Does Defining More Anchors on Behaviorally Anchored Rating Scales Increase Rater Accuracy in Employment Interviews?

by

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ABSTRACT

While the use of behaviorally anchored rating scales for employee selection has been researched in the past, little research has been conducted regarding how many anchors should include behavioral descriptions on BARS. This study sought to determine if including five examples on BARS would increase rater accuracy when compared to BARS with three examples. Participants were recruited from Amazon's Mechanical Turk (MTurk). Participants viewed videos of a person interviewing for a professor position at a university and then rated the respondent's answers. The results demonstrated that BARS with five examples result in less over and under ratings on employment interviews when compared to three example BARS. There were no other significant differences in accuracy between three example BARS and five example BARS.

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CHAPTER I: INTRODUCTION AND LITERATURE REVIEW

Hiring the right people for the job and determining how well employees are performing are two persistent challenges that employers face. Organizations may fail to meet goals and objectives and can face significant challenges if they do not hire the right people for the job. Additionally, organizations may lose talented employees (and retain or reward low performing employees) if they are measuring performance poorly. While performance management should be an essential part of all companies, some do it well and some don't do it at all. Moreover, there is no set one-best method that can be used across all organizations and in some cases the same process is not viable for different jobs within an organization. Similarly, organizations have varied methods of selecting employees. Research has found that standardized selection and performance measurement methods are superior to unstandardized methods. One standardized method that has been found to produce accurate results is by using behaviorally anchored rating scales.

Behaviorally Anchored Rating Scales

Behaviorally anchored rating scales (BARS) are "an observation-rating system that provides data for the assessment of estimates of accuracy for individual raters" (Bernardin & Smith, 1981, p. 458). In other words, BARS provide a means for rating the participant being observed, and the data collected using BARS can be analyzed to assess the accuracy of raters using the system. BARS were first created by Smith and Kendall in 1963 with the initial purpose of identifying behaviors that could be discussed with the person being rated. Behaviorally anchored rating scales were developed not only to standardize the rating process, but also the observation process because the observation process will impact the rating process (Bernardin & Smith, 1981). In the years that followed their initial development, BARS have been used for performance evaluations (Hauenstein, Brown, & Sinclair, 2010) and in structured interview processes (Kell et al., 2017).

BARS are formatted as a continuous graphic rating scale that are often arranged vertically (Smith & Kendall, 1963). Behavioral descriptions are typically set along the vertical scale. The behavioral descriptions are used as anchors to define levels of performance, usually ranging from poor to excellent performance. The raters observe the participant's behavior and then rate the participant's performance using the anchors provided. The ratings can be compared among raters to see if there is agreement on the ratings. BARS use work behaviors which are combined to create performance dimensions that can be utilized to group ratings of performance. BARS can also be used in selection procedures by rating an applicant's structured interview responses on the scale. BARS provide an explicit definition and a consistent frame of reference for each aspect of performance (DeNisi & Murphy, 2017). BARS are not all identical in format, some have more dimensions that are defined and some have limited definitions for the anchors. Additionally, research has not determined any best practices regarding having a set number of anchors to be used in BARS.

BARS are often developed using a five step process, delineated by Schwab, Heneman, and DeCotiis (1975). The first is step is to identify the critical incidents related to the position of job, which involves having subject matter experts identify examples of effective and ineffective performance (Flanagan, 1954). Critical incidents can be identified by observing the job or conducting interviews with subject matter experts. The second step is to classify the critical incidents into performance dimensions. To accomplish this, the critical incidents are reduced to a smaller set of overall performance dimensions that serve as the anchors for the behavioral descriptions on the BARS. A panel of subject matter experts can be used to narrow down the incidents. The third step is retranslations, which involves having a different group of experts reallocate the incidents into the performance dimensions. An incident will be retained if fifty to eighty percent of the group assigns it to the same performance dimension as the group from step two (Schwab, Heneman, & Decotiis 1975). The fourth step in the process is to scale the incidents. The individuals rate the behaviors on a scale ranging from ineffective performance to effective performance. The individuals then average the ratings for each incident, which identifies the degree to which the incident represents performance on a dimension (Schwab, Heneman, & Decotiis 1975). The standard deviation of the ratings for each incident is also calculated. The standard deviation represents the degree of agreement among raters (Schwab, Heneman, & Decotiis 1975). A lower standard deviation represents greater agreement among raters. The last part of step four is to set a standard deviation criterion that is used to identify which incidents will be kept in the final scale. Schwab, Heneman, and Decotiis (1975) noted that critical incidents that have a standard deviation of 1.50 or less are retained in the final scale. The last step is to finalize the BARS instrument. A subset of the incidents that were kept during retranslation and that met the standard deviation criterion are then used as the behavioral anchors on the scale. The finished BARS will contain a sequence of vertical scales anchored by the critical incidents. Given all of this, it is no wonder that Prien et al. (2009) point out that BARS can be time and labor intensive to develop.

As mentioned above, identifying the critical incidents of the job is essential to creating BARS. The critical incident technique was explained by Flanagan in 1954 and has since been a common method for rating performance. Flanagan (1954) described the technique as "a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles" (Flanagan, 1954, p. 327). Observers identify how certain behaviors can be used to resolve problems. The observations of behavior can be used to see what incidents are critical to the job. The incidents can be any observable behavior that can be used to make inferences about future behavior. Flanagan explained that for an incident to be critical it must take place in a clear situation and the impact of the incident should be unambiguous. Not all incidents that occur classify as critical to the job. The critical incidents provide a basis for what the different levels of performance are and how to identify each level.

Schwab, Heneman, and DeCotiis (1975) note that many of the critical incidents identified in step one are often lost in steps three through five. The loss of incidents may be due to those incidents being reallocated to a smaller set of performance dimensions. When the dimensions are being narrowed down, certain incidents do not make it into the set anchors. Another potential issue is that the criteria of performance may not have been set stringently enough to accomplish the set goals (Schwab, Heneman, & DeCotiis 1975). It is important for the BARS to contain the adequate levels of performance needed. The last issue the researchers identified is that the final BARS instrument may not provide the unambiguous examples of performance that the BARS developers had hoped for (Schwab, Heneman, & DeCotiis 1975). The BARS will be more effective if the performance examples are clear to raters.

In addition to identifying the steps of creating a BARS instrument, Schwab, Heneman, and DeCotiis (1975) also identified the hypothesized advantages of using BARS. The development of BARS provides an advantage over other rating methods in that BARS uses subject matter experts to generate the performance dimensions. The experts have extensive knowledge of the job and can provide valuable information. Additionally, the retranslation step ensures that the critical incidents chosen are the most accurate for the performance dimension (Schwab, Heneman, & DeCotiis 1975). The experts must come to agreement about whether the incident should be included in the performance dimension.

Another advantage to using BARS is that research has found BARS yields less leniency error when compared to summated rating techniques (Campbell et al., 1973). Kinicki, Bannister, and Hom (1985) concluded in their research that BARS not only yields less leniency error, but also less halo error than the summated rating scale. Benson, Buckly, and Hall (1988) found that BARS yield more accurate results than a mixed standard scale. As previously mentioned, Campbell et al. (1973) confirmed that BARS yield less error than other rating methods in their research. Burnaska and Hollmann's (1974) results had contradicting findings and they concluded that the format of the rating scale does not have a significant impact on the outcomes.

A question that arises when examining BARS is how many anchors on the scale should include behavioral descriptions. Some scales only describe the best behaviors and the unacceptable behaviors. Others include descriptions of very effective behaviors, average behaviors, and ineffective behaviors. To date, however, researcher has not fully examined the impact that the number of anchors might have on the psychometric properties and accuracy of the ratings provided using BARS. Lissitz and Green (1975) used a Monte Carlo approach to examine at the number of points on a Likert rating scale and the impact it has on reliability. They found that reliability levels off near the 5-point mark. They did not research how many of the anchors on the scale should be defined. Kell et al. (2017) explained that satisfactory behaviors should also be included in BARS rather than just highly effective and ineffective. These findings support the idea that more research needs to be conducted to decide exactly how many anchors should be defined on the scale.

Hauenstein, Brown, and Sinclair (2010) investigated the missing middle anchor problem in relation to BARS. They focused more on why BARS are missing the middle mark rather than what the impact of the missing BARS has on accuracy. They found that in the early stages of developing BARS, the focus is on good and bad behaviors rather than on average behaviors. They also noted that agreement is often lower for examples of average performance. They did conclude that defining more dimensions will lead to more accurate ratings. Smith and Kendall (1963) researched whether operationally defining the anchors has an impact. They found that unambiguous anchors do in fact improve the accuracy of ratings. This finding provides evidence that defining more anchors with unambiguous terminology could improve the accuracy of the ratings.

As mentioned previously, BARS are commonly used for both performance measurement and employment interviews. In the latter use, employers can use BARS to ensure that their selection interview processes are job relevant, reliable, fair, and meet legal requirements (Kell et al., 2017).

Employment Interviews

Employment interviews are one of the most common ways that organizations screen potential new employees. Pettersen and Durivage (2008) explained that the four criteria for an effective selection interview are reliability, validity, legal defensibility, and the candidates' positive reactions. Most interviewers do not take these criteria into consideration when interviewing employees. Instead, many interviewers rely on personal judgements rather than standardized methods. Graves and Karren (1996) found that many interviewers are basing their selection decisions on the different factors than one another. They observed how 29 different recruiters at the same company evaluated applicants for customer service positions. The recruiters used five different criteria (interpersonal skills, communication skills, education, work experience, and motivation) to evaluate applicants. The recruiters had thirteen different ways of using those criteria to judge applicants. Even when the recruiters used the same factors, they ranked the importance of each factor differently. This is likely to occur when interviewers do not discuss what the hiring goals are beforehand. They also noted that many interviewers' hiring standards varied, leading to differences in selection decisions. Interviews are a critical part of the selection process, therefore organizations should be concerned about conducting them in the most effective manner. One way to ensure that interviews not only are effective but are also compliant with the law is to conduct structured interviews.

Structured Interviews

Structured interviews consist of standardized questions in which all applicants are asked. In a structured interview, the interviewers follow a standardized protocol and make sure all participants are given the same or similar experiences. Many employers use structured interviews in order to have a more successful and reliable selection process that is perceived as more fair by applicants. Structured interviews have been found to produce more valid and reliable results when compared to unstructured interviews (Kataoka, Latham, & Whyte, 1997). Additionally, structured interviews have been found to have higher validities in predicting job performance (Kell et al., 2017). In a meta-analysis conducted by Wright, Lichtenfels, and Pursell (1989), the results showed that structured job interviews were better at predicting job performance than unstructured interviews. Conducting structured interviews allows for compliance both with the law and with organizational policies (Pettersen & Durivage, 2008). Organizations may be legally permitted to use unstructured interview methods, but using structured interview methods is much easier to defend if legally challenged. Additionally, many candidates have more positive reactions to interviews when they perceive the questions as fair and relevant (Pettersen & Durivage, 2008). Structured interviews include standardized questions and procedures, whereas unstructured interviews may use questions and processes that have not been predetermined and can vary from candidate to candidate. The standardized questions should be job relevant and can be derived from the job analysis. Campion, Pursell, and Brown (1988) note that having a job analysis as the basis of the interview questions provides legal defensibility. After the questions have been developed, the next step is to ask all of the candidates the same questions (Campion, Pursell, & Brown 1988). By asking all the candidates the same questions, the interviewer is ensuring fairness.

One way to rate a structured interview is to use a behaviorally anchored rating scale. The applicants are asked behavioral or situational questions and then rated on a set scale. BARS can also be used to evaluate structured situational interview questions. The use of BARS in structured interviews can increase the reliability and validity of scores (Kell et al., 2017). Reilly, Bocketti, and Wennet (2006) noted in their research that the use of BARS in structured interviews can potentially decrease bias against protected groups. BARS can be used to rate both behavioral and situational interview items.

Structured Interviews Using Behavioral Interview Items

Behavioral interview items (or behavioral questions) involve asking participants about previous on the job behavior. They are very common in most organizations' interview process. Motowidlo et al. (1992) explain in their research the process of structured behavioral interviews and why they are implemented in organizations. Structured behavioral interviews are based on the job analysis conducted using critical incidents. The questions are based on behavioral dimensions that were identified by the critical incidents. The behavioral questions are standardized and each participant is asked the same set of questions. The interviewees are asked to explain how they handled previous work related situations. The goal is to identify past behavior that could predict future performance. The responses are then evaluated on a standard scale, often BARS. Research has found that job performance can be predicted from structured behavioral interviews (Motowidlo et al., 1992). One issue with behavioral questions, however is that an applicant with limited experience may have limited examples of past behaviors to report in such an interview even though the applicant might be capable of performing the job. However, Pulakos and Schmitt (1995) noted in their research that interviewers were likely to discuss past behaviors outside of their current job. The interviewees discussed behaviors from past school and social events.

