

Less-than-rational Decision-making in Organizations

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Abstract. This study challenges the assumption that people in organizational contexts make entirely rational decisions. Based on an empirical research that analyzes how interviewers make selection decisions during and after the employment interviews they conduct, this study found support for the hypothesis that some people engage in less-than-rational decision-making. Finally, this study identifies circumstances under which decision-makers are more likely to engage in less-than-rational decision-making.

The rationalist and behaviralist paradigms: What are rational and less-than-rational decision-making?

Rationality is characterized by thorough thinking and comprehension, detailed explanation, reason and logical inference. By contrast, what is not rational can be deemed as a superficial and “quick-and-dirty” approach. Not surprisingly, rationality is a desirable human trait, especially in our culture. Many people like to believe about themselves that they act and decide in a rational manner, in most situations. When they don’t, they usually blame the circumstances and external factors, such as time constraints.

As an important organizational activity, decision-making, defined as the process of choosing a solution from available alternatives, tend to be considered a rational process across times, situations, and persons. Rational decision-making, described as a systematic process of



defining problems, evaluating alternatives, and choosing optimal solutions requires specific steps that are supposed to help reach decisions. These steps include: problem-definition; identification and weighting of decision criteria, which are the standards used to guide judgments and decisions; generation of alternative courses of action; evaluation of each alternative against the decision criteria; and alternative-selection that concludes the decision-making process.

An alternative to the rationalist paradigm, the behavioralist paradigm is less constrained and takes a softer approach to analyzing decision-making. Unlike the rational choice paradigm that analyzes structures, process, and markets, the behavioralist paradigm focuses on the information processing approach and takes into consideration how people really are and how they interact, organize, and act. While it makes fewer assumptions, the behavioralist paradigm may be realistic, in that it recognizes, accepts, and takes into considerations the human nature with its limitations, as well as vast potential.

The behavioralist paradigm uses concepts like motivation, emotion, communication, novelty, innovation, bounded rationality, and judgmental shortcuts. Two Nobel Prize holders in economics were recognized for their contributions in this area. In 1970s, Herbert Simon was rewarded for his observation that decision-makers satisfice that is defined as choosing a good-enough alternative, rather than optimize or maximize decisions, and that their decision-making abilities are affected by bounded rationality. The bounded rationality concept was defined as a real-world decision-making that is affected by limited resources, incomplete and imperfect information, and limited decision-making capabilities. Several years ago, Daniel Kahneman was rewarded for his work, developed with Amos Tversky, aimed at the identification of judgmental shortcuts that decision-makers consistently use. The underlining thesis of the Simon, Kahneman,

and Tversky research is that decision-making is never perfect and that decision-makers rarely choose optimal decisions that provide maximum benefit.

Heuristics and biases: How do people make less-than-rational decisions?

The behaviorist paradigm and less-than-rational decision-making take into consideration the people tendency to apply intuition, insights, emotional assessments, perceptual flexibility, experiences and tacit knowledge, heuristics and biases. Whereas heuristics are defined as highly useful mental tricks or rules of thumb that we use to simplify decision making, biases are considered to be common errors that result from the use of heuristics. Some of the most recognized heuristics, as well as the biases associated to them, are summarized below:

Availability heuristics – individuals assess the frequency, probability, or likely causes of an event by the degree to which instances or occurrences of that event are readily “available” in memory. Biases related to the availability bias include:

ease of recall – individuals judge events that are more easily recalled from memory, based upon vividness or recency, to be more numerous than events of equal frequency whose instances are less easily recalled.

presumed associations – individuals tend to overestimate the probability of two events co-occurring based upon the number of similar associations that are easily recalled, whether from experience or social influence.

Representativeness heuristics – tendency to assign to categories (called schemas) based upon simple resemblance or “goodness of fit” to individual categories and then react upon characteristics of that category. (Schemas – knowledge stored in a categorical structure which

often is hierarchical; not normally expressed in a verbal cognitive form or propositional form).

Biases emanating from the representativeness heuristic include:

insensitivity to base rates – individuals tend to ignore the base rates in assessing the likelihood of events when any other descriptive information is provided, even if it is irrelevant.

insensitivity to sample size – individuals fail to appreciate the role of sample size in assessing the reliability and usefulness of sample information.

misconceptions of chance – individuals expect that a sequence of data generated by a random process will look “random,” even when the sequence is too short for those expectations to be statistically valid.

regression to the mean – individuals tend to ignore that extreme events tend to regress to the mean on subsequent trials.

Anchoring and adjustments heuristics – assess by starting from an initial value and adjusting it to yield a final value/decision. Biases related to anchoring and adjustment heuristics include:

insufficient anchor adjustment – individuals make estimates based upon an initial value (derived from past experience, random assignment, or whatever information is available) and typically make insufficient adjustments from that anchor when establishing a final value).

conjunctive and disjunctive events bias – individuals exhibit a bias toward overestimating the probability of conjunctive events and underestimating the probability of disjunctive events.

overconfidence- individuals tend to be overconfident of the infallibility of their judgments when answering moderately to extremely difficult questions.

Two other *general biases* are:

hindsight and the curse of knowledge – after finding out whether or not an event occurred, individuals tend to overestimate the degree to which they would have correctly predicted the correct outcome. Furthermore, individuals fail to ignore information that they possess which others do not when predicting others' behavior.

coincidence – conclude that two factors/variables are causally related because they happened together in a rare event.

Two other *biases that affect investors*:

disposition effect – predisposition to hold losers too long and sell winners too soon.

loss aversion – reluctance to sell at a loss as the investor hopes to get back to at least even.

A type of heuristic and its consequences: How can people make interpersonal decisions?

This study focuses on one specific heuristic – the primacy effect – and one bias that is associated with the use of this heuristic – confirmatory behavior. Rather than simply creating an inventory list of biases and heuristics and arguing in support of their avoidance, this study takes a different approach. It starts from the premise that the use of some of these biases and heuristics is one characteristic of the human nature and, therefore, hard to avoid. Moreover, this study searches to identify circumstances under which the use of the primacy effect and confirmatory behavior may have some merits.

