RESEARCH ARTICLE

Should you follow your gut? The impact of expertise on intuitive hiring decisions for complex jobs

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Abstract

As jobs become increasingly complex, organizations are challenged with finding effective ways to select and hire successful employees. The high level of uncertainty generally associated with hiring decisions is greater for complex jobs where it is difficult to identify the predictors of good job performance. Intuition research has found expert intuition to be effective in highly uncertain decision environments. However, most employment selection research dismisses the use of intuition and argues that even expert interviewers should not rely on their intuition. To bridge the two research streams, this paper addresses the research question: for complex jobs, can the intuition of expert decision-makers enhance the effectiveness of hiring decisions? The hypotheses were tested via an experimental study design using expert and nonexpert interviewer samples. The results demonstrate that, when recruiting for complex jobs, interviewer expertise does increase the quality of intuitive hiring decisions.

Key words: Complex jobs; employee selection; expertise; intuition; managerial cognition

Jobs are becoming increasingly complex due to the proliferation of knowledge-based economies, where knowledge industries have gained prominence over traditional manufacturing-type trades (Becton, Carr, Mossholder, & Walker, 2017). Such complex jobs are multidimensional (Shalley, Gilson, & Blum, 2009), difficult to execute, and require many high-level skills (Morgeson & Humphrey, 2006). Importantly, most of these jobs are also ill-structured and ambiguous (Chung-Yan, 2010), which often makes it difficult to determine the exact criteria for job success. Consequently, a significant challenge faced by organizations is how to select individuals that have a high probability of being successful employees in these complex jobs.

Research suggests that analytical methods of employee selection, such as utilizing highly structured interviews, are generally an effective way to make hiring decisions (Conway, Jako, & Goodman, 1995; Huffcutt & Arthur, 1994; Wiesner & Cronshaw, 1988). However, establishing a robust analytical hiring process can take significant resources (Miles & Sadler-Smith, 2014). In addition, there is still a high level of uncertainty in this context as, based on meta-analytic studies, various predictors of future job performance only explain, at the most, about 30% of the variance (Luan, Reb, & Gigerenzer, 2019). This limitation may be amplified for complex jobs, where it is difficult to identify the predictors of good job performance (Chen, Tsai, & Hu, 2008). Specifically relating to the aforementioned structured interviews, some studies have found inconsistent results pertaining to its validity for complex jobs (Levashina, Hartwell, Morgeson, & Campion, 2014).

Perhaps due to perceived limitations of such analytical methods, hiring managers often rely on their intuition for employee selection (Colarelli & Thompson, 2008; Diab, Pui, Yankelevich, &

Highhouse, 2011; Nowicki & Rosse, 2002), and they tend to believe that the ability to make effective intuitive hiring decisions increases with recruiting experience (Miles & Sadler-Smith, 2014). Intuition, as used in this paper, is the result of a cognitive process that automatically and unconsciously processes information to provide a holistic solution (Dane & Pratt, 2007). In practice, intuitive judgments are often referred to as decisions based on 'gut instinct' or 'gut feeling'. Research related to intuition has found intuitive decisions of experts to be effective in uncertain decision environments (Agor, 1986; Burke & Miller, 1999). Therefore, considering the uncertainties involved in selecting employees for complex jobs, perhaps the intuition of expert interviewers may be beneficial in such jobs.

Some scholars, however, discourage the use of intuition in employee selection by pointing to biases of the intuitive process, such as the tendency to gravitate toward candidates who are similar to oneself (Grove, Zald, Lebow, Snitz, & Nelson, 2000; Kausel, Culbertson, & Madrid, 2016). Some go as far as to say that even expert interviewers should not rely on their intuition because the intuitive ability to accurately predict the job performance of an applicant does not increase with experience (Highhouse, 2008; Highhouse & Kostek, 2013). This disparity between academic and practitioner approaches to employee selection, especially as it relates to the perceived value of the interviewer's expert intuition, brings forth a research question that is particularly important given the increased complexity of jobs today. That is, for complex jobs, can the intuition of expert decision-makers enhance the effectiveness of hiring decisions?

Using an experimental design with expert and nonexpert interviewers, this paper examines this research question by assessing the impact of interviewer expertise on the effectiveness of intuition when recruiting for complex jobs. Although intuition is effective in many decision-making domains, there are few empirical examinations of its effect on real-world organizational decision-making environments, including employee selection (Highhouse & Kostek, 2013; Miles & Sadler-Smith, 2014). Therefore, the results of our study expand our knowledge of when intuition can be useful in such contexts. Relatedly, this approach underscores the importance of contextual factors, such as interviewer expertise and job complexity, in determining the effectiveness of intuition in managerial decision-making. In so doing, it lays the foundation for future research to explore organizational factors that may impact the effectiveness of intuition. Notably, the purpose of this paper is not to undermine and devalue the importance of analytical and structured methods of employee selection. As evidenced by decades of research, there is great value in using a systematic approach to selecting employees. Rather, the goal is to stimulate the conversation on if and how the valuable intuitive judgment of expert decision-makers can be integrated into employee selection procedures while, at the same time, minimizing the inherent biases and legal implications of using intuition in this context.

Theory and hypotheses development

Conditions for effective intuitive decision-making

When assessing the impact of intuition on employee selection, it is first important to understand what intuition is and when it is useful in decision-making. Intuition and analysis represent two distinct cognitive processes of information processing and decision-making (Kahneman & Klein, 2009). On the one hand, intuitive processing is a nonconscious, affectively charged, holistic, and rapid cognitive operation, while on the other hand, analysis is conscious, rational, and comparatively slower (Dane & Pratt, 2007; Epstein, 1994, 2010; Hammond, 2010). Individuals tend to use either an intuitive or analytical approach to make decisions depending on their predisposition (i.e., natural tendency) or the properties of the task environment.

Two conditions that appear to impact the effectiveness of intuitive decision-making relative to analytical decisions are domain expertise and task structure (Dane, Rockmann, & Pratt, 2012). Domain expertise is the extent to which an individual has experience in the decision-making

environment. For example, due to their extensive knowledge and experience with the game, chess grandmasters can be considered to be domain experts in the game of chess. In an organizational context, a human resource professional with extensive experience in a particular industry (e.g., healthcare or information technology) can be considered to be a domain expert. Such experts possess highly complex, domain-relevant mental schemas (Dane & Pratt, 2007). As a result, domain experts can make effective intuitive decisions (e.g., Chase & Simon, 1973; Dijkstra, Pligt, & Kleef, 2013; Hammond, Hamm, Grassia, & Pearson, 1987; Klein, 1993; Klein, Calderwood, & Clinton-Cirocco, 1986).

