Can the Job Characteristics Model be used to Attract Applicants? A Policy Capture Model of Symbolic Attraction

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A Policy Capture Model of Symbolic Attraction

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Abstract

Recruitment is a multi-stage process meant to inform potential applicants of job openings and attract and retain them throughout the process. Recently, recruitment research has pulled from marketing principles, suggesting that applicants’ values, beliefs, and needs are key bases for attraction. Symbolic attraction, based on information that describes organizational image or experiential aspects of the job, might explain how job content results in applicant attraction. Additionally, several attraction and career interest models posit that individuals choose to enter into situations that allow them to express specific aspects of their personality (e.g., values, beliefs, and behavioral tendencies). Based on the potential link of the experiential aspect of job characteristics within a job ad and individuals’ situational choice, based on their personality, this study tested a series of multi-level models of attraction. Specifically, 58 undergraduate participants from an Industrial/Organizational Psychology and a Management course rated their likeliness to apply to 243 job descriptions within a full factorial policy-capture study design (level 1 sample size = 14,094, level 2 sample size = 58). Job descriptions were generated using all combinations of three levels (low, medium, high) of the five factors of the Job Characteristics Model. Interactions between the five factors of the JCM and the Five Factor Model of personality were also tested. Results showed that all but the skill variety factor of the JCM positively predicted intent to apply, with autonomy emerging as the strongest predictor. In general, the interactional hypotheses of situational choice were not supported.
At the end of December 2017, approximately 5.8 million jobs were still open in the U.S. (Bureau of Labor Statistics, 2018a). Meanwhile, in January 2018, an estimated 6.7 million working-age people in the U.S. were unemployed and still looking for work (Bureau of Labor Statistics, 2018b). Although startlingly large, this figure excludes individuals searching while still employed or those engaging in passive job searches (such as reading job ads without applying; Bureau of Labor Statistics, 2014). Recruitment is one process that could help with these inefficiencies in the labor and employment markets. Generally, the process includes any actions an employer takes to inform job seekers both within and outside of the organization of any job openings, entice job seekers to apply for those openings, maintain applicants’ interest until a job offer is made, and secure job acceptance from a prospective hire or internal transfer (Breaugh, 2008). Aside from allowing employers to target specific populations of job seekers according to the organization’s needs (Breaugh, 2008), research has shown that specific recruitment strategies can positively impact organizational performance (Chen & Huang, 2009; Jiang, Lepak, Hu, & Baer, 2012; Kim & Ployhart, 2014), such as emphasizing corporate social responsibility in recruitment as a means to recruit intrinsically motivated individuals (Buciuniene & Kazlauskite, 2012; Turban & Greening, 1997).

In a review of the recruitment literature, Breaugh and Starke (2000) offered a process model for the recruitment process (figure 1). The model shows that potential applicants form their own initial impressions of the organization and position, with minimal (or sometimes no) knowledge of the specific job. Individuals, then, enter into the organization’s recruitment process by gathering information to gain more accurate perceptions and expectations of the organization and the specific job in question. In this initial process, potential applicants accumulate information on their own, with organizations often providing such information (including in the
form of job descriptions). The would-be applicant uses this information to judge the attractiveness of the job and the organization, including whether the individual’s needs and wants would be met in that role. Although the model continues through the application and selection stages and includes performance and job attitude outcomes, this study focuses on those initial, information-gathering stages. Specifically, this study uses the symbolic information framework (Lievens & Highhouse, 2003), described in detail below, to explain how certain job characteristics taken from the Job Characteristics Model (Hackman & Oldham, 1976), within a job description, can signal to potential applicants that the job in question might be meaningful to them and how that interpretation on the part of potential applicants might positively impact their intent to apply.

Recent research supports the practical value of this job-content approach to studying applicant attraction. Much of the recent research on recruitment has focused on the media through which these communications are delivered (e.g., Allen, Mahto, & Otondo, 2007; Dineen, Ash, & Noe, 2002; Dineen & Noe, 2009; Dineen, Ling, Ash, & DelVecchio, 2007), or, rather than actual job characteristics, on employer image, reputation, or branding (Ployhart, Schmitt, & Tippins, 2017). With an eye towards increasing the practical significance of recruitment research, Uggerslev, Fassina, and Kraichy (2012) conducted a meta-analysis examining the importance of different recruitment aspects (job, organization, and recruitment process characteristics; recruiter behaviors; fit perceptions; hiring expectancies; perceived alternatives; etc.) through multiple recruitment stages (generating applicants, maintaining applicant status, and influencing job choices). They found that characteristics of the job itself were related to applicant attraction across the aforementioned stages. Moreover, whereas they found that different recruitment aspects and processes were more or less predictive of applicant attraction
across recruiting stages, the predictive strength of job characteristics remained roughly consistent across multiple stages (Uggerslev et al., 2012). Moderator analysis also showed that, in field settings, job characteristics were among the strongest predictors of job attraction (Uggerslev et al., 2012).

Another source of applicant attraction lies in the idea that individuals choose to enter situations based on their behavioral tendencies, psychological needs, and personal values (Ickes, Snyder, & Garcia, 1997). A number of attraction and interest models within organizational research include this underlying premise. Holland’s (1978) theory of vocational interests, for example, states that occupational interest is, in part, attributable to individual traits. Social cognitive career theory includes a mechanism in which personal attributes can affect the selection of situations that reinforce interest and self-efficacy in pursuing a given occupation (Lent, Brown, Hackett, 2002). The Attraction-Selection-Attrition model (Schneider, 1987) predicts organizations will attract and select individuals with a similar disposition because of some perceived fit with organizational goals and culture leading to homogeneity within organizations, a prediction that has seen some support (e.g., Ployhart, Weekley, & Baughman, 2006). Common to these models is the idea of situational choice, wherein individuals chose a situation (here, a job or career within a specific organization) based on a perceived fit with some relatively stable individual differences (e.g., stable behavioral tendencies, psychological needs, and personal values, as indicated above). With the idea that job characteristics within a job description can provide clues as to the nature of a job and work environment, this study investigates the possibility that this situational choice mechanism can explain applicant attraction.
Theoretical Background and Hypothesis Development