According to the primacy effect, within the first 2 or 3 minutes after the beginning of an interpersonal interaction with a non-acquaintance, individuals form first impressions about that other individual. These impressions tend to be durable, sometime accurate, and drive the rest of the interaction with that individual. Confirmatory behavior, sometimes called, by detractors, confirmation trap, is a bias related to the primacy effect, according to which individuals tend to seek confirmatory information for what they think is true, according to their first impressions and to neglect the search for disconfirmatory evidence.

Interpersonal interaction is ubiquitous in organizational environments. Most of the time, the interacting organizational members formally or informally evaluate each other. Whether the evaluations are used for organizational purposes (i.e., the evaluation of a subordinate that is part of a performance appraisal) or for individual purposes (i.e., the management of interpersonal relationships within the organization), they have important consequences for individual and organizational outcomes, such as perceived justice, satisfaction, and performance.

Formal evaluations that are carried out for organizational purposes may be concluded in decisions regarding other people. As with most interpersonal decisions, these decisions tend to be complex and difficult. They may involve collections and analyses of large volumes of information, which can be perceived differently by various people. These decisions may also involve time pressure or other contextual characteristics that make decisions even more difficult. Finally, the individuals who are evaluated may filter information about themselves so as to increase the likelihood of favorable decisions.

Given this complexity and difficulty, some decisions for the purpose of formal evaluation that follow interpersonal interactions may be made by using less than rational decision-making approaches. One such approach consists of engaging in confirmatory behaviors. *Confirmatory*

behaviors or “expectancy confirmation” behaviors (Dougherty, Turban, & Callender, 1994) consist of evaluators’ behaviors that are intended to confirm evaluators’ first impressions, such that final decisions are positively correlated with first impressions. When final decisions are uncorrelated with first impressions, it is likely that evaluators do not engage in confirmatory behavior; instead, their behaviors toward the other individual may be considered as unbiased or, at least, not influenced by first impressions.

Assuming that not all decision-makers are equally predisposed toward using less-than-rational decision-making approaches, this research intends to identify how likely employment interview decision-makers are to use confirmatory behaviors, and what personal traits and situational factors may predispose them to use these behaviors. Currently, there is not much evidence that personal traits influence confirmatory behaviors. Accordingly, this research examines two personality traits (conscientiousness and openness to experience), two motivational traits (need for cognition and need for cognitive closure), and two situational factors (time and first impressions) that may predispose decision-makers to engage in these behaviors. Both direct and interactional effects of these dispositional and situational variables on confirmatory behaviors are discussed.

The proposed study searches to assess the relationships between first impressions and behaviors during interpersonal interactions. The study focuses on the degree to which evaluators engage in confirmatory behavior, and dispositional and contextual factors that stimulate them to engage in this behavior. From a practical perspective, this study is intended to shed additional light on the effectiveness and potential limitations of the recruitment and selection processes. Despite apparent confidence that evaluators are generally able to identify individual strength and weaknesses and accurately characterize other individuals, it seems that the post-hiring

evaluations of these individuals are, in some cases, less favorable. For instance, in the 2004 Federal Human Capital Survey only 44% of the 150,000 respondents indicated that their work unit is able to “recruit people with the right skills.” According to the same report, only 31% of the respondents believed that personnel decisions in their work unit are based on merit, whereas the same percentage of the respondents believed that these decisions are not based on merit.

Rationality in interpersonal interactions

According to the rationality literature (e.g., Shafir & LeBoeuf, 2002), the term *rational* has a more technical meaning than its general dictionary definition of *agreeable to reason* and of *sound mind*. Specifically, this term refers to consistency and conformity with normative criteria. Most of the research in the rationality area suggests that some failures of rationality are attributable to the specific ways in which people process information and make decisions, rather than to the computational, time, memory, and attention limitations of the human mind (Shafir & LeBoeuf, 2002). Often, failures of rationality may happen in the context of interpersonal interaction and evaluation, where the evaluators’ perceptions may affect their rationality, defined as conformity with some type of normative criteria (Shafir & LeBoeuf, 2002) pre-established by evaluators and, consequently, influence the decision. Moreover, the evaluators may use less rational decision-making during interpersonal evaluations of non-acquaintances and when they process large amounts and less quantifiable information, as is likely to happen in the employment interview.

Failures of rationality like those just described may be attributed to the use of inadequate information-processing and decision-making strategies. However, the identification of an absolute way of assessing the adequacy of a strategy across time, persons, situations, or cultures

is unlikely. Therefore, the estimation of the decision's rationality in these contexts tends to be subjective, context-dependent, and influenced by the impressions and expectations of people involved. Thus, what is considered as rational by one evaluator may be considered as less rational by another evaluator who uses a different criterion. For example, estimation of the rationality of decisions regarding placement of machinery on a plant floor is likely to be based on well-defined norms. In an interpersonal context, however, the rationality of a decision tends to be estimated in accord with the norms and expectations of the different evaluators. In sum, an estimation of rationality may be idiosyncratic. It might be that alternatives to rationality can better serve the objective of assessing, predicting, and evaluating.

Moreover, the rationality of decision-making is not necessarily an objective in itself. Within a pragmatic approach dictated by efficiency and utility concerns, rationality might be better considered as a means toward the final objective of making an accurate decision, rather than as an end in itself. Whether a decision is regarded as rational or not might be considered of secondary importance, as long as the methods, norms, and motivations guiding the decision-making prove optimal. Likewise, in the context of interpersonal evaluation, the decisions made using less than rational decision-making are not necessarily inaccurate and might have some merits.

Indeed, some researchers (e.g., Rynes, Gerhart, & Parks, 2005) have identified a number of potential advantages of less rational decision-making models in the context of interpersonal evaluation. Rynes et al. (2005) observed that evaluations that are based on subjective and less-verifiable criteria may be more adequate than evaluations made using objective criteria, as indicators of the full range of expected performance. Rynes et al. (2005) defended their opinion that subjective and less-verifiable criteria may be more adequate for evaluation under certain

conditions than objective criteria, by arguing that the former carry less risk of measurement deficiency. In this case, measurement deficiency is defined as an exclusive focus on a limited set of criteria, usually explicitly measured and objective criteria. Unlike objective criteria, the subjective and less-verifiable criteria are more holistic and, accordingly, less affected by the possibility that an evaluator would not see the *forest* because of the *trees*; that is, an evaluator who uses subjective criteria is less likely to focus too much on narrow objective criteria at the expense of a comprehensive evaluation.