Structured Interviews Using Situational Interview Items

Situational interview items (or situational questions) are similar to behavioral interviews, except the interviewer is not asking about past behaviors. The interviewees are presented with hypothetical situations that are related to the job (Oostrom et al., 2016). This allows the interviewers to get an idea about how the participant would handle potential issues that may arise on the job. Situational questions allow the interviewer to assess how a candidate may perform tasks that they have not had performed previously or to determine how an applicant might perform in a situation they haven't experienced before. As such situational interviews may be better measures of assessing the potential of an applicant to perform a job they have never done by allowing them to provide a hypothetical response (Pulakos & Schmitt, 1995). Oostrom et al. (2016) noted that situational interviews are one of the most criterion valid interview techniques, but may lack construct validity. Using situational interviews in additional to other testing procedures, such as an assessment center, could improve the validity of the selection process (Latham et al., 1980). Having more than one testing procedure allows for the interviews to get a well-rounded view of the applicant.

Latham et al. (1980) described the likely rationale as to why situational interviews are effective. The first reason is that the interview questions are derived from a job analysis, which makes them job relevant. This not only allows to interviews to see how the applicant responds to work related questions, but also provides legal defensibility. Second, having the job related questions increases the face validity of the interview. This will likely result in a positive reaction in the applicants. The third reason is that using an anchoring scale to rate the responses increases interobserver reliability and validity. Lastly, the selection instrument is based on overt employee behavior rather than on traits. The structured situational interviews can also be evaluated using BARS.

Measuring Employment Interview Performance

While BARS provide a useful tool for raters to use when evaluating an applicant's performance in a job interview, that tool must be used by raters who must evaluate and score the applicants responses. Borman (1978) delineated a three step process to evaluate performance that raters can use to guide their process. Step one involves observing the employees' behavior. Step two is to then evaluate the behavior that was observed. The third step is to weigh the evaluations and decide on a single rating. Smith and Kendall (1963) explain that equivalence among raters and interpretation are the two most critical demands of rating performance. Equivalence among raters occurs when all ratings among the different raters are comparable. Interpretation, as explained by Smith and Kendall (1963), is when raters are forced to make decisions about what the anchors mean and how they relate to actual behavior.

Although BARS are helpful in rating an applicant's responses in an employment interview, there is no guaranteed method to avoid rater errors. Rater errors have been defined as errors in judgement that can occur when one person observes another (Latham, Wexley, & Pursell, 1975). Murphy and Cleveland explain that the presence of rater errors suggests that the ratings are inaccurate, whereas the absence of errors indicate accurate ratings. Rater error is not the only source of inaccurate ratings, but it does play a significant role. DeNisi and Murphy (2017) note that main types of rater error are halo, leniency, severity, central tendency, and range restriction.

Borman (1978) identified the four prominent issues that can occur when raters are rating performance – all of which may occur when raters rate applicants' employment interview responses. The first issue is that raters do not always have an ample amount of opportunity to observe the ratees' behaviors, which can lead to inaccurate ratings. A second issue is that raters are not always aware of the potential rating errors they may be committing and may not have experience in rating performance (Borman, 1978). Without having previous knowledge or experience, the raters are less likely to know how to avoid making errors. A third issue is that the rating format of performance appraisal can also be problematic if not done correctly (Borman, 1978). Raters need to ensure that they are using the most accurate rating scale as possible. Some formats make it difficult to assign the observed work behaviors to a specific point on a rating scale. The behaviorally anchored rating scale can help overcome this issue, because the scale is based off of critical work incidents. The behavior being observed can be compared to the critical incidents that make up the performance dimensions. Lastly, the fourth issue is there are organizational constraints that arise when rating performance. Borman (1978) explains that raters often base the evaluations on organizational demands rather than employee performance.

When measuring the performance of applicants in employment interviews, it is important to ensure that the ratings provided are accurate. Having the right performance measurement tool in place will not be sufficient if the ratings produced are not accurate.

Raters need to be informed of the potential rating errors that could influence ratings and how to obtain accurate scores.

Accuracy

When dealing with rating scales, it is essential that the raters have an understanding of what accuracy is and how to obtain accurate ratings. Accuracy has been defined as the degree to which ratings are relevant to or correlated with true criterion scores (Dunnette & Borman, 1979 p.488). A significant amount of the research on accuracy revolves around the classical test theory. The classical test theory was described by Charles Spearman in 1904 and has been used to explain how true test scores can be used to predict future scores for the same item or population (McMahon, 2019). The theory involves the formula "X=T+e" with X as the observed score, T as the true score, and e as error (McMahon, 2019). In order to use this formula, one must understand what a true score is and what the potential errors are that could impact the observed score.

When measuring accuracy using classical test theory, all measures require the direct comparison of ratings obtained from a single rater to the true scores (Sulksy & Balzer, 1988). Allen and Yen (1978) defined true scores as the mean of an infinite number of scores across parallel measures of a test. True scores have also been defined in terms of the expected value one would obtain from a specific population (Murphy & Cleveland, 1995, p. 209). True scores can be obtained in numerous ways. One method is to use the average of the scores provided by all subjects or raters (Sulksy & Balzer, 1988). Another option is to average the ratings of previously scales written incidents included as information in ratees' performance profile (1988). The last method proposed by Sulksy and Balzer (1988) is to use a group of expert raters to prove the true scores.

Smither, Barry, and Reilley (1989) supported the use of expert raters serving as a valid measure of true scores in their research.

There are many different methods to assess accuracy and they are impacted by numerous types of rating error. The two main categories of accuracy error are distributional errors and process errors. Distributional errors are errors that occur when the rater is predominantly utilizing one portion of the scale (i.e. low end of the scale, the middle of the scale, or the high end of the scale). These errors impact all ratees. Process errors are errors in the interaction between the rater and the ratee. All of the methods to assess accuracy measures compare the raters' scores against the true scores to see how much they differ.

Some examples of distributional errors include leniency error, severity error, central, and tendency error. Leniency measures indicate whether the ratings are lenient or severe. If ratings are too lenient, then the ratings will be higher than deserved. If the ratings are too severe, then the ratings given are lower than deserved. A potential way to identify leniency is if the mean ratings are high (Kingstrom & Bass, 1981). The issue with identifying leniency in that manner is that researchers define high ratings differently. One possible way to mathematically measure leniency is by subtracting the rater's rating from the true score rating (Sulksy & Balzer, 1988). Central tendency error occurs when raters distribute all ratings around the middle anchor avoiding the extreme ends of the scale (Jacobs, Kafry, & Zedeck, 1980). Logical error takes place when raters rate dimensions that seem logically related the same (Jacobs, Kafry, & Zedeck, 1980). Raters are unable to distinguish dimensions from one another.

Process errors relate to the interaction the rater has with the individual ratee. Some examples include halo, negative halo, recency error, primacy error, and similar to me error. Halo error occurs when raters give the same or similar score to an individual on all dimensions due to an overall impression on one dimension (Jacobs, Kafry, & Zedeck, 1980). Halo error has also been defined as “the influence of a rater’s general impression on ratings of specific rate qualities” (Lance, LaPointe, & Stewart, 1994, p. 339). Positive halo is when all of the ratings given are high. Negative halo occurs when all of the ratings tend to be low. Recency error occurs when the rater is considering more recent performance rather than all of the performance that is supposed to be measured (Lunenburg, 2012). Additionally, primacy error occurs when the rater is only considering performance or information from early on. Similar-to-me error occurs when raters give individuals higher scores if they perceive them as similar to themselves (Jacobs, Kafry, & Zedeck, 1980).

Researchers have analyzed how to improve accuracy and reduce error. Borman (1979) explained that training raters can reduce rater errors. Borman (1979) found that showing raters a video regarding halo error was successful in reducing error. Reducing rater error alone does not necessarily increase accuracy (Murphy & Balzer, 1989). Other forms of error may still impact the level of accuracy. Murphy and Balzer (1989) tested the effects of reduced rater error by analyzing the correlation between rater error and rater accuracy. They found that the traditional interpretation of rater error measures as indirect indicators of accuracy was unjustified. Therefore, the researchers noted that error scores should not be used to predict accuracy. Raters should be trained on how to reduce error, but that alone will not guarantee the results are fully accurate. Bernardin and Pence

(1980) noted that for rater training to be effective, it should focus on showing raters how to observe more accurately rather than on how to or how not to rate. Borman (1979) stated that training focused on standardizing the observation of behavior can help increase interrater agreement leading to higher accuracy.

Accuracy is an essential aspect to rating scales. If the scale does not produce accurate ratings, it is of no value. As previously discussed, BARS have been shown to increase accuracy of ratings. An important question that arises is whether BARS is the superior rating method in increasing accuracy of ratings.

Behaviorally Anchored Rating Scales and Accuracy

Numerous studies have found that behaviorally anchored rating scales yield more accurate ratings. Tziner and Kopelman (2002) noted that BARS are superior in promoting performance improvement and worker development. They attribute this to the fact that BARS provide precise measures. As previously mentioned, Benson, Buckley, and Hall (1988) concluded that BARS yields more accurate ratings than a mixed standard scale. The results were constant throughout both of their studies. Alternatively, some research studies have found that BARS is not a more accurate rating method. Kingstrom and Bass (1981) compared BARS to other rating scales and did not find any one method to be superior. Kinicki, Bannister, and Hom (1985) also concluded that BARS offers no clear advantage over other rating formats in terms of accuracy and errors. While the results on whether BARS is the superior method is mixed, researchers have concluded that BARS is an effective rating method.

As stated previously, the optimal number of anchors defined on BARS has not been researched in depth. If defining all five anchors on BARS could increase accuracy, there is potential for BARS to become the superior rating method. If BARS are the superior rating method, organizations could use them to hire the right people and accurately measure performance. This leads to the following hypotheses:

Hypothesis 1: BARS with five examples will be more accurate in scoring interview responses than BARS with three examples.

> *Hypothesis 1a*: BARS with five examples will result in higher scale alphas on employment interview ratings than BARS with three examples.
>
> *Hypothesis 1b*: BARS with five examples will result in lower absolute differences between on employment interview ratings and true score estimates than BARS with three examples.
>
> *Hypothesis 1c:* BARS with five examples will result in raters having less over rating and under rating (as compared to true score estimates) on their employment interview ratings than BARS with three examples.

RQ 1: Are there differences in the scale alphas of the ratings provided based upon behavioral interview questions and situational interview questions?

> *RQ 1a:* Are there differences in the scale alphas on employment interview ratings of behavioral interviews evaluated with BARS with three examples compared to BARS with five examples?
>
> *RQ 1b:* Are there differences in the scale alphas on employment interview ratings of situational interview questions evaluated with BARS with three examples compared to BARS with five examples?

RQ 2: Do accuracy estimates (absolute value and over-under ratings) vary for ratings provided based upon behavioral interview questions and situational interview questions?

RQ 2a: Do accuracy estimates (absolute value and over-under rater) vary for employment interview ratings of behavioral interview questions evaluated with BARS with three examples compared to BARS with five examples?

RQ 2b: Do accuracy estimates (absolute value and over-under rater) vary for employment interview ratings of situational interview questions evaluated with BARS with three examples BARS compared to BARS with five examples?

CHAPTER II: METHOD

The study was a within and between group design to assess the accuracy of employment interview ratings on a computerized assessment. The study used videos as stimulus material for the participants. The research was conducted in accordance with the Middle Tennessee State University Institutional Review Board.

Participants

The participants were recruited utilizing Amazon's Mechanical Turk (MTurk). MTurk is an online platform that allows researchers to obtain data from a large pool of individuals. Researchers posted requests for participants to complete a Human Intelligence Task (HIT) for a set monetary payment. By recruiting from MTurk, the researchers were able to collect information from people with a wide variety of backgrounds.

Approximately 181 participants began the study. However, only the participants who passed the manipulation check process were included in this analysis. To pass the manipulation check process, participants had to answer five out of the six manipulation check questions correctly. This cutoff was very stringent because in the present study it was critical for participants to attend to the stimulus. The final number of participants included was 59 (32 men, 26 women, and 1 that did not identify a gender). The ages ranged from 20 to 70 years old. The most frequently reported ethnicity was Caucasian/White (73.3%), followed by African/American Black (8.3%), those that did not identify an ethnicity (5%), Hispanic/Latina (3.3%), and Biracial/Multiracial (3.3%). Majority of respondents were employed full time (71.7%). The most frequently reported degree obtained was Bachelor's degree (35%), followed by high school diploma (33.3%), Associate’s degree (21.7%), Master’s degree (6.7%), and Doctorate (1.7%). The 59 participants were randomly assigned to one of the two BARS conditions with 29 participants in the three level BARS condition and 30 in the five level BARS condition.