The Role of Symbolic Information in Job Attraction

Job advertising or job posting can be thought of as an exercise in marketing, with organizations selling a job as the product and aiming to differentiate their “product” from others’ (Ployhart et al., 2017; Ryan, Gubern, & Rodríguez-Ardura, 2000; Schmidt, Chapman, & Jones, 2014). In fact, one framework for thinking about the image of an organization as an employer and about organizational attraction stems from marketing research and the literature on strategic brand concepts and image management. Specifically, the Instrumental-Symbolic Framework (Lievens & Highhouse, 2003) is based on the idea of brand concept management (Gardner & Levy, 1955; Park, Jaworski, & Maclnnis, 1986). Within this marketing approach is a set of three brand concepts or types of information: functional needs that focus on product features and the problems they solve; symbolic needs that satisfy some internal requirement, such as group membership or self-enhancement; and experiential needs that fulfill a desire for variety or stimulation (Park et al., 1986). In applying this model to the early stages of recruitment and to organizational attraction, Lievens and Highhouse (2003) simplified this typology to two types of information an organization might use in their recruitment materials: instrumental and symbolic. Instrumental information closely matches the functional concept from the marketing model, describing the objective, utilitarian aspects of the job like pay, benefits, advancement, job security, and flex work (Lievens & Highhouse, 2003). Symbolic information subsumes two concepts from brand concept management (Gardner & Levy, 1955; Park et al., 1986), the symbolic concept as well as the experiential concept, and describes image-based aspects of the organization or trait inferences applicants might make about the organization. Lievens and Highhouse (2003), citing Katz (1960) and Shavitt (1990), purport that instrumental information
attracts applicants due to a desire to maximize reward and minimize loss and symbolic information attracts applicants through concerns over self-enhancement, a need for consistent self-identification, desire for membership to a specific group, or a need for self-expression of one’s beliefs, personality, and values. Moreover, they argued that job ads from competing organizations might not differ much (if at all) with regard to instrumental information and would differ along symbolic aspects instead (Lievens & Highhouse, 2003). According to this framework, in other words, applicants in the early, information gathering stages of the recruitment process are unlikely to be drawn to a specific job posting on the basis of pay, benefits, and such, because these aspects are unlikely to (1) vary much among sufficiently similar jobs; (2) provided in enough detail to be discriminating for choice; or (3) may not even be included in job advertisements in the first place. Instead, applicants are likely to rely more on symbolic information about the company (e.g., culture, image, reputation) and information about the job tasks themselves (e.g., job characteristics, job demands) in forming their initial preferences.

Research has shown support for the Instrumental-Symbolic Framework. Using both a student and an employee sample to rate the attractiveness of banks, Lievens and Highhouse (2003) showed that instrumental information significantly related to attraction, symbolic information significantly related to attraction incremental to instrumental information, and symbolic information much more strongly explained differences in attraction. Several studies have provided evidence for symbolic information significantly predicting attraction incrementally to instrumental information (Lievens & Highhouse, 2003; Lievens, Van Hoye, & Anseel, 2007; Lievens, 2007; Van Hoye & Saks, 2011; Van Hoye, Bas, Cromheecke & Lievens, 2013; Van Hoye et al., 2014). Additionally, different applicant groups appear to react differently
to instrumental and symbolic information. Whereas, potential applicants in the early, information-gathering stage of recruitment have been shown to value symbolic information more, actual applicants in later stages have been shown to value concrete, instrumental information more (Lievens, 2007). Instrumental and symbolic information positively related to job attractiveness among potential applicants and their companions at a job fair with a stronger relationship between the two forms of information and job attraction for potential applicants compared to their companions (Van Hoye & Saks, 2011). The findings from the original Lievens and Highhouse (2003) study—the predictive utility of instrumental and symbolic information for attraction, the incremental value of symbolic information, and symbolic information functioning as the key differentiator—were later extended to a sample of early-recruitment-stage, potential applicants (Turkish students) specifically chosen such that they were non-Western and highly collectivist (Van Hoye et al., 2013).

An exploratory study of U.S. job advertisements on popular job search websites showed that most job ads include both instrumental (100% of sampled ads) and symbolic (87% of sample ads) information (Nolan, Gohlke, Gilmore, & Rosiello, 2013). Additionally, while the type of instrumental information did not vary across industry, the type of symbolic information did (Nolan et al., 2013), highlighting the idea that symbolic information serves as a key differentiator for applicants. In an earlier study, not intending to test the Instrumental-Symbolic Framework directly, an analysis of print job ads in Belgium (De Cooman & Pepermans, 2012) showed organizations do appear to think of job ads in marketing terms, with organizations accentuating information that is not typically associated with their sector as means of differentiation.

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1 Although Uggerslev et al. (2012) found, in apparent contradiction to Lievens (2007), that organizational characteristics like image and prestige were collectively a stronger predictor of attraction than job characteristics in later recruitment stages, both job and organizational characteristics were collapsed to the category level in the moderator analysis and both included a mix of both symbolic- and instrumental-oriented dimensions.
Interestingly, the researchers (De Cooman & Pepermans, 2012) may have found a special case in which instrumental information, rather than symbolic information, is the key differentiation: non-profit sector jobs. Specifically, they found that whereas potential applicants typically associate non-profit organizations with intrinsic values like altruism, a likely source of symbolic information as it references both an organizational trait and individual value, such organizations in the sample, in an effort to differentiate themselves within their market sector, often stressed more instrumental aspects of job openings in their materials like information about insurance, benefits, etc. The same study did support Highhouse’s and Lievens’ (2003) assertion of symbolic-information-based differentiation when analyzing for-profit job ads (De Cooman & Pepermans, 2012). These findings, however, point to a need for a more nuanced basis of differentiation (at least in the initial information gathering stages of recruitment) in the Instrumental-Symbolic Framework such that organizations may need to purposefully stress information atypical to their sector. That this study found two key aspects of the Lievens and Highhouse (2003) framework in field applications—two types of information in job ads that map well onto the instrumental-symbolic dichotomy and that organizations do market job openings with an eye toward differentiation from competitors—lends support to the practical value of this approach.

In sum, these combined findings show that both organizations and applicants do consider instrumental and symbolic information differently and that, although both forms of information have value in terms of branding and job attraction, symbolic information may be more important in the early stages of recruitment among potential applicants. The consistency of these results across experimental and field studies and a mix of students and actual workers also supports the utility of continuing to further research job attraction within this framework.
The Job Characteristics Model as a Source of Symbolic Attraction

Thinking of recruitment in these marketing terms suggests that communication about job openings requires an understanding of the prospective applicants’ (i.e., consumers’) needs and motives to convince them that a job is an attractive option (Lievens & Highhouse, 2003; Ryan et al., 2000). This idea of appealing to applicant needs and motives is included within the Instrumental-Symbolic Framework discussed above (Lievens & Highhouse, 2003). Focusing specifically on symbolic attraction, potential applicants may be attracted by symbolic information because it speaks to needs related to the maintenance of one’s self-identity and social identity as well as the need to express one’s beliefs, values, or personality (Lievens & Highhouse, 2003). Considering these needs as sources of symbolic attraction, elements of a job description meant to convey the potential meaningfulness an applicant might derive from that job could be considered symbolic information.

Among self-derived sources of work meaningfulness are the expression of one’s values through work and the experience of one’s work as internally motivating (Rosso, Dekas, & Wrzesniewski, 2010). The first source, values, has a direct link with symbolic attraction as an opportunity for self-expression. With regard to internal motivation, when individuals are able to experience work as internally motivating, they are likely to perceive that the work is meaningful either because of a sense of congruence with their self-concept or because the work can enhance their own self-concept (Shamir, 1991). The idea that work is internally motivating because the characteristics of the work and the work environment match with or enhance one’s self-concept relates to both the need to maintain one’s self-identity and for self-enhancement as bases of symbolic attraction.
Rosso and colleagues (2010) specifically pointed to the job characteristics model (JCM; Hackman & Oldham, 1976) as a framework to describe experienced meaningfulness in work. As originally conceived, the JCM included five factors (i.e., skill variety, task identity, task significance, autonomy, and feedback) that contribute to three psychological states (i.e., experienced meaningfulness of the job, experienced responsibility for the work, knowledge of the actual results of the work). These, in turn, contribute to beneficial outcomes both for the organization (high performance quality and low absenteeism and turnover) and the individual (high internal motivation and satisfaction with the work; Hackman & Oldham, 1976).