Predictor variables

Conscientiousness

Saucier and Ostendorf (1999) identified four subcomponents of the conscientiousness trait: (1) *orderliness* (i.e., organized, neat, scrupulous, and meticulous versus disorderly, sloppy, unsystematic, and careless); (2) *decisiveness-consistency* (i.e., decisive, firm, persistent, and steady versus scatterbrained and inconsistent); (3) *reliability* or *trustworthiness* (i.e., dependable, responsible, prompt, punctual, respectful versus unreliable); and (4) *industriousness* (i.e., ambitious and purposeful, versus aimless, negligent, and lazy)

Conscientiousness has been positively related to job performance across performance measures and across many occupational groupings (Barrick, Mount, & Judge, 2001), as well as to other criteria such as job satisfaction, income, and occupational status (Perrewe & Spector, 2002). Conscientious individuals typically think carefully before acting, are hardworking, self-disciplined, and resist distracting impulses (Deluga & Masson, 2000). They behave in a goal-directed manner, characterized by the tendency to think before acting, delay gratification, follow norms and rules, and take priorities (John & Srivastava, 1999). In a study of 164 sales

representatives, Barrick, Stewart, and Piotrowski (2002) found that conscientiousness was significantly related to accomplishment striving ($r = .39$).

Despite the apparent consistency of conscientiousness in predicting several desirable criteria in interpersonal and organizational contexts (e.g., job performance, satisfaction, income, accomplishment striving, motivation to learn), it has also been found to have some equivocal effects. For instance, although conscientious people exhibit goal-directed behavior and are dependable and thorough, they also tend to be workaholic and overly meticulous and orderly (George & Zhou, 2001), and tend to manifest an excessive preference for predictability (Hogan & Ones, 1997). Moreover, the excessively conscientious individuals may be compulsive, stingy, dependent, and stubborn (Hogan & Ones, 1997).

Openness to Experience

A different personality trait that could foster the use of heuristics is openness to experience. The openness-to-experience construct is relatively heterogeneous (Hough, 2003) and the least well understood personality construct in the big five personality traits literature (Digman, 1990). For instance, Hough (2003) suggested that the openness-to-experience research would highly benefit from a better explanation of the construct validity (nomological nets) of its subcomponents. Abiding by this suggestion, Griffin and Hesketh (2004) believed that the openness-to-experience construct consists of two dimensions that relate differentially to job performance, thus reducing correlations between the overall measure of openness to experience and performance criteria. Following the same suggestion, Saucier and Ostendorf (1999) identified three subcomponents of the openness-to-experience construct: (1) *intellect* (i.e., intelligent, intellectual, analytical, knowledgeable, complex, and curious versus unreflective); (2)

imagination-creativity (i.e., artistic, clever, innovative versus uncreative and conventional); and (3) *perceptiveness* or *farsightedness* (i.e., insightful, foresighted versus unobservant).

Need for Cognitive Closure

In previous research, need for cognitive closure has been described as the tendency to process information quickly, formulate a solution, and maintain a clear view of the situation, as opposed to accepting confusion, ambiguity, or uncertainty. Research on need for closure, led in the last two decades by Kruglanski and Webster, suggests that need for closure varies along a continuum. At one end of the continuum, high need-for-closure individuals display cognitive impatience, thought rigidity, a tendency to leap to judgment on the basis of inconclusive evidence (Kruglanski & Webster, 1996); experience particular stress in relatively unfamiliar environments (Kosic, Kruglanski, Pierro, & Mannetti, 2004) and have a tendency toward self-enhancement (Taris, 2000). At the other end of the continuum, low need-for-closure individuals tend to increase the level of information processing, engage in extensive information search and processing, and generate multiple interpretations of the data collected (Kruglanski & Webster, 1996; Mayseless & Kruglanski, 1987).

Need for Cognition

Need for cognition has been conceptualized as the dispositional tendency to engage in effortful processing (Cacioppo & Petty, 1982). Unlike high need-for-cognitive-closure individuals who think only as hard as is necessary to reach satisfactory decisions and prefer the *outcome of thinking*, high need-for-cognition individuals tend to be thoughtful (Chatterjee, Heath, Milberg, & France, 2000) and favor the *process of thinking*.

In contrast to low need-for-cognition individuals, individuals characterized by high need for cognition show greater depth and breadth of information search (Levin, Huneke, & Jasper, 2000), are more knowledgeable about and recall more of the information to which they have been exposed (Cacioppo, Petty, Feinstein, & Jarvis, 1996), interpret more cognitive information (Sojka & Giese, 2001), and are more likely to evaluate the quality of the argument and engage in more thorough processing of persuasive communications (Haugtvedt, Petty, & Cacioppo, 1992). Moreover, high need-for-cognition individuals are likely to engage in explanatory thinking (Lassiter, Briggs, & Slaw, 1991), develop complex causal explanations for the behavior of others (Fletcher, Danilovis, Fernandez, Peterson, & Reeder, 1986), and hold attitudes that are concordant (Thompson & Zanna, 1995), persistent over time, and resistant to change (Haugtvedt & Petty, 1992).

Conversely, people situated at the low end of the need-for-cognition continuum tend to avoid effortful processing and are persuaded by the peripheral, rather than substantive, cues (Cacioppo et al., 1996). They are routinely outperformed by high need-for-cognition individuals in solving complex and ill-defined problems (Unnikrishnan Nair, & Ramnarayan, 2000). When compared to high need-for-cognition individuals, low need-for-cognition individuals are more likely to fall victim to framing effects, which are thought to be due to susceptibility to peripheral, rather than substantive, cues (Zhang & Buda, 1999; Smith & Levin, 1996).

Confirmatory behavior

Interviewers may show during interviews either positive or negative regard toward applicants. Depending on first impressions formed about an applicant (i.e., whether they are positive or negative), positive regard may signal a tendency to engage in confirmatory behavior

(when first impressions are positive). Similarly, negative regard may indicate that interviewers engage in confirmatory behavior (when first impressions are negative). In a confirmatory behavior study, Dougherty et al. (1994) found that positive regard is associated with confirmatory behavior, in that interviewers who formed positive first impressions about an applicant tended to be supportive and agree with that applicant. Therefore, whether an interviewer engages in confirmatory behavior toward the applicant was established *based on the interviewer's first impressions about the applicant and positive or negative regard shown to the applicant*. Using the same measures that were used by Dougherty et al. (1994), the proposed study measured interviewer's regard toward the applicant based on three coders' tallies (for the first three indicators) and ratings on 7-point scales (for the last three indicators) of the following interview behaviors for each interview.