Task structure is the other condition that influences the effectiveness of intuitive versus analytical decisions. When dealing with problems that are conducive to analytical solutions, such as mathematical problems, analytical decision-making may be best. These types of problems are decomposable (Hammond et al., 1987) and can be solved using logic or mathematical formulas. In contrast, when dealing with complex problems that are ambiguous, ill-structured, and that do not have pre-established decision criteria, intuitive decision-making may well be a better option (Denhardt & Dugan, 1978; Friedman, Howell, & Jensen, 1985; Hammond et al., 1987). For example, through five experimental studies, Dijksterhuis (2004) found that unconscious thought processing (i.e., intuition) outperformed conscious thought (i.e., analysis) when making complex decisions related to selecting an apartment or roommate. In that study, participants were assigned to either an intuitive or analytical decision-making condition and were asked to select the best option, out of numerous alternatives, where each alternative had multiple attributes. The ineffectiveness of analytical processing may be due to the inability of the conscious mind to absorb and synthesize a large amount of information since individuals who use analytical processing pay too much attention to a limited number of attributes of the problem (Dijksterhuis, 2004). On the other hand, the effectiveness of intuition to solve complex problems may be due to the remarkable ability of the human mind to unconsciously, automatically, and rapidly process a large number of disparate pieces of information.

In general, intuition is thought to result in better decisions in decision-making environments where there is greater uncertainty, complexity, time pressure, insufficient data, and multiple solution possibilities (Agor, 1986; Baldacchino, Ucbasaran, Cabantous, & Lockett, 2015; Burke & Miller, 1999). An employee selection environment typically consists of these characteristics. This is especially true for complex positions where there is often a high level of complexity and uncertainty in determining the best candidate due to the limited relationship between a candidate's qualifications and future job performance (e.g., managerial positions).

Impact of job complexity on intuitive hiring decisions

Complex jobs are ambiguous and ill-structured (Chung-Yan, 2010). Consistent with Campbell's (1988) definition of complexity, a complex job may have many tacit elements that lead to successful job performance. Tacit knowledge involves the development of mental models that shape an individual's perspective and their understanding of how best to proceed in a given situation and is the result of extensive experience in a specific domain (Nonaka, 1994). Unlike explicit knowledge, which involves codifiable facts and theories, tacit knowledge involves knowing 'how' (Grant, 1996) in such a way that the knowledge cannot easily be codified (Nonaka, 1994).

Since there are only a few tacit elements that lead to job success when job complexity is low, it is relatively easier to ascertain the knowledge, skills, and abilities that are required for successful job performance. This is because the job requirements for a low complexity job are fairly straightforward. For example, the qualifications of stenographers can be adequately assessed by testing their shorthand writing skills, typing speed and accuracy, and transcription skills. Thus, the lower the job complexity, the clearer the prescriptive causes of good performance, and the easier it is to standardize selection criteria (Dipboye, 1994). Consequently, since the objective data clearly establishes the qualifications of the candidate, the interviewer does not need to use

their intuitive judgment to make a hiring decision. This argument is reinforced in employee selection research as highly structured interview methods that leave little room for the interviewer's intuitive judgment have typically been found to be more reliable than unstructured interviews (i.e., a purely intuitive process) for low complexity jobs (e.g., Conway, Jako, & Goodman, 1995; Huffcutt & Arthur, 1994; Levashina et al., 2014; Wiesner & Cronshaw, 1988).

In contrast, when job complexity is high, it is much more difficult to specify evaluation standards or to identify factors that contribute to good job performance due to the ambiguity surrounding the correct formula for successful job performance (Chen, Tsai, & Hu, 2008). For example, through a review of employment interview literature, Levashina et al. (2014) noted there have been mixed findings regarding the validity of the structured interview for high complexity jobs. In some studies reviewed by the authors, the validity of structured interviews, especially the situational-interview (where job candidates are given hypothetical situations and asked to explain how they would respond to the event), decreased for high complexity jobs.

Huffcutt, Allen, Conway, Roth, and Klehe's (2004) meta-analysis found job complexity to decrease the validity of the situational-interview but not the patterned-behavior-description-interview (where job candidates are asked to recall a past experience and describe how they responded to that event). Although both of these interview types are considered structured interviews, the patterned-behavior-description-interview can be considered less structured as it does not always require standardization (Conway & Peneno, 1999) since, for example, the interviewer can ask probing questions. This approach would not occur in a true situational-interview. As such, compared to the situational-interview, the patterned-behavior-description-interview may provide an opportunity for intuitive assessment.

Huffcutt et al. (2004) discussed two potential reasons for the moderating effect of job complexity on the situational-interview. First is the inadequacy of the scoring system. Although the standard situational scoring system may work well for low to medium complexity jobs, for high complexity jobs, the scoring system may not be detailed enough to capture the more complex answers provided by the applicants. Second, because a complex job will have more complicated facets, it will be difficult to come up with hypothetical situational questions that accurately measure the applicant's ability to perform complex tasks. Therefore, the quality of the situational questions may not be sufficient to accurately assess a candidate for a complex job.

Given these findings, the intuition of expert interviewers may be a supplemental way to assess candidates for complex jobs where the antecedents for effective job performance are not easily identifiable or measurable (Miles & Sadler-Smith, 2014). Supporting this argument, Highhouse and Kostek (2013) note that milder forms of holistic belief systems (i.e., an intuitive approach) are held by organizational psychologists who conduct assessments for managerial and executive-level positions. Since these two types of positions can be categorized as complex jobs, the authors' statement implies that intuitive assessments, in addition to standardized selection techniques, may be useful for filling such positions. This can especially be true for interviewers that have expertise recruiting for similar positions.

We posit that job complexity is a necessary condition for our hypotheses because, given that structured interview methods have been repeatedly found to adequately predict the job performance of candidates for low complexity jobs, it seems a futile exercise to measure the impact of intuition for low complexity jobs. However, as described earlier, the effectiveness of some structured interviews may be lower for complex jobs, which opens the possibility that the intuition of expert interviewers may have some value over and above structured techniques. For these reasons, our study solely focuses on complex jobs.

Impact of interviewer expertise on intuitive hiring decisions for complex jobs

The level of expertise in a particular field depends on the nature of the mental schemas established in the mind of the decision-maker. These mental schemas can either be (1) simple

heuristics with minimal domain-relevant knowledge, or (2) complex cognitive maps with a high level of domain-specific information (Dane & Pratt, 2007). Those with simple heuristics are individuals who have little to no experience and knowledge in the decision-making environment. Consequently, nonexpert's mental schemas lack the capacity to process information presented in a complex problem. Thus, an intuitive decision of a nonexpert may not be optimal.