Within the JCM, task identity and skill variety were included with the argument that being responsible for complete work pieces (task identity) taps into individuals’ valuing competence and that engaging a wide array of one’s skills (skill variety) in the work provides meaning vis-à-vis the individual having to call on valued, personal skills that might form a part of that individual’s self-concept (Hackman & Lawler, 1971). Including these two characteristics in a job ad, then, could attract potential applicants through the self-expression and self-concept drivers of symbolic attraction. Additionally, the JCM posits that jobs in which individuals “understand that the results of [their] work may have a significant effect on the well-being of other people” (task significance) enhance the meaningfulness of the job because of individuals’ pro-social values (Hackman & Oldham, 1976, p. 257). As with task identity, including task significance content in a job ad could attract potential applicants through the self-expression of values mechanism in symbolic attraction. Autonomy as a source of internal motivation stems from the idea that felt responsibility for the work is necessary for the individual to feel success and to see self-esteem gains (Hackman & Lawler, 1971). The idea that jobs that afford high levels of autonomy increase self-esteem could serve as a source of symbolic attraction through
the self-enhancement mechanism. The final motivating characteristic in the JCM is knowledge of results (feedback; Hackman & Oldham, 1976), which can provide an opportunity for self-enhancement by increasing competence (Kluger & Denisi, 1996). The level of feedback described in a job ad, then, could serve as a source of symbolic attraction by signaling to potential applicants that the job might satisfy their self-enhancement needs.

More recently, Oldham and Hackman (2010) reiterated in a recent review of the JCM that individuals are motivated because of the positive affect (e.g., experienced meaningfulness) associated with performance. Basically, individuals want to work in jobs that make them feel good. Research has provided support for this “feel good” assertion. Skill variety and task identity have been shown to be negatively related to negative work moods (Saavedra & Kwun, 2000); that is, as skill variety and task identity increase, negative moods at work decrease. Task significance, meanwhile, positively predicted positive work mood (Saavedra & Kwun, 2000). A verbal protocol analysis of decision making on individuals reviewing job postings also supported this idea, showing that people are attracted to the jobs they believe will offer characteristics they view as desirable or valued (Barber & Roehling, 1993). This finding lends further credence to the idea that manipulating job ad content along the elements of the job characteristics model should attract potential applicants via symbolic attraction. Additionally, although the original model was framed in terms of front line workers, more recently the model has been related to a broader range of jobs, including professional and knowledge-based jobs (Oldham & Hackman, 2010). This is because such jobs have become increasingly narrow in scope due to increases in professional guidelines, legislative regulation, formalization, and isolation due to telework or virtual work, lending themselves more readily to the JCM (Oldham & Hackman, 2010). As such,
it seems reasonable to extend the supposition above of symbolic attraction based on JCM-derived job ad content to a broad range of job categories.

Some have made an argument that organizations have an obligation to provide opportunities for meaningful work in the form of a psychological contract between the organization and its employees (Cartwright & Holmes, 2006). The reasoning behind this assertion stems from the trend of organizations to become leaner and their employees to increasingly become cynical in the face of longer hours and increased role requirements, with meaningful work suggested as a potential solution to retain and motivate talented individuals (Cartwright & Holmes, 2006). The growth of alternative work arrangements is related to this trend of organizations to become more lean following the latest economic recession, seeing approximately 50% growth since 2005 (Katz & Krueger, 2016). The loss of social identity and security from membership in an organization has led to such workers seeking meaning through other avenues, including in the nature of the temporary work these individuals perform (Petriglieri, Ashford, & Wrzesniewski, 2018). Economic forces and the changing nature of work itself, then, suggest that potential job applicants might be particularly attuned to job ad content that highlights the potential meaningfulness of a job when gathering information about available work.

Based on the relationships between the elements of the JCM and the drivers of symbolic attraction described above, hypotheses 1 through 5 follow:

*Hypothesis 1:* The level of skill variety indicated in a job description positively predicts overall intent to apply.

*Hypothesis 2:* The level of task identity indicated in a job description positively predicts overall intent to apply.
Hypothesis 3: The level of task significance indicated in a job description positively predicts overall intent to apply.

Hypothesis 4: The level of feedback indicated in a job description positively predicts overall intent to apply.

Hypothesis 5: The level of autonomy indicated in a job description positively predicts overall intent to apply.

Situational Preference as an Interaction between the JCM and “The Big Five”

As discussed earlier, several frameworks in organizational and vocational research that purport to explain career or work attraction and interests include an element of situational choice, itself an element of dynamic interactionism (Ickes et al., 1997). Dynamic interactionism proposes that behavioral consistency over long time spans is due to a reciprocally causal relationship between traits and situations (Ickes et al., 1997). According to this framework, individuals choose to enter into situations they feel will allow them to express their own traits (Ickes et al., 1997), the situational choice element of dynamic interactionism. These situations, then, reinforce the behavioral and cognitive tendencies that constitute traits (Ickes et al., 1997). Such choices can emanate from perceiving that a situation might fill some need, match one’s values, or result in positive feelings (Emmons, Diener, & Larsen, 1985, 1986). These choice mechanisms are consistent with the self-enhancement and identity needs satisfied through symbolic attraction (Lievens & Highhouse, 2003) and the sentiment noted previously from Oldham and Hackman (2010) that individuals choose jobs that make them feel good. Even more directly, one of the bases of symbolic attraction is the self-expression of one’s personality through work (Lievens & Highhouse, 2003), which also describes situational choice well.
Indeed, research has shown that personality is related to occupational interest (Barrick, Mount, & Gupta, 2003), personality can predict objective and subjective fit with organizational culture (Judge & Cable, 1997), and personality relates to work preferences in terms of a number of job and organizational characteristics (Furnham, Forde, & Ferrari, 1999). A more recent study investigated the relationship between personality and preferences for job characteristics (Bipp, 2010), showing that openness to new experiences, conscientiousness, extraversion, agreeableness, neuroticism, and core self-evaluations all related to recognition, autonomy, responsibility, meaningful work, and execution of complete tasks. In sum, stable behavioral preferences (i.e., personality) are related to which jobs and which elements of jobs (i.e., job characteristics) individuals are attracted. It stands to reason, therefore, that preference for job characteristics and applicant personality would jointly influence intentions to apply to a job.