In addition, interviewers' information-gathering strategies were measured based on the coders' tallies of questions, according to the procedure used by Dipboye, Fontenelle, and Garner (1984). The measures of the information-gathering strategies will be based on the number of initial questions introducing a topic (i.e., interview items, such as education, work experience, goals, team working, personality traits, specific skills and abilities) and probes (i.e., questions following up and probing applicants' previous answers).

Analyses

Hierarchical Regression Analyses

Table 4.1 presents four regression models that predict the interviewers' confirmatory behavior. In Model 1, only the demographic variables were entered. In addition to demographic

TABLE 4.1
Results of Regression Analyses Predicting Aggregate Confirmatory Behavior

Variables	Model 1	Model 2	Model 3	Model 4
	Demographics	Controls	Predictors	Interactions
Interview time	.08	.12	.07	.05
Interviewer age	.39**	.23*	.25*	.28*
Interviewer GPA	.03	-.01	-.02	.04
Interviewer gender	.09	.09	.07	.09
Interviewer ethnicity	-.01	-.11	-.19*	-.24*
Interviewer work experience	-.28*	-.20	-.28*	-.33*
Interviewer experience as an applicant	.08	-.01	-.15	-.13
Interviewer interviewing experience	.17**	.19**	.30**	.33**
Interviewer perceived time pressure		.16*	.18	-.41
Interview impression management		-.16*	-.23*	-.11
Interviewer training		-.08	-.22**	-.20*
Interviewer comfort with the interview		.04	.03	-.04
Interviewer accountability		-.31**	-.36**	-.18
Interviewer perceived ability to evaluate		.30**	.22*	.05
Interviewer openness to experience			.01	.05
Interviewer conscientiousness			-.18	-.41
Interviewer need for cognitive closure			-.21*	-.16
Interviewer need for cognition			.14	.19
Conscientiousness x time pressure				.58
Need for cognition x extremity of first impressions				.39**
ΔR^2	.09	.04	.09	.13
Total R^2	.09	.13	.22	.35
F value	3.57**	4.05**	3.90**	6.70**

Notes: Numbers followed by the '*' sign indicate standardized regression coefficients significant at $p \leq .05$
Numbers followed by the '**' sign indicate standardized regression coefficients significant at $p \leq .01$

variables, Model 2 included the control variables. In Model 3, the personality and motivational traits variables, which were hypothesized to predict the tendency to engage in confirmatory

behavior, were entered. Finally, Model 4 included the interaction terms that were hypothesized to predict confirmatory behavior, in addition to the variables that appeared in the first three models. This last model (Model 4) demonstrates that one of the two interaction terms explains a significant amount of variance in the dependent variable ($\Delta R^2 = .13$, $p \leq .01$) beyond all variables from the first three models. This indicates that the influence of the interviewers' need for cognition over their tendency to engage in confirmatory behavior was moderated by the extremity of first impressions (i.e., strong or moderate impressions) formed by interviewers at the beginning of each of the interviews they conducted.

In Table 4.2 the same four regression models predicted non-verbal confirmatory behavior, which was defined as confirmatory behavior based exclusively on the interviewers' non-verbal behavior during interviews, including eye contact and head nodding. With only one notable exception, the other two sets of regression models, which predicted style confirmatory behavior based on interview style and orientation confirmatory behavior based on the interviewers' orientation (i.e., tendency to promote the program or scrutinize their interviewees) produced similar results to those in Table 4.1. The exception was the fourth regression model that predicted orientation confirmatory behavior. In that model, in addition to the significant variables indicated in the last column from each Table 4.1 and Table 4.2, orientation confirmatory behavior was predicted by the interviewer's need for cognitive closure ($r = -.22$) and accountability ($r = -.24$).

Interviewer's need for cognitive closure was also found to be a significant predictor of the agreement confirmatory behavior ($r = -.26$) calculated based on the number of interviewer statements agreeing with the interviewee. Interviewer's conscientiousness predicted type-of-questions confirmatory behavior ($r = -.22$) calculated based on the number of closed questions

TABLE 4.2
Results of Regression Analyses Predicting Non-Verbal Confirmatory Behavior

Variables	Model 1	Model 2	Model 3	Model 4
	Demographics	Controls	Predictors	Interactions
Interview time	.07	.11	.06	.04
Interviewer age	.40**	.23*	.24*	.28*
Interviewer GPA	.04	-.01	-.01	.05
Interviewer gender	.10	.10	.08	.10
Interviewer ethnicity	-.03	-.14	-.21*	-.25**
Interviewer work experience	-.27*	-.18**	-.25	-.30*
Interviewer experience as an applicant	.09	-.01	-.16	-.13
Interviewer interviewing experience	.15*	.18*	.29**	.32**
Interviewer perceived time pressure		.17*	.17	-.46
Interviewer impression management		-.18*	-.25**	-.14
Interview training		-.10	-.23**	-.21*
Interviewer comfort with the interview		.03	.02	-.05
Interviewer accountability		-.31**	-.36**	-.17
Interviewer perceived ability to evaluate		.30**	.24*	.07
Interviewer openness to experience			-.03	.02
Interviewer conscientiousness			-.20*	-.45
Interviewer need for cognitive closure			-.18	-.13
Interviewer need for cognition			.16	.22
Conscientiousness x time pressure				.63
Need for cognition x extremity of first impressions				.40**
ΔR^2	.09	.03	.10	.14
Total R^2	.09	.12	.22	.36
F value	3.48**	4.08**	3.85**	6.75**

Notes: Numbers followed by the '*' sign indicate standardized regression coefficients significant at $p \leq .05$
Numbers followed by the '**' sign indicate standardized regression coefficients significant at $p \leq .01$

(as opposed to open-ended question) asked by the interviewer during the interview. Number-of-questions confirmatory behavior was significantly predicted by the interviewer's need for closure ($r = .31$), as well as by the interaction term between need for closure and extremity of first impression ($r = .38$).