Measures

MTurk participants were directed to the study by clicking a web link and completing an on-line consent form before beginning the research study. After consenting to participate in the study, they were directed to begin the study on-line.

Participant Information Questionnaire

Participants were asked to respond to questions at the beginning of the survey regarding their education and college experience. Other questions related to their current and previous employment. Additional questions were used to assess participants’ knowledge and experience with interviewing and with behaviorally anchored rating scales. They were asked if they had been interviewed previously or if they had interviewed someone in the past. They were asked if they had used behaviorally anchored rating scales for any purpose previously. Participants were told that based upon their responses, they had been selected to participate in a study examining how best to hire University professors.

Behaviorally Anchored Rating Scales

Using a method similar to the one described previously, behaviorally anchored rating scales (BARS) were created by the researchers based upon the situational interview questions and behavioral interview questions used as stimulus, the script provided to the “actor” in the stimulus materials, and the actor’s actual performance in the stimulus materials.

For each question, the performance dimension assessed was defined as five levels of performance. For each performance level, exemplars of performance for the interview question were described and be provided as anchors for the appropriate level.

The BARS developed were used for all conditions but were modified as described below in some instances.

BARS with Three Anchors

The BARS created by the researchers consisted of five anchors were modified to have the anchors for level 2 and 4 removed creating three anchor BARS. The three anchors defined were for ineffective, average, and effective responses. The resulting BARS were used to rate situational interview questions and behavioral interview questions.

Manipulation Check Items

For each of the scales, there were manipulation check questions to ensure participants paid attention to the items and to the applicant's responses to the interview questions. The manipulation check items asked questions about what the applicant said in the video. Each participant, regardless of the condition, received these questions.

Demographic Questionnaire

At the end of the study, participants were asked to respond to demographic questions. These questions focused on participants' age, religious affiliation, gender, sexual orientation, and ethnicity. Participants were provided with a debriefing statement and asked to not discuss the study with their peers or others that may be participants for the study.

Procedure

Researchers conducted a pretest with a sample of students. Prior to conducting the study, the researchers created videos as stimulus material. The videos involved an actor answering both situational and behavioral interview questions. The questions were generated by the researchers. The researchers provided the actor with a script for a response to each question. The actor signed a release form prior to filming and was briefed on the purpose and plan of the study. The researchers developed BARS for the questions to be evaluated, as discussed previously in the measures section.

The participants were recruited from Amazon's Mechanical Turk (MTurk). They were first asked demographic questions. After the demographic questions, the online survey platform randomly assigned the participants to one of the two conditions (three example BARS and five example BARS). See Table One. Participants in each condition viewed a set of instructions regarding the purpose of BARS and how BARS are used.

Participants watched the videos of an actor answering interview questions. Each participant viewed six videos. After watching each video, participants rated the interview response on one of the behaviorally anchored rating scales (BARS). After the rating the video on the BARS, they were asked to rate the candidate's overall performance on a Likert scale. After rating the actor's response to each question, participants were given manipulation-check questions to ensure they are paying attention to the items. At the end of the survey, participants were asked to complete the demographic questions. Participants were asked to enter a code for compensation to be awarded for their participation.

Table 1
Conditions for Random Assignment

	Condition 1	Condition 2
Behavioral Questions	3 Anchored BARS	5 Anchored Bars
Situational Questions	3 Anchored BARS	5 Anchored Bars

Expert Ratings

True score estimates provided the basis for several of the evaluation criteria used in this study. The videos were viewed and rated by expert raters to obtain true score estimates for each question. The true score estimates were obtained in a manner similar to recommendations provided by Sulsky and Balzer (1988). Two highly experienced assessors thoroughly familiar with the rating task, the rating scales, and the actor's script were selected to serve as expert raters. The expert raters calibrated their ratings by viewing the videos and reaching consensus regarding effective and ineffective performance (Keown-Gerrard & Sulsky, 2001; Sulsky & Balzer, 1988).

The expert raters viewed all 6 videos in accordance with the recommendations of Sulsky and Balzer (1988). Each expert rater individually rated each participant's performance in the exercise and were in consensus on the ratings. These expert ratings were produced under optimal conditions (Murphy & Cleveland, 1995, p. 290). The expert raters were allowed as much time as needed for observation and rating.

The expert raters were individuals who are highly experienced with both interviews and with behaviorally anchored rating scales. The expert ratings can be seen in Table Two. The participants' ratings were compared to the expert ratings in order to obtain accuracy scores. Additionally, the absolute differences between ratings were compared. There was a reliability estimate for the situational with three examples defined scale, one for the situational with five examples scale, one for the behavioral with three examples defined scale, and one for the behavioral with five anchors defined scale. This allowed the researchers to not only compare participants to the experts, but also to one another.

Table 2

Expert Ratings for Question 1

Question 1: Tell me about a situation in which you had to manage your time to meet multiple deadlines.	*Rating*
Please rate the candidate’s ability to plan	2
Please rate the candidate's ability to plan for the unexpected	2
Please rate the candidate's ability to meet multiple deadlines	2
Please rate the candidate's overall response to the interview question	2

Table 3

Expert Ratings for Question 2

Question 2: Tell me about a time when you had to deal with an issue of academic integrity or academic dishonesty.	*Rating*
Please rate the candidate’s ability to uphold integrity	3
Please rate the candidate's ability to prioritize integrity	3
Please rate the candidate's ability to handle academic dishonesty	3
Please rate the candidate's overall response to the interview question	2

Table 4
Expert Ratings for Question 3

Question 3: Tell me about a time you had to work with a colleague that you did not see eye to eye with	*Rating*
Please rate the candidate’s ability to work with others	5
Please rate the candidate's ability to communicate with colleague	4
Please rate the candidate's ability to problem solve	4
Please rate the candidate's overall response to the interview question	4

Table 5
Expert Ratings for Question 4

Question 4: How would you incorporate technology into your classes to improve students' ability to learn course content?	*Rating*
Please rate the candidate’s ability to adapt	4
Please rate the candidate's ability to collaborate	3
Please rate the candidate's ability to action plan	3
Please rate the candidate's overall response to the interview question	3

Table 6
Expert Ratings for Question 5

Question 5: What would you do if you found out that one of your peers was violating University policies regarding sexual harassment?	*Rating*
Please rate the candidate’s ability to solve ethical dilemmas	4
Please rate the candidate's ability to handle private information	3
Please rate the candidate's ability to enforce rules and policies	3
Please rate the candidate's overall response to the interview question	3

Table 7
Expert Ratings for Question 6

Question 5: How would you handle conflict between two students?	*Rating*
Please rate the candidate’s ability to manage conflict	2
Please rate the candidate's ability to maintain control in the classroom	3
Please rate the candidate's ability to communicate with the students	2
Please rate the candidate's overall response to the interview question	2

CHAPTER III: RESULTS

Descriptive statistics and frequency counts were calculated for all qualitative questions related to the participants' demographic information. To answer the hypotheses and the research questions, a series of descriptive statistics, Fisher R to Z correlation transformations and z tests, between-subject's MANOVAs, and repeated measures within subjects MANOVAs were computed to determine the accuracy differences between three and five example BARS. The results were analyzed for both the composite ratings and the overall ratings for each question. The absolute differences as well as over rating and under ratings were calculated using the expert rater scores. Additionally, the scale alphas for the three example BARS and the five example BARS, as well as for the situational and behavioral items, were compared.

Hypothesis 1: stated that BARS with five examples will be more accurate in scoring interview responses than BARS with three examples.

Hypothesis one was first tested by comparing the scale alphas on employment interview ratings between the BARS with three examples and the BARS with five examples. The scale alphas were calculated for each scale and compared between the three example BARS participants and the five example BARS participants. The BARS with five examples did not result in higher scale alphas on employment interview ratings when compared to the BARS with three examples. The results were nonsignificant for both composite ratings, $z = 1.179$, $p > .05$, and for the overall ratings, $z = .396$, $p > .05$. The results do not support hypothesis 1a.

Hypothesis one was then tested by comparing the absolute difference between on employment interview ratings and true score estimates between BARS with three examples and BARS with five examples. A between subjects MANOVA was conducted to test whether BARS with five examples resulted in lower absolute difference between on employment interview ratings and true score estimates than BARS with three examples. The results were nonsignificant for the composite ratings, $F(6, 52) = 1.808$, $p = .116$. The results were also nonsignificant for the overall ratings, $F(6, 52) = 1.139$, $p = .353$. Therefore, hypothesis 1b was not supported.

Lastly, hypothesis one was tested by comparing the amount of over rating and under rating (as compared to true score estimates) on their employment interview ratings between BARS with three examples and BARS with five examples. A between subjects MANOVA showed that BARS with five examples did result in raters having less over rating and under rating on their employment interview ratings than BARS with three examples for the composite ratings, $F(6, 52) = 3.725$, $p = .004$. However, the results were nonsignificant for the overall ratings, $F(6, 52) = 2.134$, $p = .065$. Hypothesis 1c was supported for composite ratings but not for overall (single item) ratings.

RQ 1: **Are there differences in the scale alphas of the ratings provided based upon behavioral interview questions and situational interview questions?**

Scale alphas were calculated for the situational and behavioral items and compared between the three example BARS participants and the five example BARS. The BARS with five examples did not result in higher scale alphas on employment behavioral interview ratings than BARS with three anchors for overall ratings, $z = .503$, $p > .05$. However, the BARS with five examples' scale alphas were significantly higher than the BARS with three examples for the behavioral composite ratings $z = .133$, $p < .05$. The BARS with five examples did not result in higher scale alphas on employment situational interview ratings than BARS with three anchors for overall ratings, $z = .149$, $p > .05$ or for composite ratings, $z = .338$, $p > .05$.

RQ 2: Do accuracy estimates (absolute value and over-under ratings) vary for ratings provided based upon behavioral interview questions and situational interview questions?

A repeated measures within subjects MANOVA was conducted to see whether accuracy estimates (absolute value and over-under rater) vary for employment interview ratings of behavioral interview questions compared between BARS with three examples and BARS with five examples. The results showed no significant differences in the accuracy of overall ratings for behavioral questions, $F(1,58) = .378$, $p = .541$ or for the composite ratings, $F(1,58) = 2.667$, $p = 1.08$. Additionally, the results showed no significant differences in the accuracy of overall ratings for situational questions, $F(1,57) = .247$, $p = .621$ or for the composite ratings, $F(1,57) = 1.471$, $p = .230$.

Table 8
Fisher's r to z
Outcome variable: Rater accuracy

Scale	*r of 3 examples*	*r of 5 examples*	*n of 3 examples*	*n of 5 examples*	*Fisher's z*
Overall interview items	.673	.609	29	30	.396
Composite interview items	.494	.214	29	30	1.179
Overall behavioral items	.503	.403	29	30	.459
Composite behavioral items	.133	-.422	29	30	**2.125**
Overall situational items	.419	.512	29	30	-.433
Composite situational items	.338	.437	29	30	-.427

Bolded z values are significant at p<.05

CHAPTER IV: DISCUSSION

Previous research has focused on whether BARS are a more accurate way to rate employment interview when compared to other methods, such as Likert scales. The present study sought to determine whether using three or five anchors on BARS has an impact of the accuracy of ratings. The results of this study show that defining additional anchors on BARS does have a significant effect on the accuracy of composite ratings generated from BARS ratings.

Hypothesis one stated that BARS with five examples will be more accurate in scoring interview responses than three example BARS. The hypothesis was broken down to investigate whether BARS with five examples would result in higher scale alphas, lower absolute differences, and less over rating and under rating (as compared to true score estimates) on their employment interview ratings than BARS with three examples. The results showed that the ratings from the three examples BARS were not significantly different compared to the five example BARS in regards to scale alphas and absolute differences. BARS with five examples did result in raters having less over rating and under rating on their employment interview ratings than BARS with three examples for the composite ratings. This significant finding suggests that defining five BARS will produce the most accurate results in employment interviews. Over and under ratings on employment interviews can lead to either hiring someone who is not qualified or failing to hiring a qualified candidate. By using five example BARS, the interview ratings will be closer to what the candidates' true interview performance scores are.