Dominating personality research (Tupes & Christal, 1961; Goldberg, 1981), the Five Factor Model (i.e., The Big Five, FFM) includes: extraversion or surgency, agreeableness, conscientiousness, neuroticism, and openness to new experiences or intellect. The Big Five traits are correlated with values (Roccas, Sagiv, Schwartz, & Knafo, 2002), occupational interests (Barrick et al., 2003; Larson, Rottinghaus, & Borgem, 2002), and needs (Costa & McCrae, 1988). Values are considered desirable goals that tend to be relatively stable across situations, helping to guide individuals’ behaviors and situational choices (Schwartz, 1992). Psychological needs, which can differ in strength across individuals, provide an internal drive that guides behavioral tendencies through some internal tension or deficit (Murray, 1938). Occupational interests are based on the idea that by the time individuals choose occupations in which to enter, they have already established a general approach to dealing with life’s various situations,
tendencies in dealing with others, and a general set of values and that individuals will show interest in occupations that match these tendencies and values (Holland, 1959).

Given the described mechanisms for situational choice, the following hypotheses are derived from a combination of the trait descriptions and facets that form the FFM and research on the FFM and values, interests, and psychological needs. Although Hackman & Oldham (1975, 1976) included growth need strength—an individual difference related to preferences for personal growth—in the original conception of the JCM, it is not included here. The five factor model is included, instead, due to its ubiquity in recruitment and selection research. Two separate, centennial reviews of research on recruitment and selection cite this personality model as the most widely studied in these contexts (Ployhart et al., 2017; Ryan & Ployhart, 2014).

**Interactions with Extraversion**

Perhaps the most commonly used descriptors for the extraversion dimension of the FFM are talkative, warm, social, or assertive (McCrae & John, 1995), but this dimension also includes positive emotionality and excitement seeking (Costa & McCrae, 1995). Individuals high on extraversion are considered to be venturesome, energetic, ambitious, and generally positive emotionally (Watson & Clark, 1997). Among the strongest values associated with extraversion is stimulation due to those high on extraversion being excited by novelty and challenge (Roccas et al., 2002), which are aspects of the excitement seeking and assertiveness facets (Costa & McCrae, 1995). When Murray’s (1938) needs were entered into a factor analysis with elements of the FFM, the need for play, or to enjoy oneself, was the second most strongly loading need on the extraversion factor (Costa & McCrae, 1988). The ideas of needing enjoyment and finding enjoyment through novelty and challenge combine to suggest that those high on extraversion would be more likely to prefer work situations that demand higher levels of skill variety, as roles
high in skill variety are more likely to present novel or challenging situations and reduce the chances of boredom at work (Caplan, Cobb, French, Harrison, & Pinneau, 1975).

Hypothesis 6a: The relationship between skill variety and intent to apply will be stronger for those high on extraversion compared to those who are low on extraversion.

The activity facet of extraversion points to a possible preference for high-task-identity roles, or roles in which the individual is responsible for complete work products, among those high in extraversion. Specifically, this facet describes individuals as productive, ambitious, and achievement-oriented (Costa & McCrae, 1995). Indeed, achievement is among the most strongly correlated values with extraversion (Roccas et al., 2002). In terms of psychological needs, exhibition, the need to impress others, is also strongly related to extraversion (Costa & McCrae, 1988) and relates to the ambition and achievement elements of the activity facet. That is, for those that are high on extraversion, achievement appears to be driven by a need to impress others and to appear competent (Roccas et al., 2002). Although high task identity within the JCM is meant to increase individuals’ felt responsibility for the work as a means to increase its meaningfulness (Hackman & Lawler, 1971; Hackman & Oldham, 1976), which points to a more internally-derived achievement motive, those high on extraversion might prefer high-task-identity work situations for a different reason: Those high on extraversion might prefer such roles because they view the increased levels of objective responsibility as a chance to exhibit competence.

Hypothesis 6b: The relationship between task identity and intent to apply will be stronger for those high on extraversion compared to those who are low on extraversion.

Similar mechanisms may underlie a situational preference for those high on extraversion and roles with increased task significance, which aims to increase the felt impact of one’s work
under the JCM (Hackman & Lawler, 1971; Hackman & Oldham, 1976). That is, the need to exhibit one’s competence for those high on extraversion might also lead such individuals to prefer situations in which their competence might be broadcast to a wider array of people by design. The gregariousness facet of extraversion also points to a potential source of situational preference for task significance; the gregariousness facet is why extroverts are described as sociable, compassionate, and warm (Costa & McCrae, 1995; McCrae & John, 1992). This facet is thought to be why affiliation is the strongest psychological need associated with extraversion (Costa & McCrae, 1988). A job designed to have higher task significance, in the sense that one’s work impacts more people as in the JCM (Hackman & Lawler, 1971; Hackman & Oldham, 1976), could provide an avenue, then, for those high in extraversion to satisfy affiliation needs and display their gregariousness.

*Hypothesis 6c: The relationship between task significance and intent to apply will be stronger for those high on extraversion compared to those who are low on extraversion.*

The situational preference for (or against) autonomy for those high on extraversion is not as straightforward as the prior three situational preferences were. Within the assertiveness and activity facets of extraversion are both a sense of dominance (Costa & McCrae, 1995) that might suggest a preference for greater levels of autonomy, as the dominance and assertiveness aspects of extraversion point to a tendency to dictate social situations. Interestingly, when psychological needs were entered into a factor analysis with the FFM, autonomy loaded negatively onto extraversion (Costa & McCrae, 1988). At the facet level, autonomy was negatively correlated both with warmth and gregariousness (Costa & McCrea, 1988), suggesting that autonomy might be viewed by those high on extraversion as socially isolating. Both the dominance need and autonomy need loaded onto extraversion roughly equally, with opposite signs (Costa & McCrea,
1988). In a meta-analysis of the relationship between the FFM and job preferences (Larson et al., 2002), the two job types most strongly related to extraversion were enterprising and social jobs, both of which have a strong social component. These job preferences seem to suggest that the preference against social isolation might outweigh dominance needs in work role preferences.

*Hypothesis 6d: The relationship between autonomy and intent to apply will be weaker for those high on extraversion compared to those who are low on extraversion.*

**Interactions with Agreeableness**

Agreeableness includes trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness as facets (Costa & McCrae, 1995). Individuals high on agreeableness tend to be nurturing, emotionally supportive, and trusting (McCrae & John, 1988); while those low on agreeableness can be seen as hostile (McCrae & John, 1988). Those high on agreeableness are motivated more so by nurturance needs (Costa & McCrae, 1995), the need to be helpful to others, and use benevolence values to guide their actions (Roccas et al., 2002). These match well to the behavioral descriptors in the altruism and tender-mindedness facets of agreeableness. Those high on agreeableness have a preference for socially-oriented jobs that highlight helping others and have a slight preference against socially-oriented jobs that are more about influencing and persuading others (Larson et al., 2002), a job type more positively associated with those high on extraversion. The strong values and psychological need for being helpful to others associated with agreeableness and demonstrated preference for such jobs suggests that those high on agreeableness would prefer a work situation designed to impact a large number of people, or a job high on task significance as defined in the JCM (Hackman & Lawler, 1971; Hackman & Oldham, 1976).
Hypothesis 7a: The relationship between task significance and intent to apply will be stronger for those high on agreeableness compared to those who are low on agreeableness.