Across all four models predicting aggregate confirmatory behavior (Table 4.1), interviewer age and interviewing experience were significant predictors of the dependent variable, suggesting that older interviewers and those who have conducted a larger number of interviews were more likely to engage in confirmatory behavior than younger interviewers and those who conducted fewer interviews, respectively. While interviewer work experience was also significantly predicting confirmatory behavior, the results from Table 4.1 suggest that interviewers who had more work experience engaged in less confirmatory behavior. The apparent contradiction, according to which less work-experienced but more interview-experienced interviewers engaged in more confirmatory behavior, may be explained by the specific characteristics of the research sample, as indicated by the low and insignificant correlation between the work experience and interviewing experience.

Interviewer training was also negatively associated with aggregate confirmatory behavior, suggesting that interviewers who spent more time in interview training sessions were less likely to engage in confirmatory behavior than were less trained interviewers. However, interviewers' training was not correlated to their perceived ability to make accurate evaluations ($r = -.02$). Moreover, in Model 3 from Table 4.1, the interviewer perceived ability to evaluate was positively associated with aggregate confirmatory behavior, such that interviewers who perceived to be more able to make accurate evaluations were more likely to engage in confirmatory behavior. Therefore, it can be suggested that by training interviewers, one can

reduce their engagement in confirmatory behavior, but not necessarily improve their evaluation abilities during interviews.

Regarding the first four hypotheses, only the last one received support, given the significant interaction term between need for cognition and extremity of first impressions that predicted the interviewers' engagement in confirmatory behavior. In addition, the need for cognitive closure was associated with confirmatory behavior, but in the opposite direction than that hypothesized. The relation between this interaction and confirmatory behavior, as well the relations between the other three independent variables (interviewers' openness to experience, conscientiousness, and need for cognitive closure) and confirmatory behavior were further analyzed.

Multilevel Analyses

Rationale. The data collected for this study was structured at two different levels: individual (i.e., interviewee or interview level) and group (i.e., interviewer level). The sample of data used in this analysis had multiple groups or "clusters," where each group was formed of all the interviews conducted by one interviewer.

Intra-class correlation ICC coefficient assessed the within-group similarity, which is the degree to which the observations from the same group were similar. When $ICC = 0$, all variance is considered to be within-group variance; therefore, the grouping doesn't matter and the multilevel analysis is not required. The ICC of the confirmatory behavior dependent variable equaled 0.1896 and was calculated as the proportion of total between-groups variance: $39.8737 / (39.8737 + 170.42) = 0.1896$, which is in line with typical ICC values for behavioral research.

The harmonic mean of group sizes, which represent the number of interviews conducted by each interviewer was 7.8248. Using the harmonic mean, the design effect DE that measures the loss of information due to clustering was $1 + (7.8248 - 1) 0.1896 = 2.2940$. With non-zero ICC, as it was the case in this analysis, adding a new observation from an existing group (i.e., a new interview conducted by one the interviewers) did not add an “observation’s worth” of data.

Using DE, the effective sample size was $(41 \times 7.8248) / 2.2940 = 139.9$. Accordingly, the clustered sample in this analysis was equivalent to a simple random sample of about 140 participants (i.e., interviewees and interviews). However, would the analysis ignored the clustering and run as if observation were independent, the independence of errors assumption would have been broken, which would have downwardly biased standard errors and inflated the probability of making Type I error. The extent of α inflation for ICC = 0.2 and group size = 10 (which are the closest from the values in this study: ICC = 0.1896 and group size = 7.8248 than any other indicated values) is 0.28 for a nominal value of 0.05.

Hypothesis 1 Analyses. The regression equation that predicted interviewers’ tendency to engage in confirmatory behavior based on their conscientiousness and time pressure is represented in Equation 4.1:

$$\begin{aligned} \text{Confirmatory behavior} = & 9.4812 - 0.6318 \times \text{Conscientiousness} - \\ & 3.2528 \times \text{Time pressure} + 0.9583 \times \text{Conscientiousness} * \text{Time} \\ & \text{pressure} + \text{Level 1 errors} + \text{Level 2 errors} \end{aligned} \quad (4.1)$$

but no regression coefficient was significant at $p < 0.1$ level.

No support was found for the second hypothesis that predicted an interaction effect of conscientiousness and time pressure in predicting confirmatory behavior.

Hypothesis 2 Analyses. The regression equation that predicted interviewers' tendency to engage in confirmatory behavior based on their openness to experience is represented in Equation 4.2:

$$\text{Confirmatory behavior} = -9.9866 + 4.8566^+ \times \text{Openness to experience} + \text{Level 1 error} + \text{Level 2 error} \quad (4.2)$$

where the slope coefficient was significant at $p < 0.1$ level (as indicated by $^+$).

According to the equation 4.2, the expected change in confirmatory behavior for a one unit increase in openness to experience was 4.8566 ($t_{39} = 1.92$, $p = 0.0623$) units. As the openness to experience value increased, the confirmatory behavior value also increased, suggesting support for the opposite direction than that predicted in the first hypothesis, in that openness to experience is positively correlated to confirmatory behavior.

Hypothesis 3 Analyses. The regression equation that predicted interviewers' tendency to engage in confirmatory behavior based on their need for cognitive closure is represented in Equation 4.3:

$$\text{Confirmatory behavior} = 25.2954^* - 5.7485 \times \text{Need for cognitive closure} + \text{Level 1 error} + \text{Level 2 error} \quad (4.3)$$

where the intercept was significant at $p = 0.0277$ level (as indicated by $*$).

According to the equation 4.3, the overall expected value of confirmatory behavior was 25.2954 ($t_{39} = 2.29$, $p = 0.0277$) units, with all else being zero. This value represents the overall level of intercept or "average" level of confirmatory behavior. That is the expected value of confirmatory behavior for a zero value of the need for cognitive closure was 25.2954. As the

need for cognitive closure value increased, the confirmatory behavior value decreased but remained positive (i.e., interviewers still engaged in some confirmatory behavior during interviews). Only for very high values of need for cognitive closure (i.e., close to 5), the predicted values of confirmatory behavior became negative, suggesting no engagement in confirmatory behavior. However, the hypothesis 3 was not supported, since high need for cognitive closure was associated with less confirmatory behavior, contrary to this hypothesis. The covariance for the means of interviewers was 38.0691 ($Z = 2.76$, $p = 0.0029$) indicating that the variance of the mean confirmatory behavior between interviewers was significant, that is some participants engaged in significant more confirmatory behavior than others.