However, and as previously noted, due to extensive experience and knowledge in the decision-making environment, an expert possesses highly complex domain-relevant mental schemas. This complex mental schema allows the expert to quickly and automatically process a large amount of disparate information and make an intuitive decision. Thus, compared to a nonexpert, an expert's intuitive judgment is much more effective. Supporting this assertion, Dane, Rockmann, and Pratt (2012) conducted two experimental studies to examine the impact of expertise on the effectiveness of intuition. In their first study, which asked participants to assess the difficulty of a basketball shot, expertise was determined by the number of years of experience playing competitive basketball. In their second study, which asked participants to identify real and fake designer handbags, expertise was determined by the total number of designer handbags owned by each participant. In both studies, those with high expertise made significantly better intuitive decisions than those with low expertise.

In employee selection, we argue that expertise will have a similarly positive effect on intuition. This is because, compared to nonexpert interviewers, expert interviewers have a higher capacity to identify the idiosyncrasies of a candidate and to interpret configurations of traits that lead to job success (Highhouse, 2008). This is especially true for complex jobs where, as previously noted, it is difficult to identify the criteria that lead to job success. Therefore, we hypothesize:

> Hypothesis 1: For complex jobs, expert interviewers will make better intuitive hiring decisions than nonexpert interviewers

Impact of expert intuition versus expert analysis on hiring decisions for complex jobs

Although expertise increases the effectiveness of intuitive decisions, it may not have a similar impact on analytical decisions. For example, Dane, Rockmann, and Pratt (2012) found that, among participants who used analytical thought processes to solve a complex task, there was not a significant difference in task performance between those with high expertise and those with low expertise. In fact, there is some evidence that prompting an expert to use analysis may negatively impact decision quality (e.g., Melcher & Schooler, 2004; Wimmers, Schmidt, Verkoeijen, & Van De Wiel, 2005) because forcing experts to use analytical thinking disrupts their highly developed and effective intuitive thought process.

In line with the argument above, when recruiting for a complex job, if the interviewer has extensive experience recruiting for a similar job, intuition may be more useful than analytical thinking to make a hiring decision. As previously noted, since complex jobs are ill-structured and ambiguous, it is difficult to set accurate selection standards. As a result, if expert interviewers are required to use analytical thinking processes to make a hiring decision for a complex job, they will likely forgo their intuition and focus on the criteria that do not adequately measure a candidate's ability to be successful on the job. A decision based on the wrong criteria will predictably lead to a sub-optimal decision. Thus, compared to an intuitive decision that holistically combines explicit as well as implicit elements for job success, decisions made by experts using analytical thought processes will be less effective. Therefore, we hypothesize:

> Hypothesis 2: For complex jobs, expert interviewers who use intuition will make better hiring decisions than experts who use analysis

Methods

Participants and setting

The healthcare staffing industry in the United States was selected as the job setting in which to test the hypotheses as it amply demonstrates the previously described criteria for job complexity. Due to the complex nature of healthcare, the role of a healthcare professional typically involves a high level of ambiguity and complexity. Healthcare staffing companies hire healthcare professionals (e.g., nurses and therapists) who are then placed on assignments at various client sites (i.e., healthcare facilities such as hospitals). Therefore, in addition to the inherent complexity of healthcare, these positions have an added dimension of complexity as healthcare staffing firms must select employees who not only are qualified for the healthcare position but also meet the business needs of the staffing firm.

A total of 184 participants completed the study, out of which 13 were eliminated for failing the manipulation check discussed below. The final participants for the expert sample were 88 recruiters employed by healthcare staffing companies operating within the United States (45 female). These recruiters are responsible for recruiting healthcare professionals and typically go through extensive training on recruiting in this field. Not only do the recruiters have to ensure that the candidates sufficiently meet the job requirements, but they also must evaluate other factors such as the candidate's past job performance, availability, flexibility, cultural fit, customer service skills, seriousness about taking new position, and monetary expectations. Through this complex recruiting process, recruiters are expected to identify any irregularities in the candidate's profile.

The nonexpert sample was composed of 83 undergraduate students from several southeastern universities in the United States (41 female). This method of using an expert and nonexpert sample is consistent with prior studies that explored the effect of expertise on intuition (Dane, Rockmann, & Pratt, 2012) and the employment interview (Maurer, 2002). Although the undergraduate nonexpert sample likely included some participants with limited work experience, none of these participants had experience recruiting healthcare professionals. All participants were offered the opportunity to participate in a raffle for four $50 Starbucks gift cards to encourage their participation.

Task and procedure

Participants were asked to assume the role of a recruiter working for a healthcare staffing company and charged with the task of employee selection for a complex job (i.e., healthcare professionals). They were exposed to 10 interview scenarios, and in each scenario, they were asked to select the best response out of two candidate responses to the same interview question (see Appendix A for the 10 interview questions and responses). As most candidate interviews by healthcare staffing companies are conducted by phone, candidate responses were audio recordings to create a realistic interview environment. To control for cueing effects due to voice differences, the candidate responses were recorded using a single female voice.

We used a forced-choice approach in this study by asking participants to select the best candidate response out of two options. While an alternate method could have been to ask the participants to rate the candidate responses to the interview questions without having to make a selection, in a typical employment selection context, interviewers are required to make a selection. Therefore, a forced choice between the candidates represented a more realistic employment selection situation. In addition, there is some debate as to the usefulness of the standard situational interview scoring system for complex jobs (Huffcutt, Weekley, Wiesner, Groot, & Jones, 2001). Since our study included situational questions, not providing a rating scale eliminated any valid concerns that may have been attributable to the scoring system.

Although we did not provide a rating scale as a decision aid, all participants were made aware of the job dimension to be assessed along with the definition of that job dimension for each

interview question (see Appendix B for a sample interview scenario as presented to the participants). The experiment was administered electronically using Qualtrics survey software. For the expert sample, a link to the online experiment was distributed using email and LinkedIn messages. For the nonexperts, the link was provided by the student's class instructor via email. The participants completed the task on their computers, and in the case of most of the expert sample, at their work desks. This method induced a natural work environment as the phone interviews are generally conducted at the recruiters' desks. After the 10 interview scenarios, all participants completed a questionnaire that assessed the quality of the experimental manipulation, gender, and healthcare recruiting experience.

Experimental conditions

Similar to prior studies that explored the effect of intuition in decision-making (e.g., Dane, Rockmann, & Pratt, 2012; Pretz, 2008), both the experts and nonexperts were randomly assigned to either an intuitive or an analysis condition, thereby creating four experimental groups (i.e., expert-intuition [$N = 64$]; expert-analysis [$N = 24$]; nonexpert-intuition [$N = 42$]; nonexpert-analysis [$N = 41$]) (see Figure 1).