Not helping others, those high on agreeableness also tend to conform to social norms and expectations and submit to more assertive or dominant others (Costa & McCrae, 1995; McCrae & John, 1992). These behavioral tendencies fall into the compliance facet, mostly, and a bit in the straightforwardness facet of agreeableness. In the JCM, feedback is meant to make work results known (Hackman & Lawler, 1971; Hackman & Oldham, 1976), but feedback can also be used to communicate expectations and norms (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007). Those high on agreeableness might view increased levels of feedback favorably as a means through which they might be able to display their tendencies towards conformity. Krasman (2010) postulated that the trust in others and interest in others’ ideas associated with agreeableness would result in a positive relationship between agreeableness and all forms of feedback, but found no support for any such relationship. The lack of findings was interpreted as the potential cost of negative feedback being too high for agreeable individuals (Krasman, 2010). Agreeableness is associated with the need to avoid personal harm (Costa & McCrea, 1988), so this interpretation is certainly plausible. Several of the other psychological needs associated with agreeableness, however, suggest otherwise. These include the need to accept blame and submit to others and a negative association with the need to defend oneself against attacks on social status or to hide social failure (Costa & McCrea, 1988; Murray, 1938). The combined needs to conform socially as well as to take blame when due suggest that those high on agreeableness would prefer work situations that include more, rather than less, feedback,
Hypotheses 7b: The relationship between feedback and intent to apply will be stronger for those high on agreeableness compared to those who are low on agreeableness.

A combination of both values and needs, as well as behavioral tendencies, point to a preference among the highly agreeable against autonomy. A strong indicator for this disinclination towards autonomy is the negative relationship between agreeableness and valuing both self-direction and power (Roccas et al., 2002). Similarly, tradition values, or maintaining existing social and cultural structures and rules, are associated with agreeableness (Roccas et al., 2002), suggesting a preference against setting one’s own rules. A need for social dominance was also negatively related to agreeableness. These values and the negative relationship with dominance are all related to the behavioral tendencies under the conformity facet, sticking to the rules and acquiescing to others (Costa & McCrae, 1995). When considered together, the highly agreeable appear to have a distaste for setting their own structures and processes, suggesting a disinclination towards jobs that are designed to have higher levels of autonomy.

Hypothesis 7c: The relationship between autonomy and intent to apply will be weaker for those high on agreeableness compared to those who are low on agreeableness.

Interactions with Conscientiousness

Conscientiousness is often described in one of two different, though often highly correlated, ways: inhibiting impulsivity and disorder or directing achievement-oriented behavior (McCrae & John, 1938). Facets of conscientiousness include competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Costa & McCrae, 1995). A meta-analytic review of goal orientation and its correlates showed conscientiousness positively correlates with a learning goal orientation and negatively with an avoidance performance goal orientation (Payne, Youngcourt, & Beaubien, 2007), or that those high on conscientiousness tend to view
task performance as an opportunity to learn and are less likely to be motivated by a desire to avoid looking incompetent. The opportunity to learn and lack of concern over appearing incompetent seems to suggest a preference for roles that require great skill variety, thereby offering chances to learn. The inhibitive aspects of conscientiousness—order, dutifulness, and self-discipline (Costa & McCrae, 1995)—appear to suggest otherwise, though. The values associated with conscientiousness paint a disjointed picture in terms of preferences for skill variety. As one might expect, achievement values are related to the competence, achievement striving, and self-discipline facets of conscientiousness (Roccas et al., 2002). Security and conformity values are associated with the order, dutifulness, and deliberation (Roccas et al., 2002). Overall, the strengths of these relationships are similar, especially at the domain, rather than facet level (Roccas et al., 2002). Although the need for achievement is strongly correlated with conscientiousness, the need for order is more strongly so (Costa & McCrea, 1988), pointing to a possible disinterest in skill variety as a means to assure order. Additionally, conscientiousness is negatively associated with stimulation values (Roccas et al., 2002). At a minimum, this might indicate a disinterest with, if not an actual preference against, skill variety. The strongest work preference for the conscientious, conventional (Larson et al., 2002), suggests that the inhibitive, order-oriented facets of conscientiousness tend to win out when considered possible work roles, as conventional jobs are marked by order and structure (Holland, 1978).

Hypothesis 8a: The relationship between skill variety and intent to apply will be weaker for those high on conscientiousness compared to those who are low on conscientiousness.

Whereas the two underlying aspects of conscientiousness were opposed when considering skill variety, they appear to act in concert when concerned with preferences for task identity and autonomy. That is, the needs for achievement and order that partially define
conscientiousness (Costa & McCrea, 1988) could be satisfied more easily when the conscientious individual feels responsible for a more complete piece of work, which is the underlying mechanism linking task identity to perceiving one’s work as meaningful in the JCM (Hackman & Oldham, 1976), and when that same individual is afforded the opportunity to work in the manner in which he or she prefers, which autonomy allows for in the JCM (Hackman & Oldham, 1976). Although not as strong as the relationship with achievement and order needs, conscientiousness is also related to a need for dominance (Costa & McCrea, 1988), or the need to control one’s environment (Murray, 1938). The combination of order and dominance needs provides a motivational mechanism underlying the behavioral tendencies among the conscientious to purposefully place their environments and work in some precise, deliberate order as means through which to be reliably productive (Saucier & Goldberg, 1996). Work situations that offer higher levels of task identity would afford the conscientious greater opportunity to exhibit those behavioral tendencies by allowing them greater control over work outcomes due to the simple fact that they would have control over a greater percentage of the task (task identity) and the manner in which the work is performed (autonomy). For these reasons, it is expected that those high on conscientiousness would prefer work situations that are high on both task identity and autonomy.

Hypothesis 8b: The relationship between task identity and intent to apply will be stronger for those high on conscientiousness compared to those who are low on conscientiousness.

Hypothesis 8c: The relationship between autonomy and intent to apply will be stronger for those high on conscientiousness.
Interactions with Neuroticism

Neuroticism is marked by a tendency towards distress, nervous tension, frustration, frenetic energy, self-dissatisfaction, and inconsistent mood (McCrae & John, 1988) and includes anxiety, angry hostility, depression, self-consciousness, impulsivity, and vulnerability as facets (Costa & McCrae, 1995). The anxiety, self-consciousness, and vulnerability facets, in particular, are all negatively related to valuing stimulation (Roccas et al., 2002). Common tendencies among these three facets are feeling vulnerable to threats and a concern over one’s own adequacy (Costa & McCrae, 1995). The vulnerability facet also includes a tendency towards poor or fragile ego-defenses (Costa & McCrae, 1995). These combinations of tendencies seem to indicate that those high on neuroticism negatively value stimulating environments because of the threat to their egos and sense of self-esteem new environments might pose (Roccas et al., 2002). The threat avoidance perspective is strengthened by the association between neuroticism and the psychological need to defend oneself against threat or to hide personal failures (Costa & McCrae, 1998), known as a need defendence (Murray, 1938). In a work context, stimulating environments like those high in skill variety, pose a threat of failure because of the greater likelihood of task complexity and novelty. Those high on neuroticism are expected to have a disinclination to roles high in skill variety, then, to avoid these potential threats.