Hypothesis 4 Analyses

The regression equation that predicted interviewers' tendency to engage in confirmatory behavior based on their need for cognition and extremity of first impressions formed regarding their interviewees is represented in Equation 4.4:

$$\text{Confirmatory behavior} = -3.6807 + 2.1352 \times \text{Need for cognition} - 17.7886^+ \times \text{Extremity of first impressions} + 7.9849^{**} \times \text{Need for cognition} \times \text{Extremity of first impressions} + \text{Level 1 and 2 errors} \quad (4.4)$$

where the slope coefficient for "Extremity of first impressions" was only significant at $p < 0.1$ level (as indicated by $^+$) and the slope coefficient for the interaction term was significant at $p < 0.01$ level (as indicated by **).

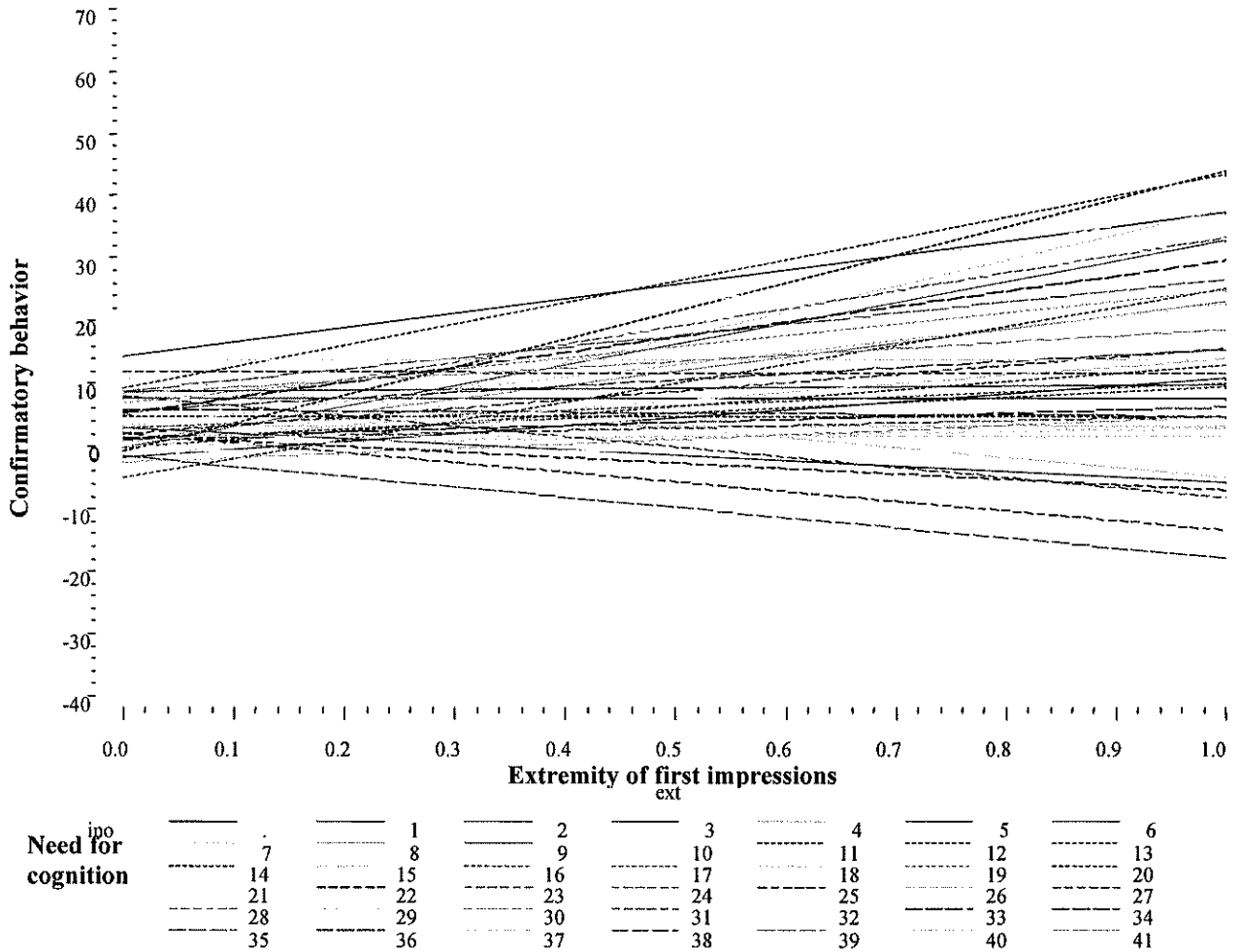
According to the equation 4.4, the additional expected effect of the extremity of first impressions on the tendency to engage in confirmatory behavior was -17.7886 ($t_{278} = -1.68$, $p = 0.0946$) units for each unit increase of the extremity of first impressions formed by interviewers

before interviews. Meanwhile, the cross level interaction effect of extremity of first impressions and need for cognition on confirmatory behavior was 7.9849 ($t_{278} = 2.84$, $p = 0.0049$) units. The covariance for the means of interviewers was 28.0321 ($Z = 2.63$, $p = 0.0043$) indicating that the variance of the mean confirmatory behavior between interviewers was significant, that is some participants engaged in significant more confirmatory behavior than others. The regression lines that indicate the relation between extremity of first impressions and confirmatory behavior for each of the interviewers who participated in this study are represented in Figure 4.1. For most interviewers, confirmatory behavior was positively related to the extremity of first impressions.