Intuition condition

Participants in the intuition condition were asked to make their decision solely based on their intuition, first impression, and gut feeling. Similar to Dane, Baer, Pratt, and Oldham (2011) and Dane, Rockmann, and Pratt (2012), they were asked not to think too hard and were encouraged to select the first decision that came to their mind (see Appendix C for specific instructions).

Analysis condition

To induce analytical reasoning, participants in the analytical condition were given explicit instructions to use deliberation, logic, and analysis. This method of inducing analytical cognitive processing is similar to the methods used in the studies cited above as well as Pretz (2008). Participants were encouraged to ignore any first impressions and gut feelings and instead to carefully consider all available information before deciding (see Appendix D for specific instructions).

It is important to note that the purpose of our study was to assess the impact of expertise on intuitive versus analytical cognitive information processing and decision-making. Our goal was not to compare types of interview techniques (e.g., structured vs. unstructured interview). Therefore, participants in both the intuition and analysis conditions were exposed to the same standardized and structured interview scenarios that were developed through the process described below.

Development of interview scenarios

The preliminary step of the experimental design was to create the interview questions that were used for the study. Interview questions were developed following methods similar to prior employment interview-related studies (e.g., Campion, Campion, & Hudson, 1994; Campion, Pursell, & Brown, 1988; Day & Carroll, 2003; DeGroot & Kluemper, 2007; Maurer, 2002; Maurer & Lee, 2000; Weekley & Gier, 1987). First, the critical incident technique was used to identify behaviors that affect job performance. The critical incident technique involves the systematic process of collecting direct observations of behavior to assist in solving practical problems and developing broad psychological principles (Flanagan, 1954). Specifically, 210 behaviors of healthcare professionals that lead to a successful hire were identified by interviewing a sample of healthcare recruiters. Once the critical incidents were gathered, the first author, who has over 11 years of experience in healthcare recruiting, reviewed and sorted the incidents into groups of similar incidents to form underlying job dimensions. Through this process, 10 job dimensions

Fig. 1. Experimental conditions.

were identified (see Appendix A for job dimensions). To assess the accuracy of the categorization, an expert sample of three healthcare recruiters (average healthcare recruiting experience was 7 years) were asked to review and match a sample of the critical incidents to its corresponding job dimension. There was 100% agreement among the expert sample that the behaviors were appropriately categorized into job dimensions.

Next, situational interview questions were written for each job dimension. The expert sample was asked to match the interview questions to the correct job dimension to assess how well the interview questions reflect the job dimensions. There was a 90% average agreement that the interview questions accurately represent the job dimension. Then, for each question, two candidate responses were scripted, where one response was intentionally written to be better than the other. To assess the accuracy of the ranking order of the scripted responses, the expert sample was given the candidate responses for each question in random order and was asked to rank them based on the quality of the response to the interview question. The experts were also asked to determine how well the responses represent realistic candidate responses. Adjustments to the interview questions and responses were made until 80% average agreement was achieved.

As outlined in Figure 2, through this rigorous validation process, 10 interview questions and two corresponding scripted answers for each of those questions were developed. Using these interview questions and answers, 10 candidate interview scenarios were developed. As noted, the candidate responses were audio recordings.

Only one question per interview scenario, as opposed to several questions, was used for two reasons. The first reason was to provide a reasonable number of decision scenarios so that the participants' score was based on multiple hiring decisions (i.e., 10) and not based on a single decision. The second reason was to control experiment length. Since the target participants included working professionals, a lengthy experiment may have resulted in decreased participation and task completion. Prior interview-related studies have used a single interview question format (e.g., Brtek & Motowidlo, 2002).

Measures

Dependent variable

A score for each participant was assigned by calculating the number of times they selected the best candidate response in each of the 10 interview scenarios. Thus, the score could range from 0 (did not select the best candidate response in any of the scenarios) to 10 (selected the best candidate response in all of the scenarios). As depicted in Figure 3, a rigorous three-step process was
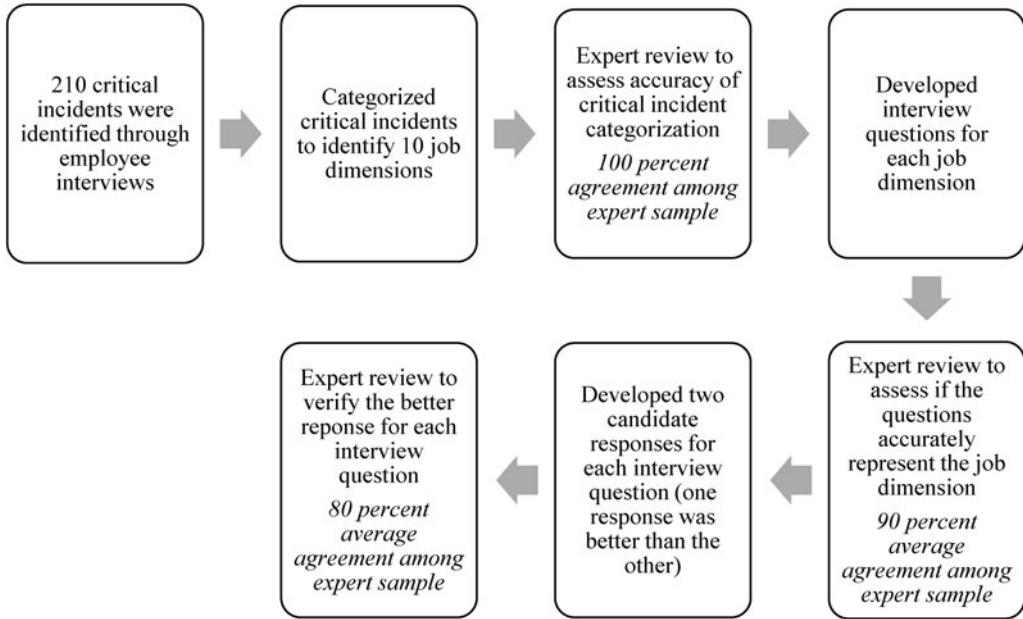
Fig. 2. Interview questions and responses development process. *Note*: Expert sample (*N* = 3, average healthcare recruiting experience = 7 years).
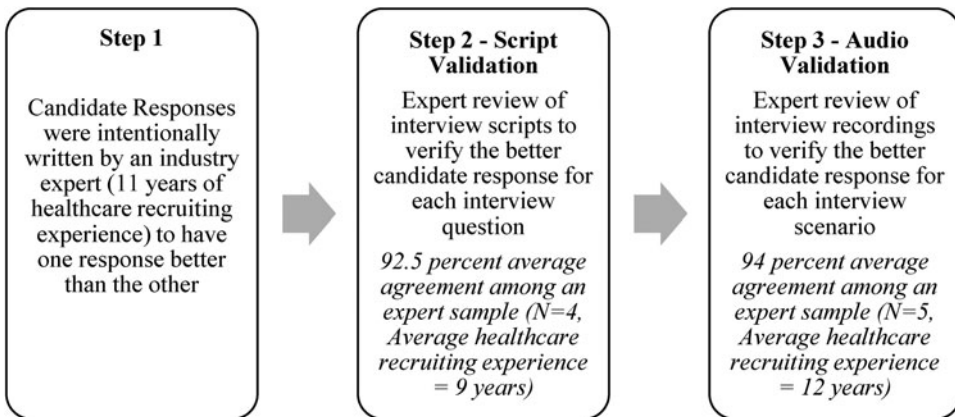