Hypothesis 9a: The relationship between skill variety and intent to apply will be weaker for those high on neuroticism compared to those who are low on neuroticism.

The need for defendence, especially the tendency to hide personal failures, as well as deep concerns over one’s adequacy, dissatisfaction with the self, and general anxiety (Costa & McCrae, 1995, 1998) suggests a preference against task significance. That is, a job that impacts a wider swath of individuals presents the opportunity to broadcast one’s successes and failures
more broadly. The threat aspects of neuroticism described above, especially the threat of personal failings and the need to hide them, likely motivate a preference against more interdependent work. Aside from threat avoidance, the angry hostility facet is also a likely indicator of this same aversion. Specifically, this facet includes the tendency to be hostile toward others and irritability (Saucier & Goldberg, 1996). Research on work preferences supports the idea that those high on neuroticism would be disinclined to jobs high on task significance, with the neurotic having the strongest aversion to the two most social job types studied (Larson et al., 2002). Because task significance in the JCM is concerned with the impact one’s work has on others (Hackman & Lawler, 1971; Hackman & Oldham, 1976), the combination of a need to avoid the personal threat this type of role presents to those high in neuroticism and the hostility toward and irritability with others that those high in neuroticism tend to display suggests such individuals would have a preference against this type of role.

Hypothesis 9b: The relationship between task significance and intent to apply will be weaker for those high on neuroticism compared to those who are low on neuroticism.

Not yet discussed, among the strongest values associated with neuroticism is a negative value for achievement (Roccas et al., 2002). At the facet level, this value was most strongly, negatively related to self-consciousness and was also associated with the depression, anxiety, and vulnerability facets (Roccas et al., 2002). Under the self-consciousness facet, two of the strongest descriptors are a concern over one’s own adequacy and having thin skin in the face of perceived slights (Costa & McCrae, 1995). Concern with adequacy is also a descriptor in the depression facet, as is a dissatisfaction with oneself (Costa & McCrae, 1995). As already discussed, those high on neuroticism have a need to hide one’s faults and failings. If, then, those high on neuroticism are prone to negative self-judgments, are sensitive to the possibility of threats to the
self and one’s self-concept, and are motivated to hide oneself from the judgment of others, it stands to reason that those high on neuroticism would choose situations that limit the opportunity for judgment or limit the likelihood that their own failures, whether actual or just perceived, would be highlighted. It is expected, then, that those that score high on neuroticism would be disinclined to choose work roles with a high level of feedback.

_Hypotheses 9c: The relationship between feedback and intent to apply will be weaker for those high on neuroticism compared to those who are low on neuroticism._

Those high on neuroticism can, in part, be described as impulsive and self-indulgent (Costa & McCrae, 1995). Although one might think that impulsivity might relate positively to autonomy, as the impulsive may desire to be left to their own devices, that facet was actually negatively related to autonomy as a psychological need, as were the anxiety, self-consciousness, and vulnerability facets (Costa & McCrea, 1988). Neuroticism has also been shown to be among the strongest (negative) predictors of job decision latitude (an element of autonomy), with the vulnerability, depression, self-consciousness, and anxiety sub-facets being the stronger predictors (Sutin & Costa, 2010). A possible mechanism for these findings is that the negative self-judgements regarding competence and adequacy as well as general anxiety in the face of ambiguous situations over-power the impulsive and self-indulgent tendencies (Spreitzer, 2008). Because of the lack of structure in work roles that are high in autonomy, the resultant ambiguity is likely to be perceived as a threat by those who score high on neuroticism. As such, those scoring high on neuroticism are likely to be disinclined to choose a work situation high in autonomy.

_Hypothesis 9d: The relationship between autonomy and intent to apply will be weaker for those high on neuroticism compared to those who are low on neuroticism._
Interactions with Openness to New Experiences

Within the lexical tradition, openness to new experiences includes adjectives like intelligent, imaginative, philosophical, creative, and progressive (McCrae & John, 1992; Saucier & Goldberg, 1996). Work on facet markers and questionnaires, however, has expanded the notion of openness to new experiences to include ideas such as a sensitivity to aesthetics, interest in varied experiences, and non-conformity (McCrae & John, 1988) and the following facets: fantasy (daydreaming, playfulness, humor, etc.); aesthetics (perceptive to interpersonal cues, concerned with beauty, philosophical, etc.); feelings (emotionally exciting, keeps people close, etc.); actions (impulsive, socially poised, high intellectual capacity, tends to not be self-defensive, etc.); ideas (values intellect, has wide range of interests, etc.); and values, often non-conforming or unusual (Costa & McCrae, 1995). Because the tendency to have a wide array of interests and a desire for varied experiences, one would expect those who score high on openness to prefer jobs high in skill variety. Indeed, among the values associated with openness to new experiences is stimulation (Roccas et al., 2002), which, as was noted above, is a concern with and preference for novelty and excitement. Also, the need for understanding, which includes curiosity and knowledge acquisition (Murray, 1938), is among the needs most strongly associated with openness to new experiences. These tendencies in values and needs associated with novelty, stimulation, and variety all suggest a preference for situations that are themselves varied.

Hypothesis 10a: The relationship between skill variety and intent to apply will be stronger for those high on openness to experience compared to those who are low on openness to experience.
A primary motivation for seeking feedback is instrumental, typically because the informational value of the feedback helps individuals progress toward accomplishing some goal or improving performance (Ashford, Blatt, & VandeWalle, 2003). Indeed, feedback quality and a learning goal orientation have been found to increase individuals’ perceptions of feedback utility which, in turn, increased the frequency of feedback seeking behavior (Whitaker & Levy, 2012). As already discussed, those who are highly open to new experiences have a strong need for understanding and value learning (Costa & McCrea, 1988; Roccas et al., 2002). Aside from proactive personality, openness to new experiences has been shown to be the strongest predictor of the motivation to learn and developmental activities in organizational settings (Major, Turner, & Fletcher, 2006). This underlying motivation for learning among the highly open to new experiences points to a likely preference for situations that increase the likelihood of learning, such as those that offer increased levels of feedback.

Hypotheses 10b: The relationship between feedback and intent to apply will be stronger for those high on openness to experience compared to those who are low on openness to experience.