In addition to testing the hypotheses, the researchers also analyzed two research questions. The first research question investigated whether there are differences in the scale alphas of the ratings provided based upon behavioral interview questions and situational interview questions. The results of the study showed that BARS with five examples' scale alphas were significant higher than the three example BARS for the behavioral composite ratings. The BARS with five examples' scale alphas were not found to be significantly higher for the situational questions. This suggests that when using behavioral questions, using five example BARS will lead to more accurate results compared to three example BARS.

The second research question investigated whether accuracy estimates (absolute value and over-under ratings) vary for ratings provided based upon behavioral interview and situational interview questions. The results show that the accurate estimates do not vary by the type of interview question (behavioral or situational). The accuracy estimates also do not vary for each type of question based on whether the BARS had three or five examples.

Theoretical Implications

With the lack of research comparing the number of examples needed on behaviorally anchored scales, the present study provides a deeper understanding of how to best create BARS for employment interviews. The results showed that when comparing the scale alphas of three and five example BARS, there were no significant differences. However, there was a significant difference between the two when the scale was broken down into only behavioral items. Future research could investigate the interactions between the number of BARS examples and the question type. The participants did not receive rater training before rating the videos. Future research could investigate whether giving raters training beforehand impacts the two significant findings from this study. The data from this study could also be analyzed to see if the composite ratings on the BARS scales results in more accurate results when compared to overall summated ratings scales. Previous research that claims behaviorally anchored rating scales are more accurate than summated rating scales (Campbell et al., 1973; Kinicki, Bannister, and Hom, 1985). This was not the focus of this study, but the data could be used to investigate whether the BARS were more accurate than the summated rating scales.

Practical Implications

While the results of the study were not what the researchers hypothesized, there are still relevant practical implications of the results. Two out of the three accuracy assessments were found to be nonsignificant. However, there was a significant finding between three example BARS and five example BARS in the differences in over and under ratings. This is important for practitioners to be aware of because using three example BARS could lead to qualified candidates being under rated and not getting hired. It could also lead to unqualified candidates being hired. It is beneficial for practitioners to take the extra steps to define all five examples on BARS in order to increases rating accuracy. Hiring managers strive to produce ratings as close to the true score as possible, and that is more likely to be done through using five example BARS. The results also showed that five example BARS result in higher scale alphas for behavioral composite ratings. If practitioners are using behavioral questions in the employment interviews, five BARS should be used in order to have the most accurate results.

Limitations and Future Research

One concern of this study is that the manipulation check items significantly decreased the total number of participants. Many of the MTurk participants did not pass five out of six manipulation checks. The first manipulation check had two answers that could have been perceived to be correct. Due to this, the participants did not have to pass this check to be included in the analysis. The other manipulation check answers did not appear to have multiple right answers, which is why the participants had to get at least five correct to be included in the analysis. The participants were not proctored while completing the study, so they may not have been paying close attention. Having the participants complete the study in a proctored setting may increase the number of participants who pass the manipulation check items. The participants were not required to stay on the video page for the entirety of the video. This posed a limitation because participants could skip through the videos without finishing viewing it. As previously mentioned, future research could investigate the interactions between the number of BARS examples and the question type. Future research could also investigate whether giving raters training beforehand leads to less over and under rating on BARS with three examples than BARS with five examples.

Conclusion

BARS are a commonly used rating tool that organizations use in employment interviews. Past research has concluded that using BARS can increase rating accuracy (Campbell et al., 1973; Kinicki, Bannister, & Hom, 1985; Benson, Buckley, & Hall, 1988). This study found differences in accuracy ratings in employment interviews between BARS with three examples and BARS with five examples. Most BARS only include the lowest, middle, and highest examples, but the researchers wanted to see of adding two more examples would increase accuracy. The study concluded that the accuracy differences between three and five example BARS are in the over and under composite ratings. The scale alphas and absolute differences were not significantly different between the three example BARS and the five example BARS. While only one accuracy estimate improved by using five example BARS, that is still sufficient evidence that defining additional examples produces more accurate ratings. The study showed that when comparing the accuracy of the composite ratings for behavioral questions, five example BARS are more accurate than three example BARS. The interaction between the question type and number of BARS examples should be further investigated. Researchers should continue to study how to best conduct employment interviews so organizations can continuously improve their hiring processes and ensure the right person is hired for the job.

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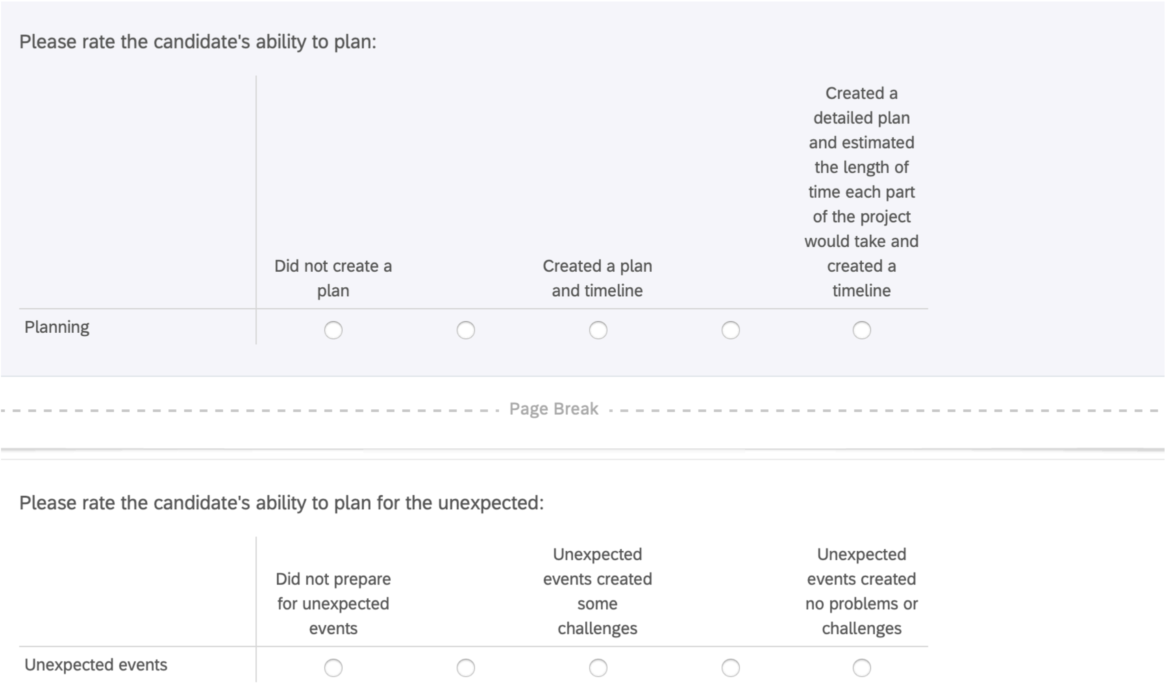
APPENDICES

APPENDIX A: INTERVIEW QUESTIONS

1. Tell us about a situation in which you had to manage your time to meet multiple deadlines.

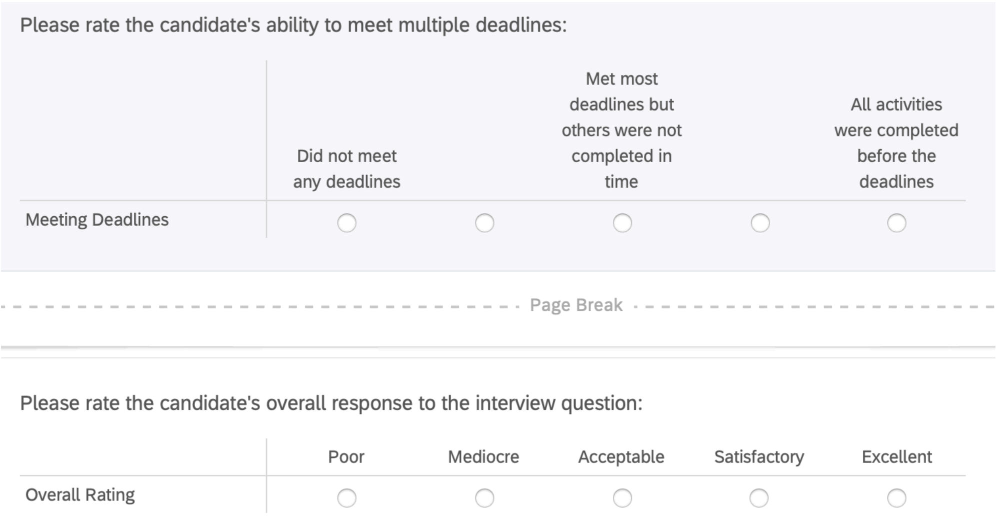


Please rate the candidate's ability to plan:

	Did not create a plan		Created a plan and timeline		Created a detailed plan and estimated the length of time each part of the project would take and created a timeline
Planning	○	○	○	○	○

Please rate the candidate's ability to plan for the unexpected:

	Did not prepare for unexpected events		Unexpected events created some challenges		Unexpected events created no problems or challenges
Unexpected events	○	○	○	○	○



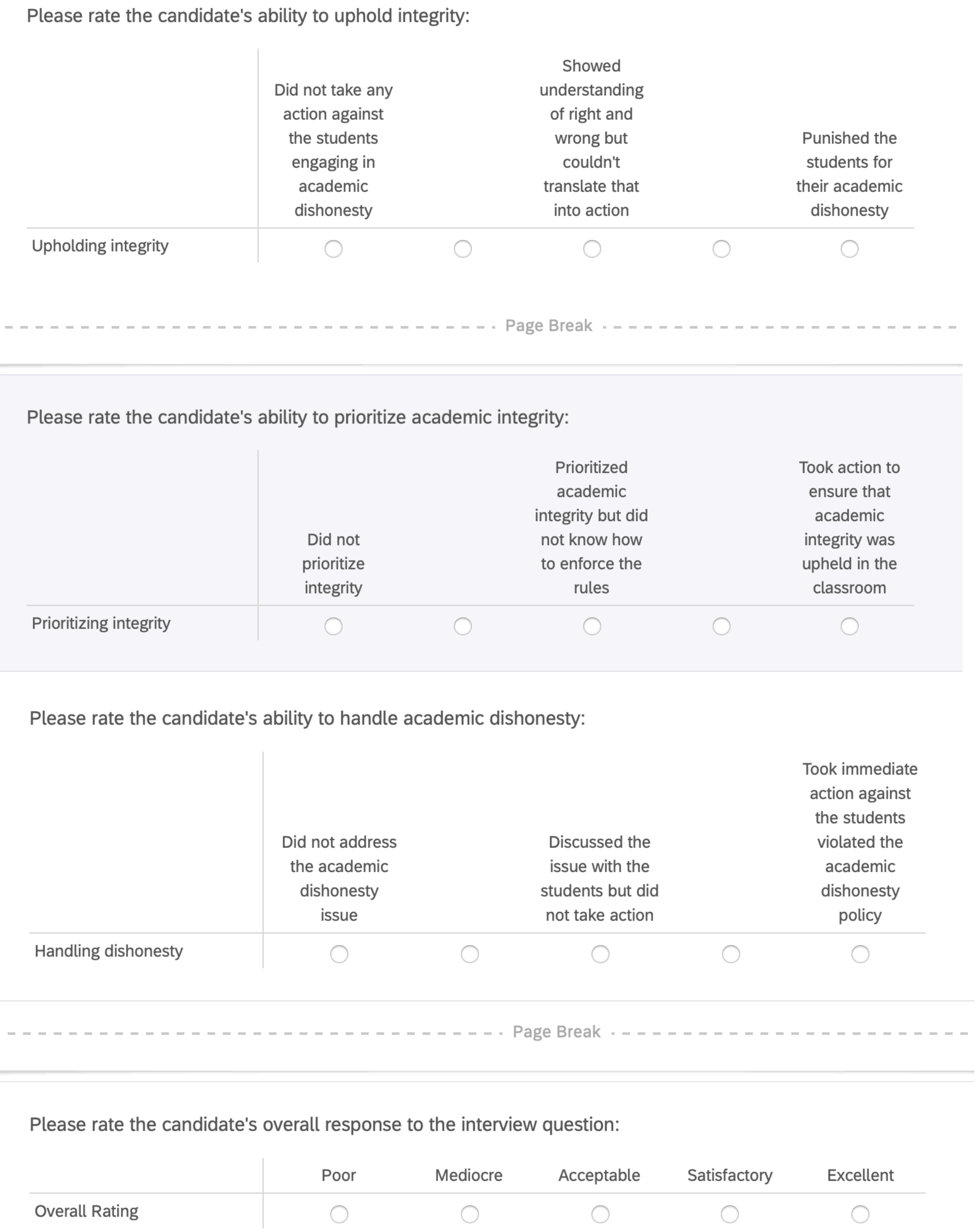
Please rate the candidate's ability to meet multiple deadlines:

	Did not meet any deadlines		Met most deadlines but others were not completed in time		All activities were completed before the deadlines
Meeting Deadlines	○	○	○	○	○

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○

2. Tell us about a time when you had to deal with an issue of academic integrity or academic dishonesty. What was the outcome of the situation?