Fig. 3. Dependent variable validation process. *Note*: The experts for step 2 and step 3 were different samples.

followed to ensure the dependent variable was a valid measure. Prior employment interview studies have also used interview scenarios using scripted candidate responses to measure the dependent variable (e.g., Maurer & Lee, 2000). For example, Maurer (2002) developed six situational interview videos using scripted candidate responses as a means to measure the impact of the interviewer's job expertise and the behaviorally anchored rating scale on the interrater agreement and the accuracy of ratings of situational questions.

Manipulation check
The manipulation check evaluated whether participants in each condition complied with expected cognitive manipulations (i.e., those in the intuition condition used intuition more

than analysis to make decisions while those in the analysis condition used analysis more than intuition to make decisions). For this purpose, a four-item measure adapted from Dane et al. (2011) was used (see Table 1). Two questions measured the use of intuition and two questions measured the use of analysis.

Control

Prior studies have found gender affected how individuals process information (e.g., Allinson & Hayes, 1996; Epstein, Pacini, Denes-Raj, & Heier, 1996). Thus, consistent with Dane et al. (2011, 2012) and Norris and Epstein (2011), this study also controlled for gender.

Results

Manipulations

Participants' responses to the manipulation check statements were analyzed to eliminate those that did not adhere to the instructions. In total, 13 participants were removed as their responses to the statements did not clearly indicate that they used the intended cognitive decision-making process. For the remaining participants, as depicted in Table 2, univariate analysis of variance (ANOVA) revealed a significant difference between the conditions on how they responded to each of the four manipulation check statements. Based on these results, it was concluded that the desired conditions were satisfactorily induced.

Hypotheses tests

Descriptive statistics and correlations among variables are provided in Table 3. Hypothesis 1 proposed that for complex jobs, expert interviewers will make better intuitive hiring decisions than nonexpert interviewers. To test this hypothesis, the expert-intuition group ($N = 64$, M = 7.66, SD = 1.32) was compared to the nonexpert-intuition group ($N = 42$, M = 6.40, SD = 1.93) shown in Figure 1. An ANOVA showed a significant difference between the two groups [$F(1, 102) = 15.42$, $p < .01$, $\eta^2 = .13$], thus confirming the hypothesis that experts in the sample perform better using intuition than the nonexperts.

In contrast, when the expert-analysis ($N = 24$, M = 7.38, SD = 1.56) and the nonexpert analysis ($N = 41$, M = 7.17, SD = 1.43) groups were compared, there was no significant difference in decision accuracy [$F(1, 61) = .25$, $p = .62$]. These findings suggest that even though expertise may increase the effectiveness of intuitive decision-making, expertise may not make a difference when it comes to analytical decision-making. This conclusion is consistent with Dane, Rockmann, and Pratt (2012) who found expertise to amplify the effectiveness of intuitive decisions and not analytical decisions.

Hypothesis 2 proposed that for complex jobs, expert interviewers who use intuitive processes will make better hiring decisions than those experts who use analysis. This hypothesis was tested by comparing the expert-intuition group ($N = 64$, M = 7.66, SD = 1.32) with the expert-analysis group ($N = 24$, M = 7.38, SD = 1.56) shown in Figure 1. Although at an absolute level the expert-intuition group was more accurate than the expert-analysis group, results showed the difference between the two groups was not significant [$F(1, 84) = .745$, $p = .39$]. Thus, hypothesis 2 was not supported.

Post-hoc analysis

Hypothesis 1 found that experts (i.e., healthcare recruiters) make better intuitive hiring decisions than nonexperts (i.e., undergraduate students with no healthcare recruiting experience). Building on this result and to further examine the impact of expertise on intuitive decision quality, a post-

Table 1. Manipulation check – intuition and analysis conditions

I selected the first choice that came to my mind (intuition)
I made my decisions in a logical and systematic way (analysis)
I relied on my gut instinct (intuition)
I analyzed all available information in detail (analysis)
Response range: 1 = strongly disagree, 7 = strongly agree
Adapted from Dane et al., (2011)

Table 2. ANOVA results for manipulation check statements

	Mean intuition condition $N = 106$	Mean analysis condition $N = 65$	F (1, 169)
I selected the first choice that came to my mind	5.71	2.89	178.60**
I relied on my gut instinct	6.02	3.40	205.22**
I made my decisions in a logical and systematic way	5.60	6.14	8.35**
I analyzed all available information in detail	5.28	6.12	15.09**

**p < .01.

Table 3. Means, standard deviations, and correlations

Variable	Mean	SD	1	2	3
1. Participant score	7.19	1.61	–		
2. Expertise	.51	.50	.25**	–	
3. Gender	.48	.50	.08	.07	–

$N = 171$; expertise (0 = nonexpert, 1 = expert); gender (0 = male, 1 = female).
**p < .01 (two-tailed).

hoc analysis was conducted where two groups of experts, with low and high expertise, were compared. For this purpose, the expert intuition group ($N = 64$) shown in Figure 1 was subsequently split into two groups based on years of healthcare recruiting experience. Individuals with up to 3 years of healthcare recruiting experience were categorized as low-expertise ($N = 36$) and those with more than 3 years of experience were categorized as high-expertise ($N = 28$). This breakpoint was used because prior research has found the effectiveness of intuitive decision-making to increase when individuals have at least 3 years of experience in the field (Dane, Rockmann, & Pratt, 2012).

