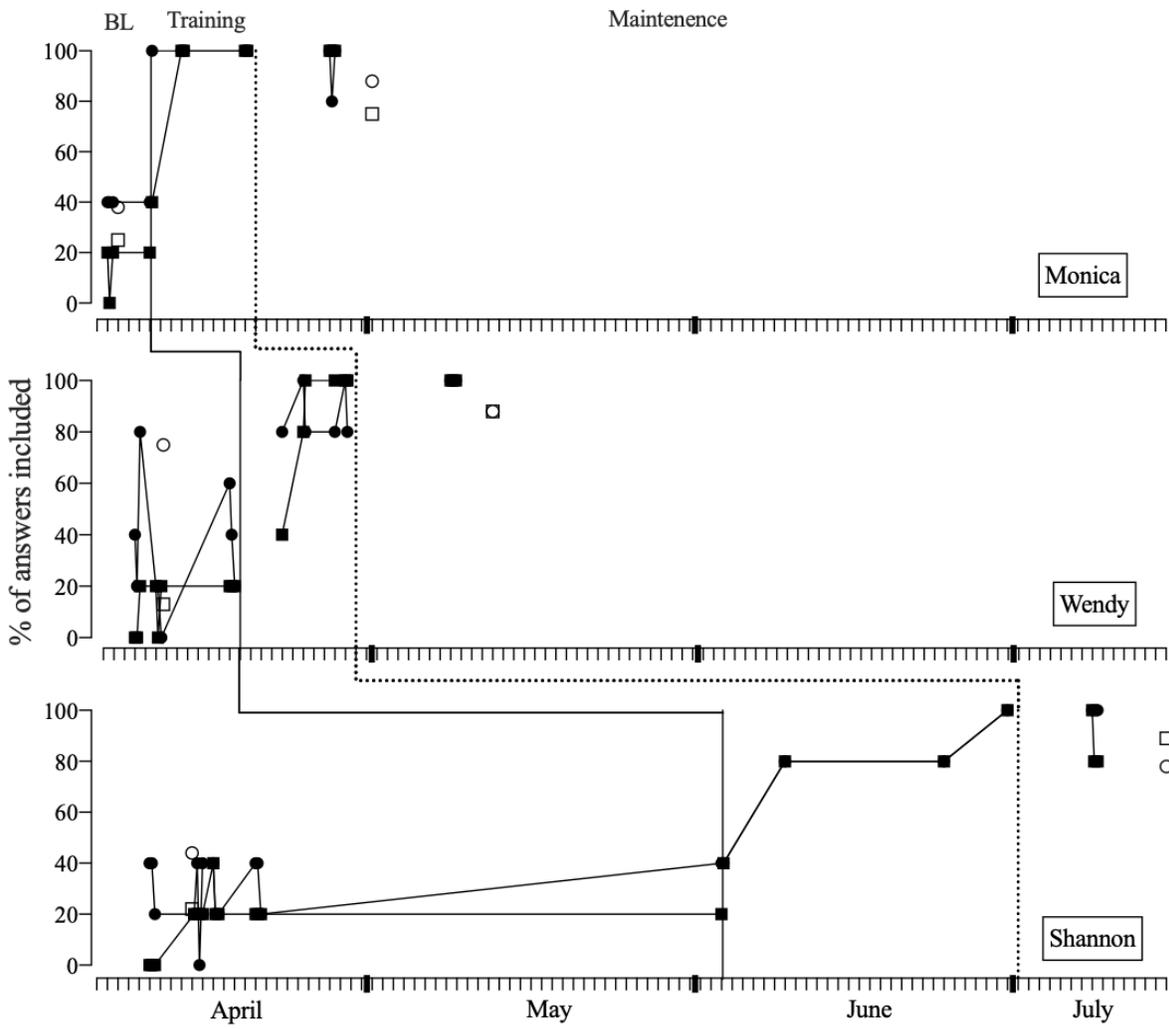16. Please provide any additional comments you may have:

Figure 3. This graph shows percentage of answers that included the target responses in terms of temporal contiguity. Each tick on the x-axis represents a day in that month. The top panel depict Monica's performance, the middle panel depicts Wendy's performance, and the bottom panels depicts Shannon's performance. Open data points depict generality probes (GP).