The fourth hypothesis was at least partially supported: an interaction effect of need for cognition and extremity of first impressions was significant $p < 0.01$ level and predicted interviewers' engagement in confirmatory behavior. To further analyze the relationship between need for cognition, extremity of first impressions, and confirmatory behavior, a model of moderation was tested. This model analyzed the interaction between need for cognition and extremity of first impressions and its effect on confirmatory behavior. Need for cognition predicted the engagement in confirmatory behavior, as does the extremity of first impressions. The two-way interaction involving need for cognition and extremity of first impressions interaction, entered in the hierarchical regression equation in a second step predicted confirmatory behavior over and above the main effects of the two predictors: χ^2 criterion ($2532.6 - 2520.7 = 11.9$) was significant, as it was greater than χ^2 value at $\alpha = 0.01$).

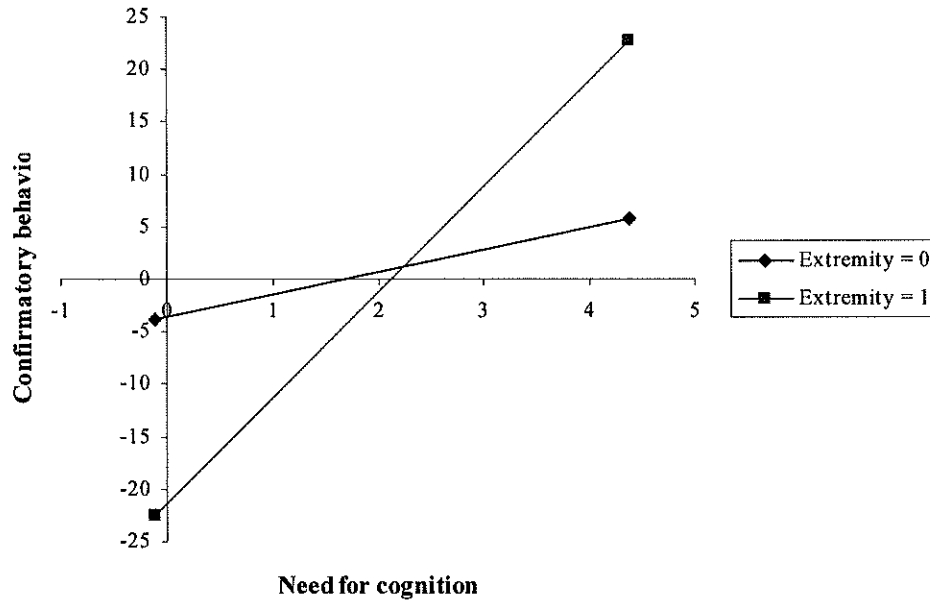
The interaction effect discussed above is represented in Figure 4.2. As hypothesized, the graphic representation illustrates that high need for cognition interviewers who formed extreme were the least likely to engage in confirmatory behavior. The same tendency was maintained for interviewers who formed moderate first impressions, with high need for cognition interviewers

FIGURE 4.1
Interaction Effect of Need for Cognition and Extremity of First Impressions



first impressions (either positive or negative) were the most likely to engage in confirmatory behavior, whereas the low need for cognition interviewers who formed extreme impressions more likely to engage in confirmatory behavior than low need for cognition interviewers who form moderate first impressions. However, as illustrated in Figure 4.2, high need for cognition interviewers who formed extreme first impressions were more likely to engage in confirmatory behavior than those who formed moderate first impressions, while low need for cognition

FIGURE 4.2
Interaction Effect of Need for Cognition and Extremity of First Impressions



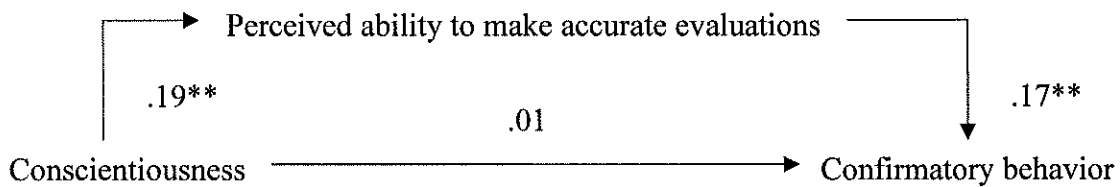
interviewers who formed extreme first impressions engaged in less confirmatory behavior than low need for cognition interviewers who formed moderate first impressions.

Supplementary Analyses

Upon further analyses of the Hypothesis 2, some support was found for the mediational effect of the perceived ability variable – that measured the interviewers’ perceived ability to evaluate with accuracy other people – on the relationship between conscientiousness and confirmatory behavior. Following the procedure detailed by Krull and MacKinnon (2001), the mediational model, represented in Figure 4.3, includes both the initial and mediator variables at the group level (i.e., interviewer’s conscientiousness and perceived ability, respectively). The estimate of the mediated effect using the coefficient that estimated the extent to which conscientiousness caused changes in perceived ability and the coefficient that estimated the

extent to which perceived ability caused changes in confirmatory behavior was $0.19045 \times 0.17167 = 0.03269$. Both coefficients that form the product were significant at $p = 0.01$ level.

FIGURE 4.3
Mediation Model of Conscientiousness and Perceived Ability to Make Accurate Evaluations of Other People



The model from Figure 4.3 suggests that the relationship of conscientiousness with confirmatory behavior was almost entirely mediated by the interviewers' perceived ability to accurately evaluate other people, so that conscientiousness individuals tend to perceive that they have a better ability to accurately evaluate others, and individuals who perceive to have such an ability engaged in more confirmatory behavior toward their interacting partners.

Finally, to summarize this section, Table 4.5 includes an overview of all hypotheses and research question. According to Table 4.5, one hypothesis was not supported, one hypothesis received partial support (for only part of its predictions), and the other two hypotheses received support for the opposite direction of the relationship between predictors and confirmatory behavior than the ones hypothesized. Finally, the research question revealed that more subtle cues than behavior may drive the interviewees' matching demeanor. Specifically, a multilevel analysis indicated that the interviewers' interviews style, which captured intangible, attitudinal-based indicators of the interviewers' first impressions predicted their interviewees' matching demeanor.