Results from the post-hoc analysis showed that those with high expertise ($N = 28$, M = 8.07, SD = 1.12) performed significantly better [$F(1, 60) = 5.19$, $p < .05$, $\eta^2 = .08$] than those with low-expertise ($N = 36$, M = 7.33, SD = 1.39) in healthcare recruiting. Consequently, our study found that not only do experts make better intuitive decisions than nonexperts (Hypothesis 1), but also that their ability to make good intuitive decisions increased with experience (post-hoc analysis). Combined, these important findings strengthen the argument that expertise does increase the effectiveness of intuitive hiring decisions when recruiting for complex jobs.

The findings of Dane, Rockmann, and Pratt (2012) suggest that nonexperts may perform better using analysis than intuition. Although there was no strong basis to hypothesize such a relationship in the present study, a post-hoc analysis was conducted to consider whether these

findings hold true in this sample. Comparing the decision quality of nonexperts in the analysis condition ($N = 41$, M = 7.17, SD = 1.43) to the nonexperts in the intuition condition ($N = 42$, M = 6.40, SD = 1.93) shown in Figure 1, ANOVA revealed a significant difference in performance between the two groups [$F(1, 79) = 4.15$, $p < .05$, $\eta^2 = .05$]. This finding suggests that when interviewers are nonexperts, they are more accurate using an analytical approach as oppose to an intuitive approach.

Our post-hoc analysis also found that healthcare recruiters with high-expertise (more than 3 years of experience) in the intuition condition performed significantly better [$F(1, 65) = 7.72$, $p < .01$, $\eta^2 = .11$] than nonexperts in the analysis condition. Consequently, when recruiting for complex jobs, even though nonexperts may make better hiring decisions using analysis over their intuition, their decisions may not meet the level of accuracy of intuitive hiring decisions made by highly experienced healthcare recruiters.

Discussion

Although scholars have been attempting to delineate what intuition is and when it can be used effectively, there has been a scarcity of empirical research that explores the role of intuition in making real-world organizational decisions such as employee selection. In fact, many studies that explore the role of intuition do so in contexts that are not closely related to organizational decision-making environments (e.g., Dane et al., 2011; Dane, Rockmann, & Pratt, 2012; Pretz, 2008). Specifically relating to employee selection, although many managers use intuition to make hiring decisions (Nowicki & Rosse, 2002), scholars discourage the use of intuition by highlighting the biases of the intuitive process (e.g., Highhouse, 2008). However, to the authors' knowledge, there are no prior studies that empirically examine contextual factors that may inform us as to the conditions when the actual use of intuition in employee selection might be beneficial.

In addition, the conceptual development of intuition has been limited due to the difficulty in directly examining the intuitive process (Baylor, 2001). Since intuition is an unconscious, automatic, and rapid process, it is challenging to assess the actual use of intuition. Due to these complications, most studies measure one's preference for intuitive decision-making (Blume & Covin, 2011) or use self-reported measures that rely on retroactive accounts (e.g., Busenitz & Barney, 1997; Miles & Sadler-Smith, 2014; Nowicki & Rosse, 2002, Pretz & Totz, 2007). There are two issues with this methodology. One is that self-reported measures are susceptible to recollection bias and the other is that people tend to glorify their successes while minimizing failures (Dimov, 2007). Especially because intuition is a nonconscious and automatic process, it is difficult to assume that people will be able to accurately recollect the cognitive process they used during a past event. In response, scholars have called for the use of experimental methods to better capture the cognitive process during the point of action (Baldacchino et al., 2015; Fisher, 2008; Hodgkinson & Clarke, 2007). Through a rigorous experimental design that captured intuitive and analytical decision-making at the point of action, this paper attempted to address these limitations by examining the role of interviewer expertise and job complexity on the effectiveness of intuitive hiring decisions.

The current study found that expertise does increase the effectiveness of intuitive hiring decisions when recruiting for complex jobs. Importantly, not only did experts make better intuitive decisions than nonexperts, but also among experts, the amount of experience had a positive impact on decision quality. There are at least two important implications of this finding. First, it extends prior intuition research that suggests intuitive decision-making is effective only when the decision-maker is a domain expert, to the arena of employee selection. This finding also suggests that not only does domain expertise increase one's intuitive ability to solve a complex task; it may also increase an individual's intuitive aptitude to judge another person's capacity to be successful in a particularly complex task or job. Second, the result challenges the notion that the ability to make good intuitive hiring decisions does not increase with experience. As found in

this paper, for complex jobs, prior experience recruiting for similar positions did increase the interviewer's ability to make effective intuitive decisions. Therefore, the finding underscores the importance of considering the role of job complexity when determining the effectiveness of expert intuition in employee selection.

It is important to reiterate that the argument here is not that we should abandon structured and standardized hiring methods in favor of intuition. In fact, the experimental design of the present study included elements that are consistent with structured interview techniques (e.g., interview scenarios were standardized where both candidate responses were for the same interview question). It is simply argued that when the interviewer is an expert and the job is complex, it may be prudent to give some weight to the expert interviewer's intuitive judgment. How this expert intuition can be integrated into the employee selection process while minimizing the inherent biases and legal implications of using such a method is a question to ponder for researchers and practitioners alike.

Contrary to what was predicted, the study also found no significant difference in performance between the experts in the intuition and analytical conditions. This finding suggests that, perhaps due to their expertise in recruiting healthcare professionals, the method of decision-making had less impact on the quality of the expert's decision. Given the fast-paced nature of many work environments, if there is a limited difference between intuitive and analytical decision-making for complex tasks, then the relative speed of intuition may be what makes it a more appealing option for experts. Stated differently, experienced organizational managers often find themselves in situations where perfect information relating to a particular business decision is not available or takes too much time and money to obtain. In such situations, an intuitive decision may be the most practical and effective option.

Through a post-hoc analysis, the study found that nonexperts performed significantly better when they used an analytical approach compared to an intuitive approach. While not originally hypothesized, this finding provides useful insight as to what type of decision-making approach may be better suited for nonexperts (e.g., new managers and recent college graduates). Because nonexperts do not have the complex cognitive schemas that enable experts to make effective intuitive decisions, their intuitive judgments are often nothing more than a guess with an equal probability of being correct or incorrect. However, when nonexperts use an analytical approach, even though they may not know precisely what information is critical to solving the problem (Pretz, 2008), the deliberate thinking process may unearth elements that lead them toward, or at least increase their chances of, making a more effective decision. Therefore, when the decision-maker is a nonexpert, an analytical decision-making approach may be more effective than relying on their intuition.