Please rate the candidate's ability to uphold integrity:

	Did not take any action against the students engaging in academic dishonesty		Showed understanding of right and wrong but couldn't translate that into action		Punished the students for their academic dishonesty
Upholding integrity	○	○	○	○	○

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Please rate the candidate's ability to prioritize academic integrity:

	Did not prioritize integrity		Prioritized academic integrity but did not know how to enforce the rules		Took action to ensure that academic integrity was upheld in the classroom
Prioritizing integrity	○	○	○	○	○

Please rate the candidate's ability to handle academic dishonesty:

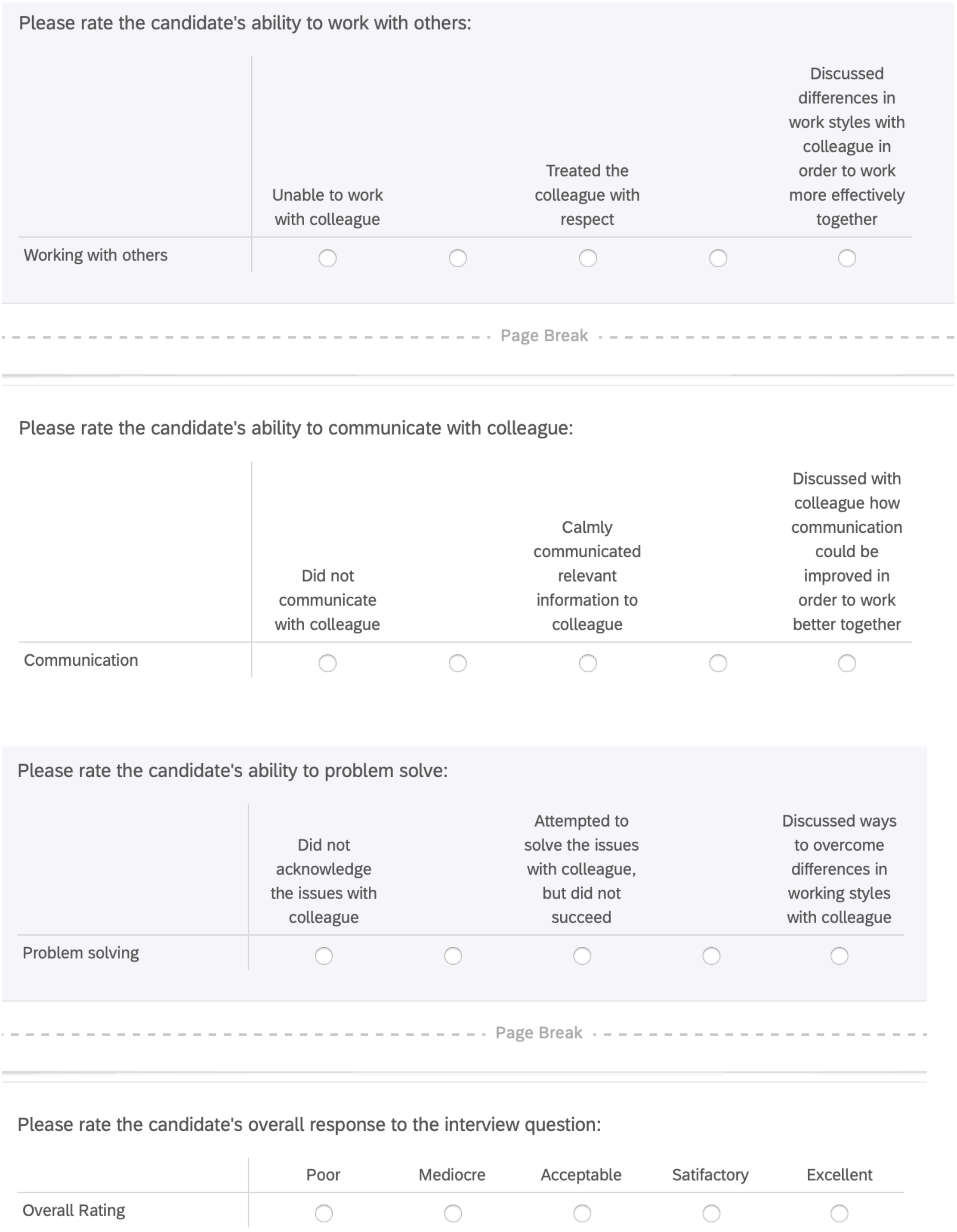
	Did not address the academic dishonesty issue		Discussed the issue with the students but did not take action		Took immediate action against the students violated the academic dishonesty policy
Handling dishonesty	○	○	○	○	○

Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○

3. Tell us about a time you had to work with a colleague that you did not see eye to eye with.



Please rate the candidate's ability to work with others:

	Unable to work with colleague		Treated the colleague with respect		Discussed differences in work styles with colleague in order to work more effectively together
Working with others	○	○	○	○	○

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Please rate the candidate's ability to communicate with colleague:

	Did not communicate with colleague		Calmly communicated relevant information to colleague		Discussed with colleague how communication could be improved in order to work better together
Communication	○	○	○	○	○

Please rate the candidate's ability to problem solve:

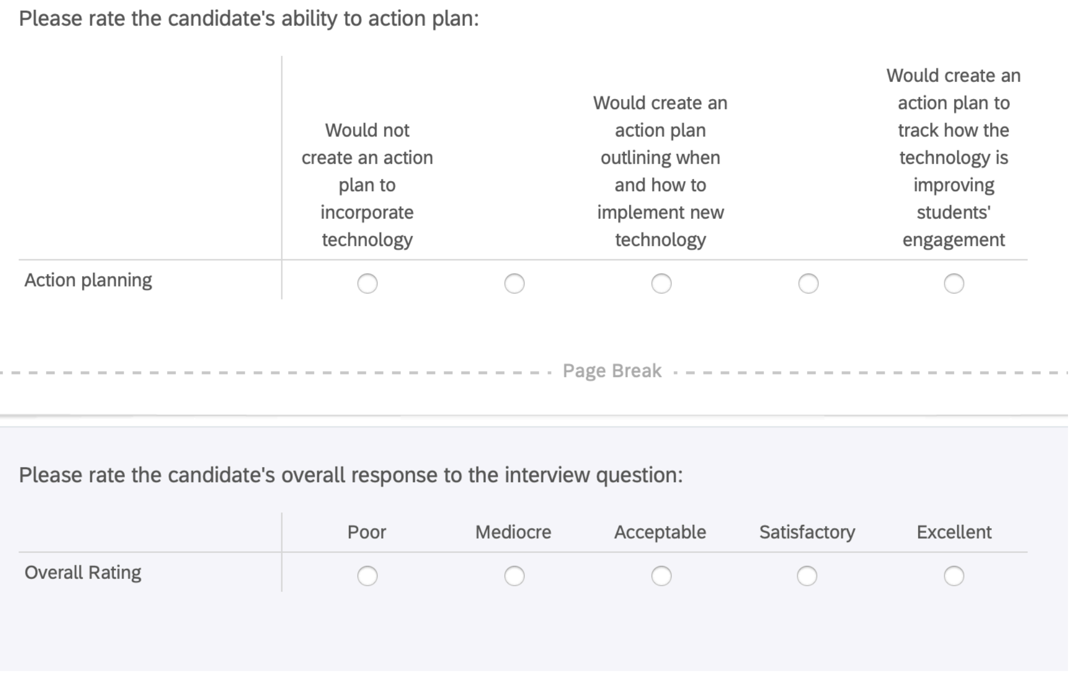
	Did not acknowledge the issues with colleague		Attempted to solve the issues with colleague, but did not succeed		Discussed ways to overcome differences in working styles with colleague
Problem solving	○	○	○	○	○

Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satifactory	Excellent
Overall Rating	○	○	○	○	○

4. Tell us about a time you had to work with a colleague that you did not see eye to eye with.



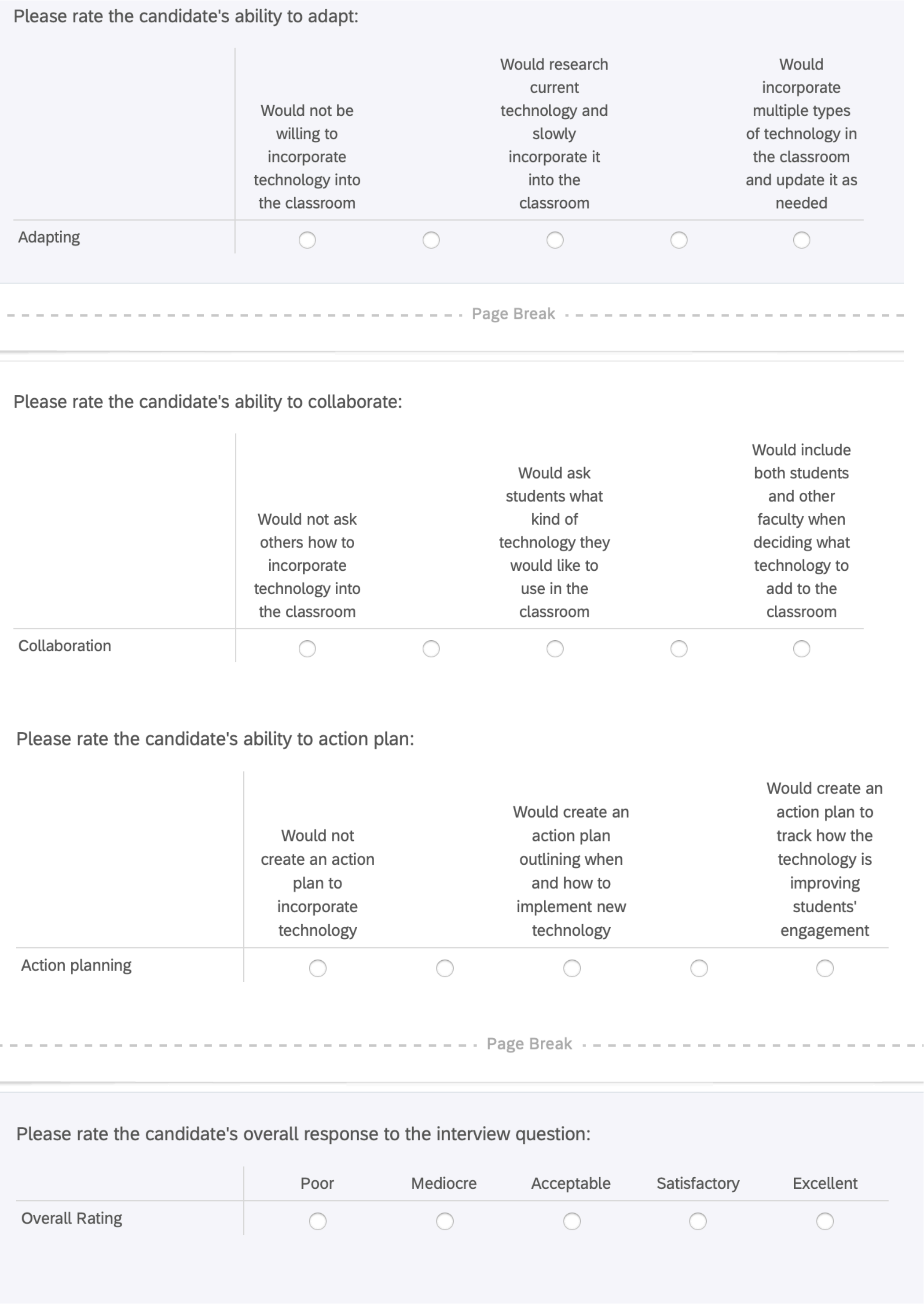
Please rate the candidate's ability to action plan:

	Would not create an action plan to incorporate technology		Would create an action plan outlining when and how to implement new technology		Would create an action plan to track how the technology is improving students' engagement
Action planning	○	○	○	○	○

Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○



Please rate the candidate's ability to adapt:

	Would not be willing to incorporate technology into the classroom		Would research current technology and slowly incorporate it into the classroom		Would incorporate multiple types of technology in the classroom and update it as needed
Adapting	○	○	○	○	○

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Please rate the candidate's ability to collaborate:

	Would not ask others how to incorporate technology into the classroom		Would ask students what kind of technology they would like to use in the classroom		Would include both students and other faculty when deciding what technology to add to the classroom
Collaboration	○	○	○	○	○

Please rate the candidate's ability to action plan:

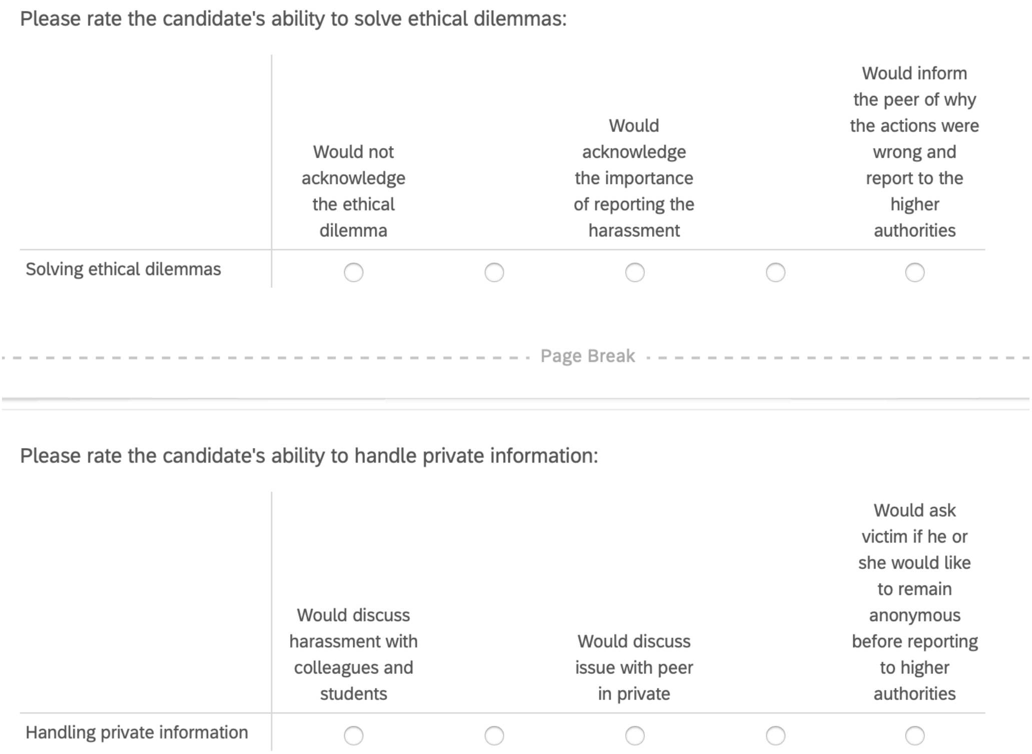
	Would not create an action plan to incorporate technology		Would create an action plan outlining when and how to implement new technology		Would create an action plan to track how the technology is improving students' engagement
Action planning	○	○	○	○	○

Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○

5. What would you do if you found out that one of your peers was violating University policies regarding sexual harassment?



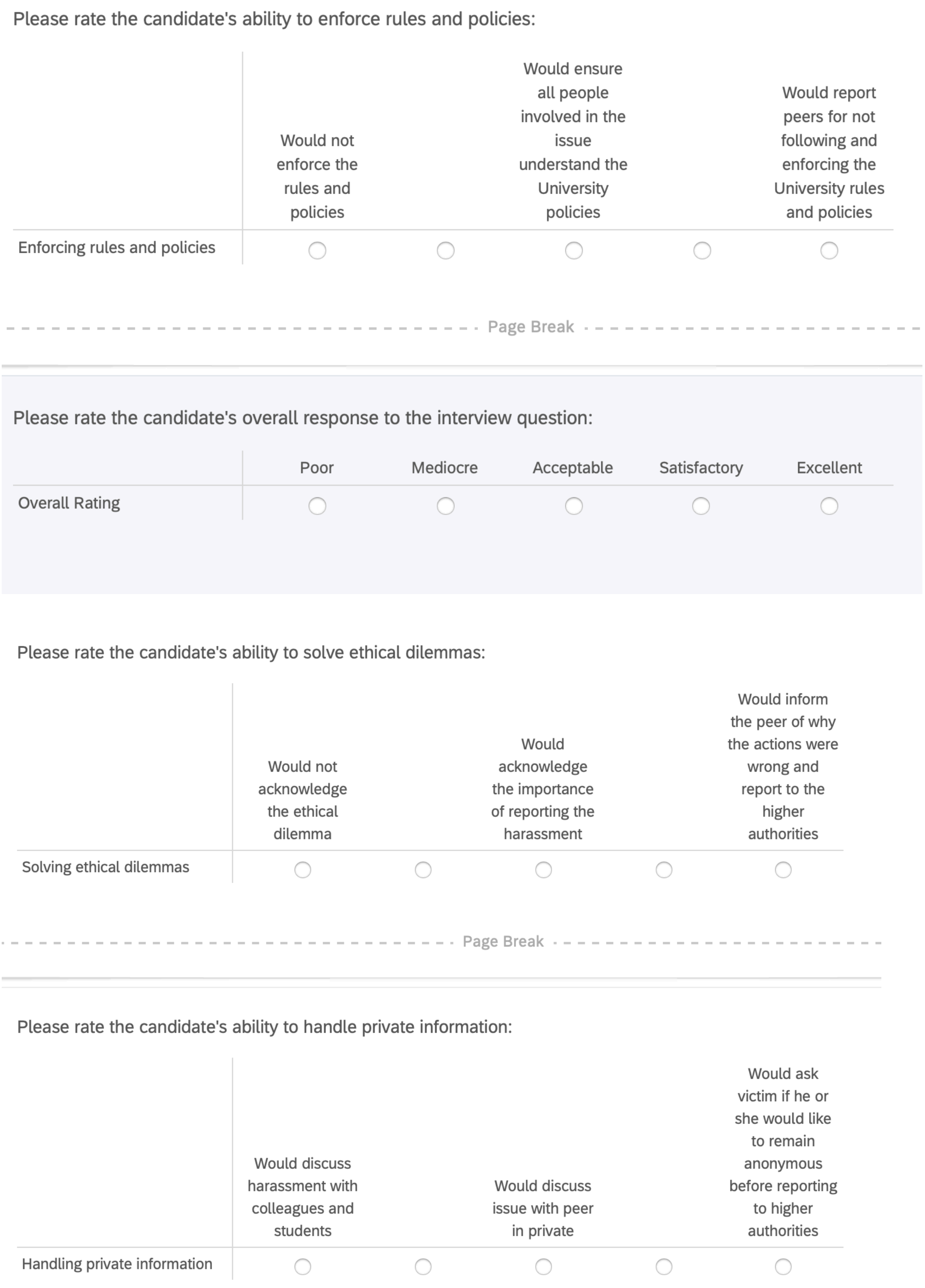
Please rate the candidate's ability to solve ethical dilemmas:

	Would not acknowledge the ethical dilemma		Would acknowledge the importance of reporting the harassment		Would inform the peer of why the actions were wrong and report to the higher authorities
Solving ethical dilemmas	○	○	○	○	○

Page Break

Please rate the candidate's ability to handle private information:

	Would discuss harassment with colleagues and students		Would discuss issue with peer in private		Would ask victim if he or she would like to remain anonymous before reporting to higher authorities
Handling private information	○	○	○	○	○



Please rate the candidate's ability to enforce rules and policies:

	Would not enforce the rules and policies		Would ensure all people involved in the issue understand the University policies		Would report peers for not following and enforcing the University rules and policies
Enforcing rules and policies	○	○	○	○	○

Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○

Please rate the candidate's ability to solve ethical dilemmas:

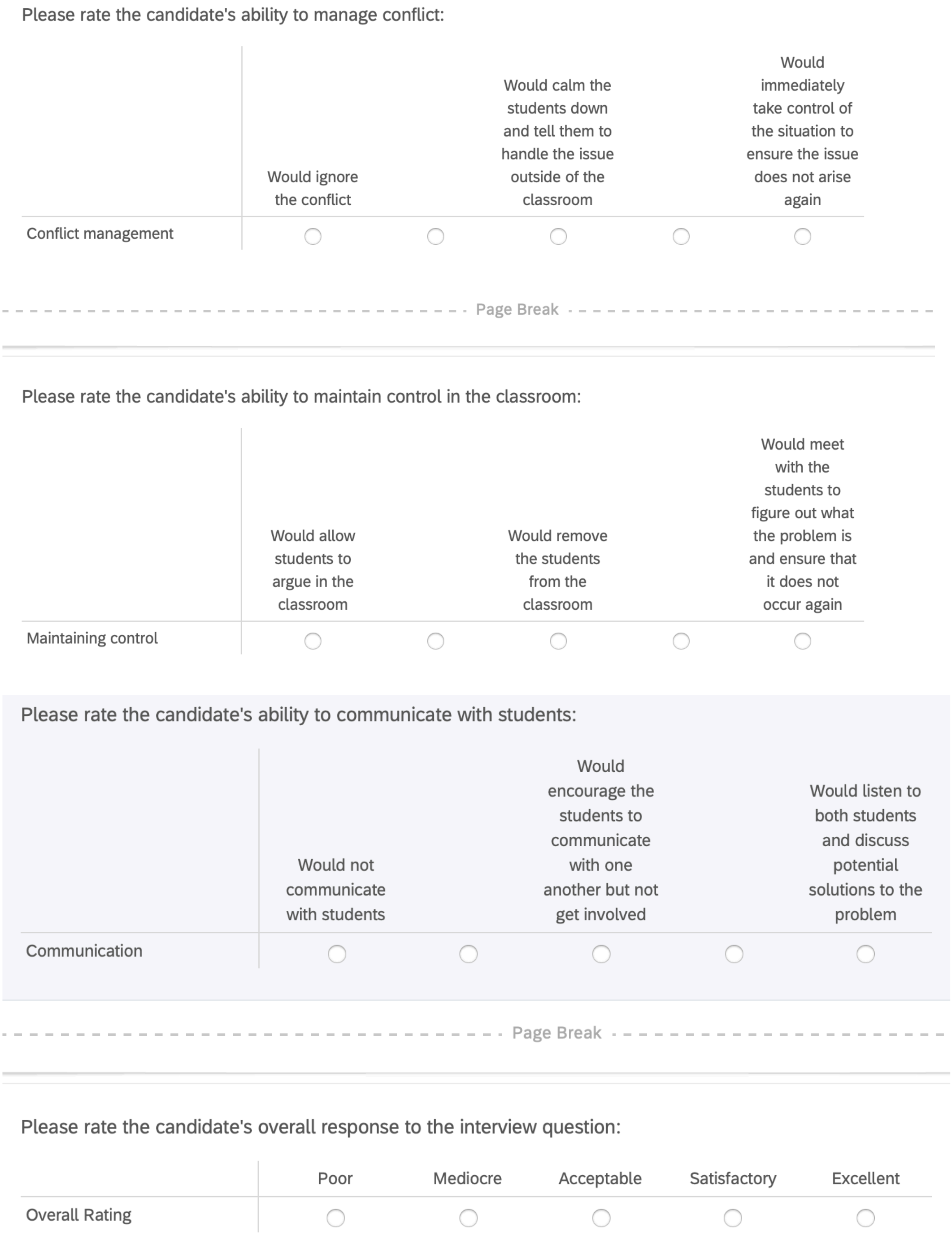
	Would not acknowledge the ethical dilemma		Would acknowledge the importance of reporting the harassment		Would inform the peer of why the actions were wrong and report to the higher authorities
Solving ethical dilemmas	○	○	○	○	○

Page Break

Please rate the candidate's ability to handle private information:

	Would discuss harassment with colleagues and students		Would discuss issue with peer in private		Would ask victim if he or she would like to remain anonymous before reporting to higher authorities
Handling private information	○	○	○	○	○

6. How would you handle conflict between two students?



Please rate the candidate's ability to manage conflict:

	Would ignore the conflict		Would calm the students down and tell them to handle the issue outside of the classroom		Would immediately take control of the situation to ensure the issue does not arise again
Conflict management	○	○	○	○	○

Page Break

Please rate the candidate's ability to maintain control in the classroom:

	Would allow students to argue in the classroom		Would remove the students from the classroom		Would meet with the students to figure out what the problem is and ensure that it does not occur again
Maintaining control	○	○	○	○	○