TABLE 4.5
Overview of Hypotheses and Research Question

Hypothesis or Research Question	Support for the hypothesized relation
Hypotheses 1a, 1b: Conscientiousness is negatively related to confirmatory behavior; this relation is weaker for brief interviews	supported in the opposite direction than hypothesized
Hypothesis 2: openness to experience is negatively related to confirmatory behavior	not supported
Hypothesis 3: Need for cognitive closure is positively related to confirmatory behavior	supported in the opposite direction than hypothesized
Hypothesis 4: Intensity of first impressions moderates the relation between need for cognition and confirmatory behavior	partially supported (confirmatory behavior occurs for high need for cognition and extreme first impressions)
Research Question Is the applicant's behavioral confirmation related to interviewer's confirmatory behavior?	support for the interview style – matching behavior relationship

References

- Barrick, M.R., Stewart, G.L., & Piotrowski, M. (2002). Personality and job performance: Test of the mediating effects of motivation among sales representatives. *Journal of Applied Psychology, 87*, 43-51.
- Barrick, M.R., Mount, M.K., & Judge, T.A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment, 9*, 9-30.
- Cacioppo, J.T., Petty, R.E., Feinstein, J.A., Jarvis, W.B.G. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin, 119*, 197-253.

- Cacioppo, J.T., & Petty, R.E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116-131.
- Chatterjee, S., Heath, T.B., Milberg, S.J., & France, K.R. (2000). The differential processing of price in gains and losses: The effects of frame and need for cognition. *Journal of Behavioral Decision Making*, 13, 61-75.
- Deluga, R.J., & Masson, S. (2000). Relationship of resident assistant conscientiousness, extraversion, and positive affect with rated performance. *Journal of Research in Personality*, 34, 225-135.
- Digman, J.M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, 41, 417-440.
- Dipboye, R.L., Fontenelle, G.A., & Garner, K. (1984). Effects of previewing the application on interview process and outcomes. *Journal of Applied Psychology*, 69, 118-128.
- Dougherty, T.W., Turban, D.B., & Callender J.C. (1994). Confirming first impressions in the employment interview: A field study of interviewer behavior. *Journal of Applied Psychology*, 79, 659-665.
- Federal Human Capital Survey (2004). What do Federal employees say? Results from the 2004 Federal Human Capital Survey. Retrieved on June 16, 2005 from www.fhcs2004.opm.gov/.
- Fletcher, G.J.O., Danilovis, P., Fernandez, G., Peterson, D., & Reeder, G.D. (1986). Attributional complexity: An individual difference measure. *Journal of Personality and Social Psychology*, 51, 875-884.
- George, J.M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology*, 86, 513-524.

- Griffin, B., & Hesketh, B. (2004). Why openness to experience is not a good predictor of job performance. *International Journal of Selection and Assessment*, 12, 243-251.
- Haugtvedt, C.P. & Petty, R.E. (1992). Personality and persuasion: Need for cognition moderates the persistence and resistance of attitude changes. *Journal of Personality and Social Psychology*, 63, 308-319.
- Haugtvedt, C.P., Petty, R.E., & Cacioppo, J.T. (1992). Need for cognition and advertising: Understanding the role of personality variables in consumer behavior. *Journal of Consumer Behavior*, 1, 239-260.
- Hogan, J., & Ones, D.S. (1997). Conscientiousness and integrity at work. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 849-870). San Diego: Academic.
- Hough, L.M. (2003). Emerging trends and needs in personality research and practice: Beyond main effects. In M.R. Barrick & A.M. Ryan (Eds.), *Personality and work: Reconsidering the role of personality in organizations* (pp. 289-325). San Francisco: Jossey-Bass.
- John, O.P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and theoretical perspectives. In L.A. Pervin & O.P. John (Eds.), *Handbook of personality*, 2nd Ed. (pp. 102-138). New York: Guilford Press.
- Kosic, A., Kruglanski, A.W., Pierro, A., & Mannetti, L. (2004). The social cognition of immigrants' acculturation: Effects of the need for closure and the reference group at entry. *Journal of Personality and Social Psychology*, 86, 796-813.
- Kruglanski, A.W., & Webster, D.M. (1996). Motivated closing of the mind: "Seizing" and "freezing." *Psychology Review*, 2, 263-283.

- Lassiter, G.D., Briggs, M.A., & Slaw, R.D. (1991). Need for cognition, causal processing, and memory for behavior. *Personality and Social Psychology Bulletin*, 17, 694-700.
- Levin, I.P., Huneke, M.E., & Jasper, J.D. (2000). Information processing at successive stages of decision making: Need for cognition and inclusion-exclusion effects. *Organizational Behavior and Human Decision Processes*, 82, 171-193.
- Mayseless, O., & Kruglanski, A.W. (1987). What makes you so sure? Effects of epistemic motivations on judgmental confidence. *Organizational Behavior and Human Decision Processes*, 39, 162-183.
- Perrewe, P.L., & Spector, P.E. (2002). Personality research in the organizational sciences. In G.R. Ferris & J.J. Martocchio (Eds.), *Research in personnel and human resource management*, vol. 21 (pp. 1-63). Amsterdam: JAI Press.
- Rynes, S.L., Gerhart, B., & Parks, L. (2005). Personnel psychology: Performance evaluation and pay for performance. *Annual Review of Psychology*, 56, 571-600.
- Saucier, G., & Ostendorf, F. (1999). Hierarchical subcomponents of the big five personality factors: A cross-language replication. *Journal of Personality and Social Psychology*, 76, 613-627.
- Shafir, E., & LeBoeuf, R.A. (2002). Rationality. *Annual Review of Psychology*, 53, 491-517.
- Smith, S.M., & Levin, I.P. (1996). Need for cognition and choice framing effects. *Journal of Behavioral Decision Making*, 9, 283-290.
- Sojka, J.Z., & Giese, J.L. (2001). The influence of personality traits on the processing of visual and verbal information. *Marketing Letters*, 12, 91-105.
- Taris, T.W. (2000). Dispositional need for cognitive closure and self-enhancing beliefs. *Journal of Social Psychology*, 140, 35-50.

Thompson, M.M., & Zanna, M.P. (1995). The conflicted individual: Personality-based and domain-specific antecedents of ambivalent social attitudes. *Journal of Personality*, 63, 259-288.

Unnikrishnan Nair, K., & Ramnarayan, S. (2000). Individual differences in need for cognition and complex problem solving. *Journal of Research in Personality*, 34, 305-328.

Zhang, Y., & Buda, R. (1999). Moderating effects of need for cognition on responses to positively versus negatively framed advertising messages. *Journal of Advertising*, 27, 1-15