It is, however, important to note that even though the nonexperts in this study performed better using analysis than intuition, their performance could not compete with the accuracy of intuitive hiring decisions made by highly experienced healthcare recruiters. This finding further accentuates the value of expert intuition in complex decision-making environments. Even though decision aids and analytical processes are extremely helpful in organizational decision-making, expertise in the decision-making domain is still a critical element that should not be overlooked. Therefore, successful organizations will not only harness the intuitive power of their experts, but also find ways to effectively and quickly transfer this expert intuition to their novices.

From a practitioner perspective, the findings of the present study provide some insight as to when it may be useful to consider the role of intuition in organizational decision-making. The study found that, in the uncertain decision-making environment of recruiting for complex jobs, expertise increased the ability to make effective intuitive hiring decisions. Furthermore, when the interviewer is an expert, their intuitive decisions are as good as their analytical decisions. Therefore, in today's dynamic and uncertain organizational decision-making environments, perhaps it might be prudent to give some weight to an expert's intuitive judgment in conjunction with objective and standardized techniques. To reduce individual biases, perhaps

the expert intuition of multiple decision-makers could be combined (Miles & Sadler-Smith, 2014).

On the other hand, this study found that nonexpert interviewers perform significantly better when using analytical decision-making instead of intuition. Accordingly, in situations where the decision-makers are nonexperts (e.g., a new manager with no prior hiring experience), it seems imperative that the opportunity for intuitive judgment is minimized and they must be provided with the necessary training, tools, and processes that will allow them to make analytical decisions. Interestingly, the study also found that there was no significant difference in decision quality between experts and nonexperts when using an analytical decision-making approach. This finding suggests that when nonexperts take an analytical approach, their decisions may, in fact, be as good as experts who take a similar approach (all else being equal).

Future directions and limitations

The findings of the present study increase our understanding of when intuition might be useful in organizational decision-making environments such as employee selection. However, for us to fully comprehend the boundary conditions related to the efficacy of intuition, future research should further explore other contextual factors that impact intuition in organizational decision-making environments. In addition, to more precisely measure the effect of intuition, future research might also use neurological (Akinci & Sadler-Smith, 2012; Lieberman, 2000) and biometric techniques such as eye-tracking and facial expression analysis (McLain & Kefallonitis, 2019).

This paper explored the effect of intuition in a realistic organizational decision-making context using a sample of industry experienced decision-makers. This stands in contrast to most prior empirical studies that examined the role of intuition focused on tasks less closely related to actual organizational decision-making situations (e.g., Dane, Rockmann, & Pratt, 2012; Dijksterhuis, 2004; Pretz, 2008). To fully understand the implications of these findings, future research should continue to explore the effects of intuition in solving organizational problems in real-world settings.

As with any research, the findings of the present study should be considered in light of its limitations. First, the dependent variable was not a predictive measure of job performance (i.e., a measure that assesses the actual job performance of the interviewees). As noted earlier, the dependent variable was validated through a rigorous three-step process using experts and was measured by calculating the number of times the participants selected the best candidate response in each of the 10 scripted interview scenarios. Although similar scripted interview techniques have been used in prior research (Maurer, 2002; Maurer & Lee, 2000), this method may be less accurate than using actual interviewees and measuring the effectiveness of hiring decisions through a subsequent evaluation of their job performance. Consequently, future research in this area should consider a longitudinal design.

Second, since intuition is a nonconscious process, it is difficult to determine if the participants actually used intuition in making their decisions. Although the method and instructions to prompt intuitive decision-making was consistent with prior research (Dane, Rockmann, & Pratt, 2012; Pretz, 2008), and the final analysis only included the participants who successfully passed the manipulation checks, it is still possible that some participants may not have entirely relied on their intuition to make decisions.

Third, participants completed the experiment remotely (i.e., on their computers at their desks) rather than in a more controlled lab environment. This method was used as it induced a natural work environment since the candidate interviews are generally conducted at the recruiters' desks. Furthermore, the method adheres to the call from scholars to conduct intuition research related to organizational decision-making in field settings (Dane, Rockmann, & Pratt, 2012). However, compared to a lab environment, the method used in this study does make the participants

more susceptible to environmental factors that may disrupt their task performance and/or their attention to study details.

Finally, even though this study used a sample of real-world expert decision-makers in their natural work setting, it is susceptible to a drawback of most experimental research to the extent that it may limit the generalizability of these findings outside of the setting of the healthcare staffing industry (McGrath, 1981). Therefore, replication studies in similarly complex employment settings outside of that industry are necessary to strengthen the arguments presented here.

Conclusion

Despite years of study on the role of intuition in decision-making contexts, we still have a limited understanding of what intuition is, how it works, and when it can be useful. The purpose of this paper was to address the latter – to expand our knowledge of when intuition may be beneficial in an organizational decision-making environment such as employee selection. By using a sample of real-world decision-makers in a natural setting, the study found that when the interviewer is an expert and the position of focus is complex; intuition was an effective way to make decisions. More specifically, this study found that experts made better intuitive hiring decisions than nonexperts and, importantly, the amount of expertise mattered. Additionally, even though nonexperts using analysis outperformed those using intuition, the quality of their decisions was no match to the intuitive decisions of highly experienced healthcare recruiters. Collectively, these findings are significant to academic research as it extends our understanding of when intuition can be useful to a domain (i.e., employee selection) where scholars have often discouraged the use of intuition. For practitioners, these findings suggest that when conditions for effective intuitive decision-making are sufficiently met, it may be prudent to consider expert intuitive judgments in the decision process.

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Appendix A

Interview questions and responses

Job dimension	Interview question	Good response (*best option*)	Average response
Attention to detail	In most of our positions, you often have a large patient load and you're in a fast-paced environment. What would you do to avoid medical errors?	With each patient, I would spend time before seeing the patient to go through their medical history. Then, I will thoroughly evaluate the patient and make detailed notes of the session. And after each session, I will review the file to make sure I got everything right before I move on to the next patient.	No matter how fast paced the environment is, it is important to give each patient the time and attention that is required to give them proper care. I would thoroughly evaluate their condition and follow the correct protocol in treating the patient.
Attitude	A parent of one of your underage patients comes to your office angry and falsely accusing you of not taking proper care of her son. How would you respond?	I would remain calm and ask her politely what is bothering her. I will try to empathize with her situation as much as I can and will avoid arguing with her. I will explain the steps I have taken with her son to show her that I have followed the correct protocol in taking care of her son. After she leaves, I will write a record of her visit and the conversation.	I will invite her into my office and ask her to have a seat. I won't argue with her but I will be clear that I have done my best for her son and assure her that I will continue to give him the best care possible. I will give her my supervisor's contact information and tell her that she is welcome to talk to my supervisor if she has further concerns.
Dependability	Let's say you accept a position with us and two days before your start date, one of your family members come down with a cold. What will you do?	I will get another family member or a friend to help out with my sick family member so that I could report to work on my start date.	I will call my supervisor and explain the situation to her. I will let her know that I will do everything I can to report to work on time. But, in case my family member's sickness doesn't get better, I might have to delay my start date a little. I will take care of my family member and get to work as soon as possible.
Communication	Let's say you are phone interviewing for a position with one of our client facilities and the manager says to you 'so, tell me why you would be a good fit for this position?' How would you respond?	I usually prepare for an interview by writing down key points about my background that I think will be most applicable to the job. When I'm asked that question, I will present those points so that the manager can see how my experience meets the specific requirements of the position.	I always have my resume in front of me when I'm on a phone interview. If I'm asked that question, I will present my experience in reverse chronological order so that I can provide the manager with a thorough understanding of my skills and experience.