Please rate the candidate's ability to communicate with students:

	Would not communicate with students		Would encourage the students to communicate with one another but not get involved		Would listen to both students and discuss potential solutions to the problem
Communication	○	○	○	○	○

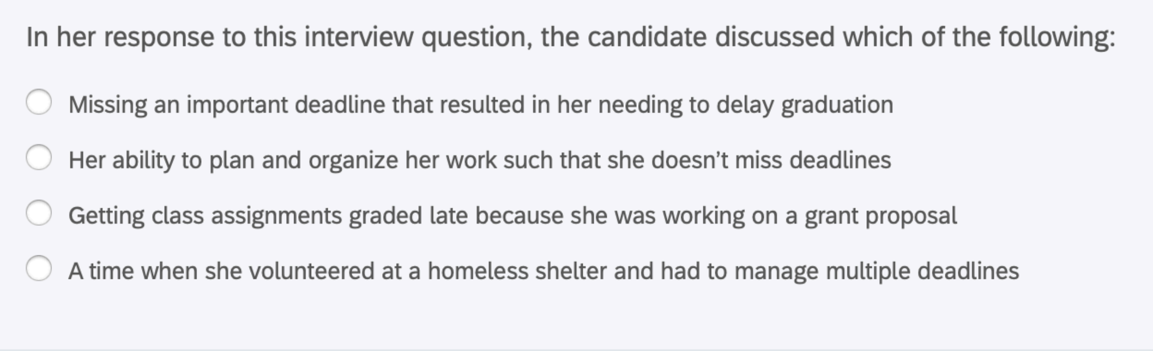
Page Break

Please rate the candidate's overall response to the interview question:

	Poor	Mediocre	Acceptable	Satisfactory	Excellent
Overall Rating	○	○	○	○	○

APPENDIX B: MANIPULATION CHECK QUESTIONS

Question 1:



In her response to this interview question, the candidate discussed which of the following:

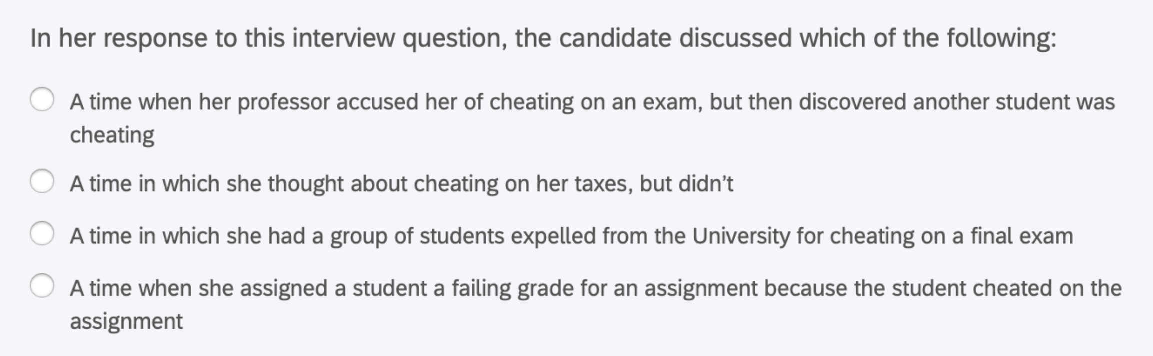
○ Missing an important deadline that resulted in her needing to delay graduation

○ Her ability to plan and organize her work such that she doesn't miss deadlines

○ Getting class assignments graded late because she was working on a grant proposal

○ A time when she volunteered at a homeless shelter and had to manage multiple deadlines

Question 2:



In her response to this interview question, the candidate discussed which of the following:

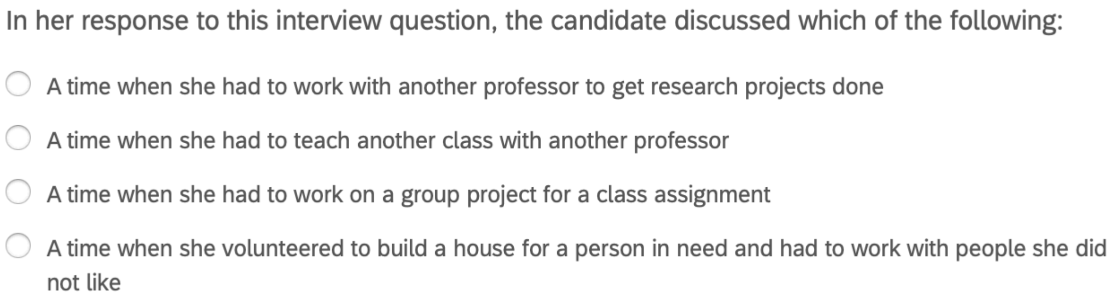
○ A time when her professor accused her of cheating on an exam, but then discovered another student was cheating

○ A time in which she thought about cheating on her taxes, but didn't

○ A time in which she had a group of students expelled from the University for cheating on a final exam

○ A time when she assigned a student a failing grade for an assignment because the student cheated on the assignment

Question 3:



In her response to this interview question, the candidate discussed which of the following:

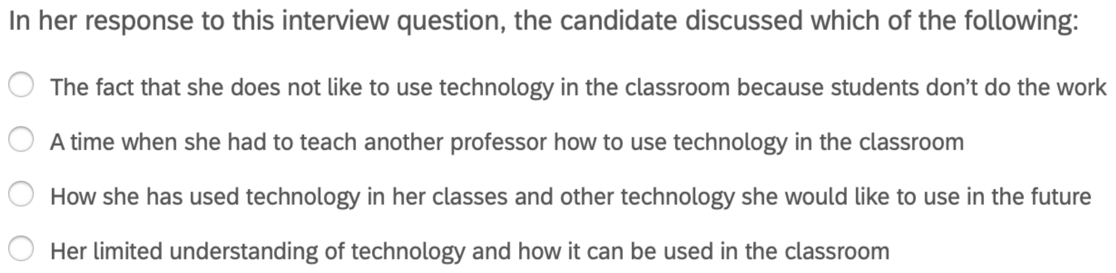
○ A time when she had to work with another professor to get research projects done

○ A time when she had to teach another class with another professor

○ A time when she had to work on a group project for a class assignment

○ A time when she volunteered to build a house for a person in need and had to work with people she did not like

Question 4:



In her response to this interview question, the candidate discussed which of the following:

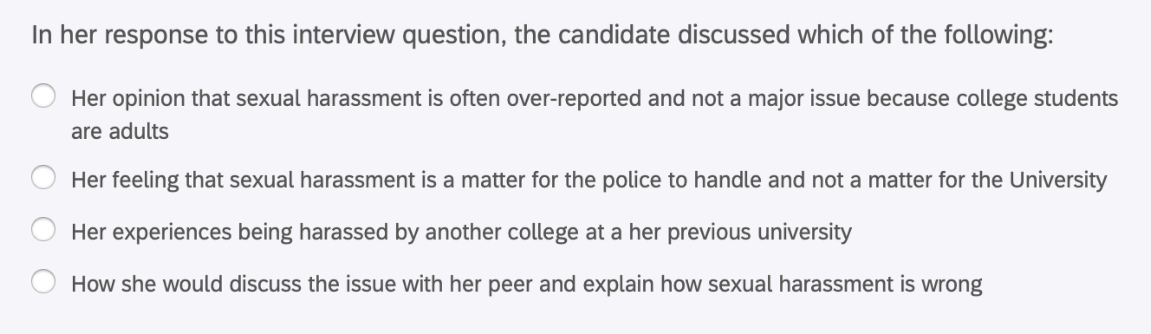
○ The fact that she does not like to use technology in the classroom because students don't do the work

○ A time when she had to teach another professor how to use technology in the classroom

○ How she has used technology in her classes and other technology she would like to use in the future

○ Her limited understanding of technology and how it can be used in the classroom

Question 5:



In her response to this interview question, the candidate discussed which of the following:

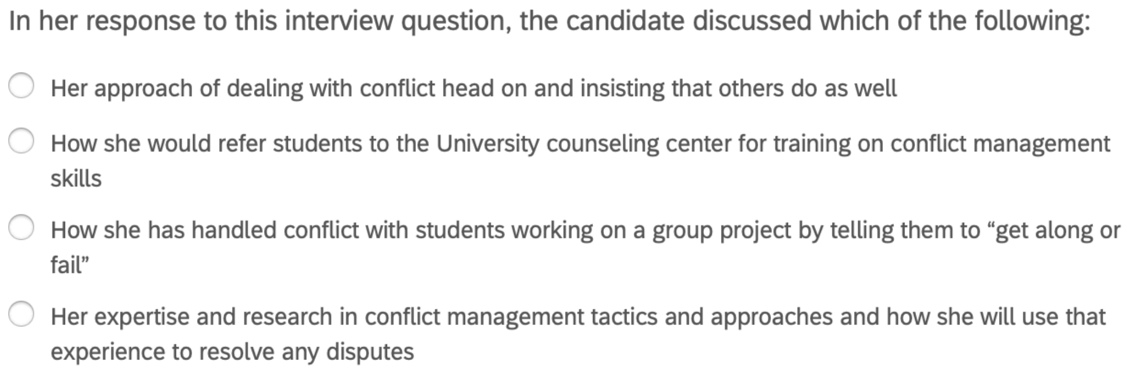
○ Her opinion that sexual harassment is often over-reported and not a major issue because college students are adults

○ Her feeling that sexual harassment is a matter for the police to handle and not a matter for the University

○ Her experiences being harassed by another college at a her previous university

○ How she would discuss the issue with her peer and explain how sexual harassment is wrong

Question 6:



In her response to this interview question, the candidate discussed which of the following:

○ Her approach of dealing with conflict head on and insisting that others do as well

○ How she would refer students to the University counseling center for training on conflict management skills

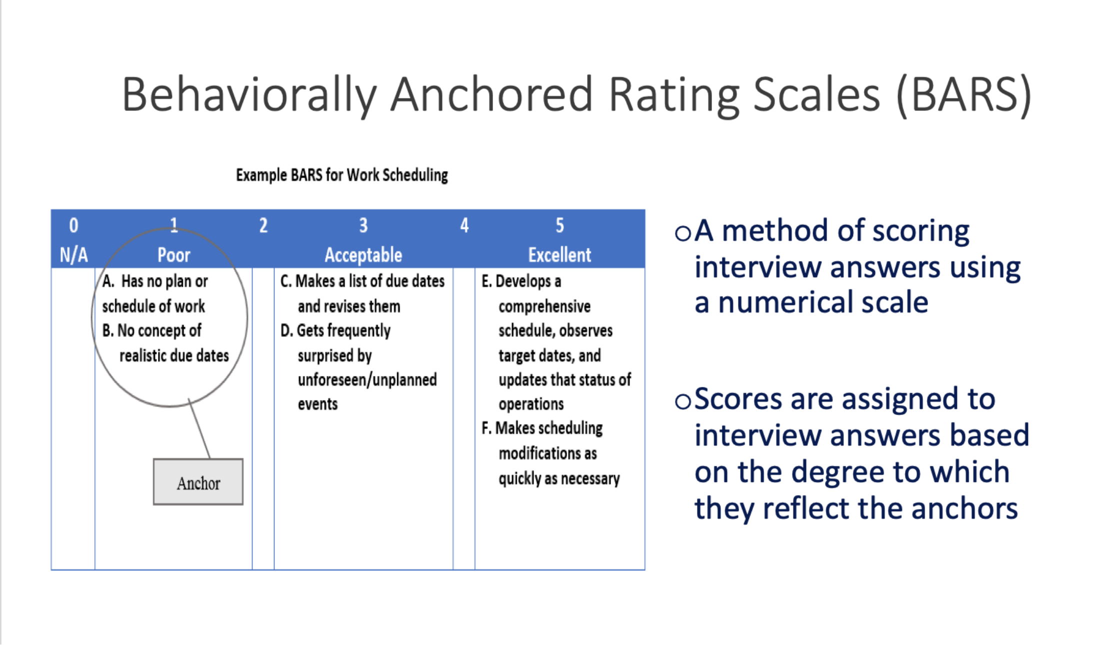
○ How she has handled conflict with students working on a group project by telling them to "get along or fail"

○ Her expertise and research in conflict management tactics and approaches and how she will use that experience to resolve any disputes

APPENDIX C: BARS INSTRUCTIONS

Behaviorally Anchored Rating Scales Are rating scales that provide more information than traditional performance rating scales.