The highly open to new experiences tend to value self-direction, or the freedom of thought and action (Roccas et al., 2002). While all facets of openness were related to this value, the strongest associations between self-direction and openness facets were with fantasy, values, ideas, and actions. These relationships suggest two underlying motives for valuing self-direction. First, the fantasy and values relationships suggest the non-conforming, unusual, and impulsive tendencies of the highly open result in a desire for self-direction. On the other hand, the combination of ideas and actions suggests that the desire for self-direction is driven by the intellectual aspects of the openness trait and a need to follow one’s own intellectual or
philosophical pursuits. With a strong overall relationship with the need for autonomy, the facet level associations with the need for autonomy show a similar pattern to the relationship between the self-direction value and openness facets (Costa & McCrea, 1988). The tendencies towards independence and impulsivity as well as the motive for pursuing one’s own intellectual path and a need for self-direction among the highly open to new experiences raises the expectation that such individuals would prefer work situations that are high in autonomy.

\textit{Hypothesis 10c: The relationship between autonomy and intent to apply will be stronger for those high on openness to experience compared to those who are low on openness to experience.}

\textbf{Method}

The hypotheses detailed above were addressed via a policy capture study design, a repeated measures approach for assessing decision making in a regression framework (Aiman-Smith, Scullen, & Barr, 2002). Based on Brunswik’s (1956) probabilistic “lens” model, this method is an experimental design that involves presenting a systematically varying set of factors and assessing participants’ most likely decision based on the study’s context. This approach is associated with a number of benefits. Presenting a full set of scenarios across participants limits issues of range restriction in the predictors, as individuals consider the full range of each factor. Moreover, the balanced design of policy capture experiments effectively controls multicollinearity issues, as the predictors are not inter-correlated (Feldman & Arnold, 1978; Karren & Barringer, 2002). Because the predictors do not suffer from multicollinearity in a well-designed, well-executed policy capture and because the full range of the each predictor is included in the set of observations, this design is especially useful in detecting the independent effects of each predictor on individuals’ decision making (Karren & Barringer, 2002). Policy
capture designs also address an issue in studying dynamic interactionism. That is, experiments in which situations are manipulated often limit the situations to which people are assigned, which can limit the extent to which interactionist hypotheses can be assessed (Ickes et al., 1997). Policy capture studies afford the opportunity to assess every possible situation among the set of stimulus combinations for every research participant.

Although there exist a number of design choices that can achieve these purported benefits, each with their own benefits and disadvantages, this study used a full factorial design. That is, each predictor was fully crossed and balanced at all levels. This approach ensures that there are no predictor intercorrelations and that participants respond to the full range of each predictor. Also, whereas all policy capture studies take advantage of repeated measurement to increase statistical power, full factorial designs can achieve this with fewer participants. Other designs involve presenting participants with subsets of scenarios and require more participants to cover the full scenario set and achieve the same statistical power (Aiman-Smith et al., 2002; Karren & Barringer, 2002). Because policy capture studies are an application of repeated measures, they are inherently multilevel. The first level represents the repeated ratings (job descriptions), and the second level represents differences between individuals’ overall ratings and person-level measures (individuals and personality measures). Figures 2 through 7 summarize the multi-level model tested in this study.

For this study, participants viewed and responded to 245 job descriptions, indicating their intent to apply to each presented job, and to a set of 25 personality items. The sample consisted of undergraduate students from a large, public university in the Northeastern United States, enrolled in either an Introduction to Industrial/Organizational Psychology course or an Organizational Behavior course. Because of the typical age range and class standing of students
in these classes, the sample is considered to be appropriate for measuring job application intentions, as the participants were likely be in the process of researching or applying for internships or post-graduation jobs. Fifty-eight participants completed both study parts, with an average age of about 20.5 (S.D. = 1.04). About 47% were juniors, with the remaining participants being split equally between sophomores and seniors. About 60% of participants were female, and 64% were white. Asian students comprised about 23% of the sample, and Black and Hispanic students comprised about 13% of the sample each.

**Experimental Manipulations and Measures**

Each scenario was comprised of five factors (described in detail below), each of which was measured at three levels for a combined set of 243 job descriptions, with two descriptions repeated as a response consistency check for a total of 245 descriptions. The full study was conducted across two survey parts. Participants responded to 25 personality items (described below) and 112 job descriptions in the first survey; the remaining job descriptions and demographics questions were collected in the second survey. Both hard-copy and on-line surveys were used. In both cases, the scenarios were presented in a random order. For the online survey, the order was randomized automatically by Qualtrics. For the hard-copy, the order of items was randomly selected using a random number draw in Excel.

*Intent to apply* was the outcome variable, measured as “Please indicate how likely you would be to apply to this job” and rated on a five-point Likert-type scale (1 = *extremely unlikely*, 5 = *extremely likely*).

*Job characteristics model.* As indicated in the introductory section, the five, Level 1 predictors used to form the job descriptions were drawn from the Job Characteristics Model and the associated Job Diagnostic Survey (Hackman & Oldham, 1975). The five factors are skill
variety, task identity, task significance, feedback, and autonomy. **Skill variety** was presented as: “This job requires the use of…” “…few skills” (low), “…a moderate number of skills” (medium), or “…many skills” (high). **Task identity** was presented as: “Individuals are responsible for…” “…a single part of the process” (low), “…multiple parts of the process” (medium), or “…the entire process” (high). **Task significance** cues were as follows: “The output from this job has [insert cue] impact on others in the organization.” With the cues being “minimal” (low), “moderate” (medium), and “significant” (high). **Feedback** was presented as: “You can expect feedback approximately once every…” “…year” (low), “…6 months” (medium), “…month” (high). Finally, **autonomy** was indicated as, “You will have [insert cue] freedom to make decisions in this role”, with the cues varied along the following: “no” (low), “some” (medium), or “great” (high). A set of sample scenarios are included in the Appendix.

**Personality** was assessed along the dimensions of the five factor model and measured using the positively keyed items from the 10-item IPIP scale (Goldberg et al., 2006) that references the Costa and McCrae (1992) NEO-PI-R instrument, for a total of 25 items (five for each personality dimension). The neuroticism dimension, however, was measured from the neuroticism (negative) pole rather than the emotional stability (positive) pole and scored such that increasingly positive scores indicate higher levels of neuroticism.

**Analyses**

As indicated above, the policy capture design is inherently multi-level in nature, with the decision making scenarios forming Level 1 and the individual raters and any associated, person-level characteristics forming Level 2. The hypotheses, then, were assessed following the multi-level model building process detailed in Bliese and Ployhart (2002). Although this model building process was originally applied to a growth modeling context, the overall stages apply
more generally to multi-level models. Specifically, a null model (random intercept) was fit to ascertain the relative variance at each level of analysis. Following this, the Level 1 direct effects (hypotheses 1 through 5) were entered into the model with fixed slopes. In the third step, random slope components were assessed. The random components are included in the model to account for individual differences that might be associated with the intent to apply that are not explained from the FFM scales. Finally, the Level 2 predictors were entered into the model (hypotheses 6 through 10); specifically, the Level 2 variables were entered as predictors of Level 1 slopes to generate cross-level interaction terms. Finally, although a number of strategies for centering Level 1 predictors are recommended for tests of cross-level interactions (Enders & Tofighi, 2007), this study was a fully balanced experiment. To improve model interpretability, Level 1 predictors were coded such that low equals 0, medium equals 1, and high equals 2. The model intercept under this coding, then, represents the average level of attraction when all job characteristics are at their lowest level. Intent to apply was also coded from 0 to 4, such that the lowest level of intent to apply was a 0 and the highest intent to apply was a 4. This rescaling assures the intercept values falls within the bounds of what was actually measured. Level 2 variables were grand-mean centered, placing the zero-point at the average level of each trait within the sample.