(*Continued*)

Appendix a (*Continued.*)

Job dimension	Interview question	Good response (*best option*)	Average response
Client focus	While working at one of our client facilities, a need may arise where you are asked to take on additional responsibilities beyond your busy patient schedule. Let's say your supervisor at the client facility calls you and asks if you will be willing to train one of their new employees. What will you do?	I will say yes to my supervisor and work out my schedule to accommodate training the new employee. I have previous experience training new employees while managing a large patient load.	Since I have a busy patient schedule, taking on this responsibility may have a negative impact on attending to my patients. So, I will tell my supervisor that I will be happy to train the new employee if my schedule can be adjusted so that I have time to do the training.
Flexibility	Assume we made you an offer for one of our positions. How would you respond if the position meets everything you're looking for with the exception that the pay is slightly below what you're making now?	If the position meets everything else that I am looking for and if the pay is competitive for the job location and the job responsibilities, I will take the position even if it's a little less than what I'm making now.	I do have financial obligations that I have to meet so I would need to make at least what I'm making right now. Having said that, I may take less if it's the right opportunity.
Honesty	Let's say you're interviewing at one of our client facilities and the hiring manager asks you if you're able to do a critical task. This task, if done incorrectly, may have disastrous consequences. While you have a basic understanding of the task and little experience with it, you do have extensive experience with similar tasks. How would you respond?	I will let the manager know the extent of my knowledge and experience relating to the task. I will let him know that I am willing to do the task but will need training.	I will tell the manager about the amount of experience I have with that task. But, I am a fast learner and since I have extensive experience with similar tasks, I will tell the manager that I can do the task.
Planning and organization	You have a large patient load so your schedule is hectic. As you know, it is critical that appropriate forms, such as Medicaid reimbursement forms, are completed promptly and thoroughly. How would you manage that?	On every appointment, I allocate a few minutes after the meeting to review the session and make notes. Then, on Friday afternoons, I normally block out a few hours to complete paperwork for the entire week. My session notes help me to make sure I'm not missing any information.	If I have a large caseload and a busy schedule, I may not have time during regular work hours to complete paperwork. So, what I usually do is complete all the paperwork during weekends.
Professionalism	You discovered an error you made in treating a patient. It was a minor error and there is no noticeable harm to the patient. What will you do?	I will report the error to my supervisor. I will also take precautions to avoid making the same error again.	I will contact the patient and inform her of the mistake. Also, I will take the necessary steps so that I don't make the same mistake again.

(*Continued*)

Appendix a (*Continued.*)

Job dimension	Interview question	Good response (*best option*)	Average response
Responsiveness	During the recruiting process with our company, I may need to contact you urgently with regard to a placement at one of our clients. In case you're on vacation, how will I be able to reach you?	If I need to go on vacation, I will give you multiple ways you can contact me before I go. So, you will be able to get a hold of me quickly if you try to reach me.	I'll give you my cell number before I go on vacation. I check my messages periodically so I should be able to get back with you soon if you try to reach me.

Appendix B

Sample interview scenario as seen by participants

The interview question below is designed to assess a candidate's 'Attention to Detail'. Attention to detail is defined as:

"*being detailed and thorough in completing work tasks.*"

Complete the following steps

- Read the interview question
- Listen to each of the two candidate responses
- Select the best response

For instructions on how to make your decision, please click on the link below:

Link to instructions

Interview Question: In most of our positions, you often have a large patient load and you're in a fast-paced environment. What would you do to avoid medical errors?

Candidate Responses: Use the "▶" icon to play each response

Response X:

Response Y:

Select the Best Response: Click on the shaded box below that represents your choice

Response X

Response Y

Appendix C

Instructions for the intuition condition

Please follow the instructions below when selecting the best response:

- Select the **first choice** that comes to your mind
- Avoid thinking very hard about what the 'right' answer is
- Let your **intuition** and **gut instinct** guide you and make the decision that feels right to you
- Your decision should be based on your **first impression** about the candidates
- Do **not** try to analyze information or apply additional logic beyond your intuitive response

Appendix D

Instructions for the analysis condition

Please follow the instructions below when selecting the best response:

- **Do not** select the first choice that comes to your mind
- Carefully consider **all** available information before making a decision
- You should **analyze** the options and make your decision in a **logical** and **systematic** way
- **Ignore** any first impression or gut instinct based choices

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Rebecca M. Guidice: My initial research interest in organizational control has evolved into a research stream investigating the issues and complexities surrounding corporate governance, particularly as it relates to accountability, job performance, decision-making, innovation, and strategic behavior in organizations. As reflected in my research, I have taken a keen interest in cross-disciplinary research. Most recently, I have initiated two collaborative projects that apply my areas of expertise on governance and accountability to family business and entrepreneurship research. Lastly, I continue to expand on my competitive dynamics research, which in recent years has led to two studies on competitive bluffing behavior – on macro and the other micro in outlook.

Neal P. Mero is the Dean of the School of Business Administration at Stetson University. Mero has extensive administrative and leadership experience in higher education, business, and the military. He served as the founding director of the Kennesaw D.B.A. Program since 2008. Previously, Mero was the vice president and chief advocacy officer for 3 years at AACSB International, the premier professional accreditor for business education, providing leadership for AACSB's global communication, membership services, and business development staff, as well as support for the AACSB's accreditation, through leadership and other global initiatives. Mero also taught management, primarily in the fields of organizational behavior and human resources management, at the University of Central Florida, the University of Mississippi, Washington State University, and the United States Air Force Academy. Mero's business experience includes extensive consulting services in various industries with special emphasis on the healthcare industry. In the military, he served as the director of human resources and faculty supervisor for the United States Air Force Academy, systems development program manager at Norton Air Force Base in California, and director of training for the US Air Force in Great Falls, MT.