- *Behaviorally Anchored Rating Scales provide examples or exemplars of good and bad performance.*
- *Behaviorally Anchored Rating Scales give raters behavioral examples for each rating level to help guide the ratings.*
- *Using Behaviorally Anchored Rating Scales, the rater picks the behavior that comes closest to describing the performance of the person being rated.*



Behaviorally Anchored Rating Scales (BARS)

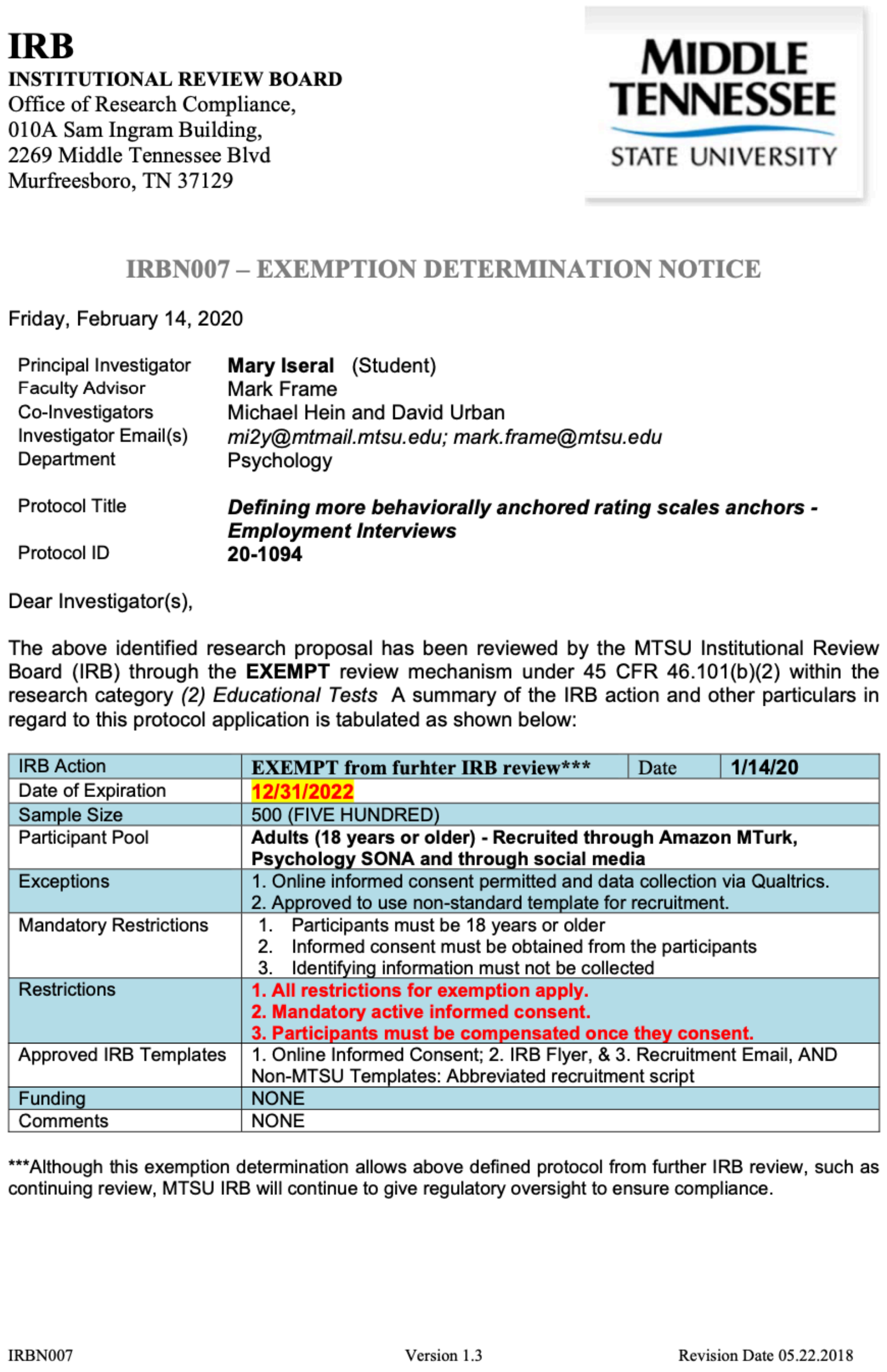
Example BARS for Work Scheduling

0	1	2	3	4	5
N/A	Poor		Acceptable		Excellent
	A. Has no plan or schedule of work B. No concept of realistic due dates		C. Makes a list of due dates and revises them D. Gets frequently surprised by unforeseen/unplanned events		E. Develops a comprehensive schedule, observes target dates, and updates that status of operations F. Makes scheduling modifications as quickly as necessary

Anchor

- A method of scoring interview answers using a numerical scale
- Scores are assigned to interview answers based on the degree to which they reflect the anchors

APPENDIX D: IRB APPROVAL



IRB
INSTITUTIONAL REVIEW BOARD
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129

MIDDLE TENNESSEE
STATE UNIVERSITY

IRBN007 – EXEMPTION DETERMINATION NOTICE

Friday, February 14, 2020

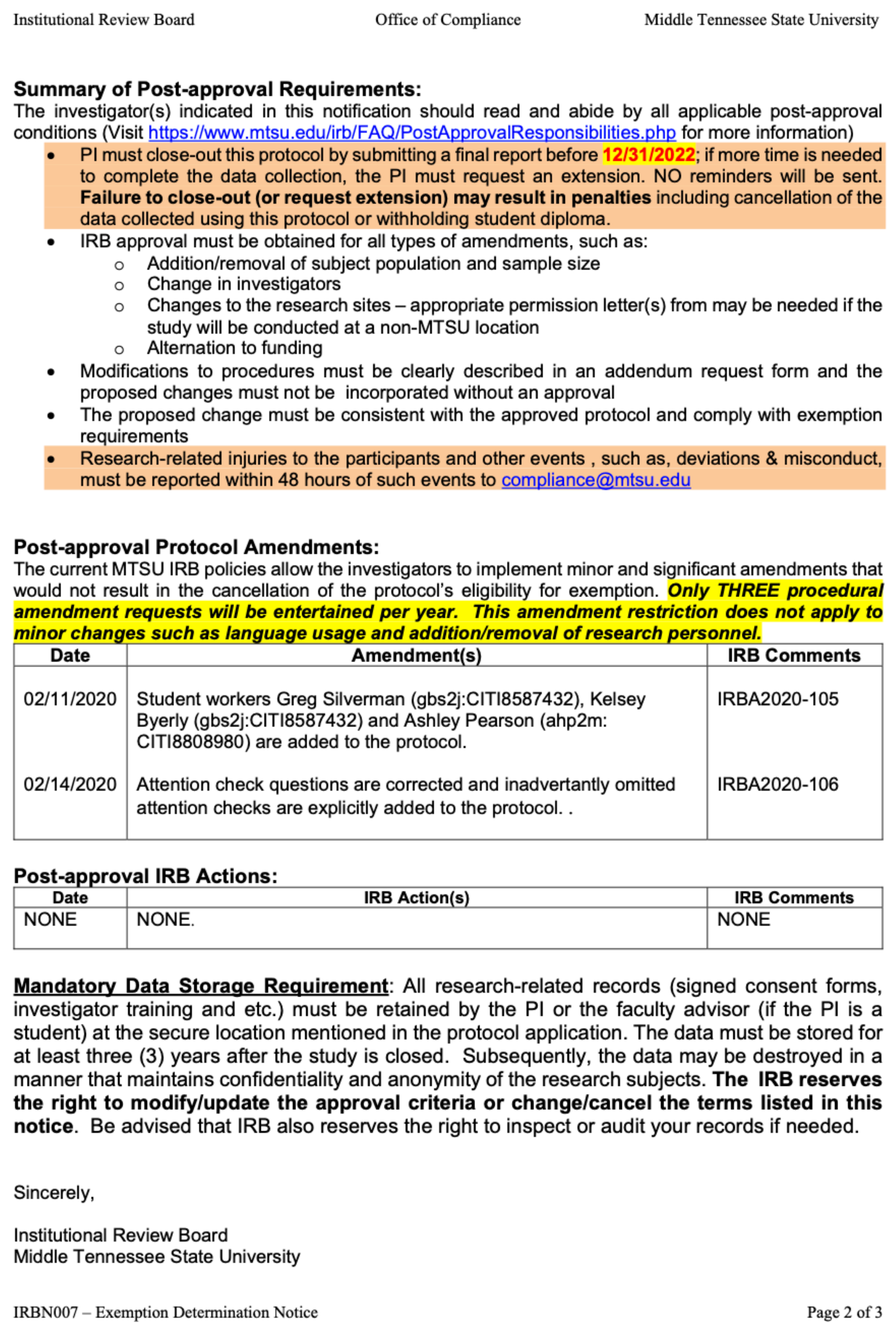
Principal Investigator	**Mary Iseral** (Student)
Faculty Advisor	Mark Frame
Co-Investigators	Michael Hein and David Urban
Investigator Email(s)	*mi2y@mtmail.mtsu.edu; mark.frame@mtsu.edu*
Department	Psychology
Protocol Title	***Defining more behaviorally anchored rating scales anchors - Employment Interviews***
Protocol ID	**20-1094**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXEMPT** review mechanism under 45 CFR 46.101(b)(2) within the research category *(2) Educational Tests* A summary of the IRB action and other particulars in regard to this protocol application is tabulated as shown below:

IRB Action	**EXEMPT from furhter IRB review*****	Date	**1/14/20**
Date of Expiration	**12/31/2022**		
Sample Size	500 (FIVE HUNDRED)		
Participant Pool	**Adults (18 years or older) - Recruited through Amazon MTurk, Psychology SONA and through social media**		
Exceptions	1. Online informed consent permitted and data collection via Qualtrics. 2. Approved to use non-standard template for recruitment.		
Mandatory Restrictions	1. Participants must be 18 years or older 2. Informed consent must be obtained from the participants 3. Identifying information must not be collected		
Restrictions	**1. All restrictions for exemption apply.** **2. Mandatory active informed consent.** **3. Participants must be compensated once they consent.**		
Approved IRB Templates	1. Online Informed Consent; 2. IRB Flyer, & 3. Recruitment Email, AND Non-MTSU Templates: Abbreviated recruitment script		
Funding	NONE		
Comments	NONE		

***Although this exemption determination allows above defined protocol from further IRB review, such as continuing review, MTSU IRB will continue to give regulatory oversight to ensure compliance.



Summary of Post-approval Requirements:

The investigator(s) indicated in this notification should read and abide by all applicable post-approval conditions (Visit https://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php for more information)

- PI must close-out this protocol by submitting a final report before **12/31/2022**; if more time is needed to complete the data collection, the PI must request an extension. NO reminders will be sent. **Failure to close-out (or request extension) may result in penalties** including cancellation of the data collected using this protocol or withholding student diploma.
- IRB approval must be obtained for all types of amendments, such as:
  - Addition/removal of subject population and sample size
  - Change in investigators
  - Changes to the research sites – appropriate permission letter(s) from may be needed if the study will be conducted at a non-MTSU location
  - Alternation to funding
- Modifications to procedures must be clearly described in an addendum request form and the proposed changes must not be incorporated without an approval
- The proposed change must be consistent with the approved protocol and comply with exemption requirements
- Research-related injuries to the participants and other events , such as, deviations & misconduct, must be reported within 48 hours of such events to compliance@mtsu.edu

Post-approval Protocol Amendments:

The current MTSU IRB policies allow the investigators to implement minor and significant amendments that would not result in the cancellation of the protocol's eligibility for exemption. ***Only THREE procedural amendment requests will be entertained per year. This amendment restriction does not apply to minor changes such as language usage and addition/removal of research personnel.***

Date	Amendment(s)	IRB Comments
02/11/2020	Student workers Greg Silverman (gbs2j:CITI8587432), Kelsey Byerly (gbs2j:CITI8587432) and Ashley Pearson (ahp2m: CITI8808980) are added to the protocol.	IRBA2020-105
02/14/2020	Attention check questions are corrected and inadvertantly omitted attention checks are explicitly added to the protocol. .	IRBA2020-106

Post-approval IRB Actions:

Date	IRB Action(s)	IRB Comments
NONE	NONE.	NONE

Mandatory Data Storage Requirement: All research-related records (signed consent forms, investigator training and etc.) must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data must be stored for at least three (3) years after the study is closed. Subsequently, the data may be destroyed in a manner that maintains confidentiality and anonymity of the research subjects. **The IRB reserves the right to modify/update the approval criteria or change/cancel the terms listed in this notice**. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

- Post-approval Responsibilities: http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php

Expedited Procedures: http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php