Results

Two job descriptions were presented to participants twice as a consistency check, job descriptions 18 and 88. The test-retest correlation for item 18 was \( r = 0.15 \) and for item 84 was \( r = 0.43 \). Despite these low correlations for test-retest reliability, further inspection of response patterns show somewhat more consistency than these correlations suggest. For job description 18, approximately 76% of responses were either a match or differed by only one (in either
direction). For job description 84, approximately 81% of responses were either a match or differed by only one (in either direction). Ten samples of random responses were generated for each repeated job description. For job description 18, the average for differences between the initial, actual responses and the random responses that fell within one (in either direction) was only about 40% with an average test-retest correlation of \( r = 0.03 \). For job description 84, the average for differences between the initial, actual responses and the random responses that fell within one (in either direction) was only about 38% with an average test-retest correlation of \( r = -0.06 \). These analyses suggest that it is unlikely respondents engaged in effortless or random responding.

As discussed, a null model was fit to assess the relative portions of variance at the within level (level 1) and the between level (level 2). The model indicated significant intercept variation (\( u_0 = .11 \), 95% CI [0.08, 0.17]), with an estimated 7.31% of variance at the between-level (\( \tau_{00} = 0.11 \), \( \sigma^2 = 1.42 \), ICC(1) = .07). Because about 53% of participants completed the survey via hardcopy and 47% completed the survey on-line, there is concern about a dependency on survey modality. A one-way ANOVA indicated a significant difference between the two groups (\( F(1, 14416) = 6.118, p < .05 \)). The estimated ICC(1) was 0.00, however, indicating no between-person variance by survey modality. Consequently, both datasets were combined for the remaining analyses. The hypothesis testing results are presented below and are summarized in tables 2 and 3.

**Level 1 Direct Effects**

Model 1, simultaneous entry of level 1 predictors with fixed slopes, indicates that all level 1 predictors significantly predicted intent to apply in the expected directions. Specifically, skill variety (\( \gamma_{10} = .02, t(14188) = 2.04, p < .05 \)), task identity (\( \gamma_{20} = .03, t(14188) = 2.26, p < \))
task significance ($\gamma_{30} = .17$, $t(14188) = 15.10$, $p < .001$), feedback ($\gamma_{40} = .11$, $t(14188) = 9.63$, $p < .001$), and autonomy ($\gamma_{50} = .45$, $t(14188) = 39.49$, $p < .001$) all positively and significantly predict intent to apply. These findings suggest support for hypotheses 1 through 5, although the magnitude of the coefficients for skill variety and task identity are relatively small compared to the other model components. The intercept ($\gamma_{00} = 1.33$, $t(14188) = 25.66$, $p < .001$), however, indicates a low, predicted average of intent to apply. Using the point estimates of this direct effect, fixed model, the maximum predicted level of intent to apply was 2.89, slightly lower than “somewhat likely to apply.” Model 1 explained roughly 10% of total variance in the outcome, all of which was attributable to level 1 factors (see table 3).

Model 2 introduced random slope components into the level 1 predictors. Once the random components were entered, the slope estimates for task identity ($\gamma_{20} = .03$, $t(57) = 1.94$, $p < .05$), task significance ($\gamma_{30} = .18$, $t(57) = 4.57$, $p < .001$), feedback ($\gamma_{40} = .12$, $t(57) = 3.32$, $p < .01$), and autonomy ($\gamma_{50} = .45$, $t(57) = 6.39$, $p < .001$) remained significant, positive predictors of intent to apply. Skill variety ($\gamma_{10} = .03$, $t(57) = 1.09$, $p > .05$) did not significantly predict the intent to apply in model 2. Autonomy showed the greatest slope variability ($u_5 = .29$), while feedback and task significance showing similarly low levels of slope variability ($u_4 = .06$ and $u_3 = .08$). Skill variety ($u_1 = .03$) and task identity ($u_2 = .01$) showed the least slope variability of the level 1, direct effects tested. These finding suggest that, with the exception of autonomy, very little between-person differences exist on the intent to apply due to the job characteristic included in the job descriptions. The findings from model 1 suggest all level 1 hypotheses were supported; however, the findings from model 2 only support hypotheses 2 through 5, with autonomy emerging as the strongest predictor of intent to apply. Given the stability of the estimates when introducing random components, hypotheses 2 through 5 were supported. Although the fixed-
effects model did support hypothesis 1, the point estimate was low and the effect was not stable once random effects were introduced. Although, the random effects model did show significant improvement in terms of estimated deviance ($\chi^2(20) = 3351.31, p < .001$), the total variance explained was actually negative (-22%). Level 1 factors explained 31% of total variance in the outcome, but the model explained -52% of variance in the outcome at the between level. Having started with only about 7% of between level variance in the null model, this could be an artifact of trying to fit between level variation in the slopes when there is little such variance to explain. Consequently, hypothesis 1 was only partially supported, suggesting that skill variety may not be an important factor in determining attraction during the early stages of recruitment.

**Level 2 Direct Effects and Cross-Level Interactions**

Model 3 introduces the cross-level interactions noted in hypotheses 6 through 10, with the five personality factors entered as predictors of the level 1 slopes associated with each hypothesis. The random slope components were retained based on the significance test on the deviance statistic discussed above. Nearly all of the interactions tested were not statistically significant. Extraversion did not significantly interact with skill variety ($\gamma_{11} = .02, t(54) = 1.12, p > .05$), task identity ($\gamma_{21} = -.02, t(56) = -.85, p > .05$), task significance ($\gamma_{31} = .01, t(55) = .11, p > .05$), or autonomy ($\gamma_{51} = -.05, t(53) = -.71, p > .05$) to predict the intent to apply. Hypotheses 6a through 6d were not supported. Agreeableness did not significantly interact with task significance ($\gamma_{32} = .02, t(55) = .26, p > .05$) or feedback ($\gamma_{41} = .02, t(55) = .30, p > .05$) to predict the intent to apply. Hypotheses 7a and 7b were not supported. Conscientiousness did not significantly interact with skill variety ($\gamma_{12} = -.06, t(54) = -1.46, p > .05$) or task identity ($\gamma_{22} = -.01, t(56) = -.37, p > .05$) to predict the intent to apply. Hypotheses 8a and 8b were not supported. Neuroticism did not significantly interact with skill variety ($\gamma_{13} = -.01, t(54) = -.26, p
task significance ($\gamma_{33} = .02$, $t(55) = .45$, $p > .05$), or feedback ($\gamma_{42} = -.23$, $t(55) = -.62$, $p > .05$) to predict the intent to apply. Hypotheses 9a through 9c were not supported. Finally, openness to new experiences did not significantly interact with skill variety ($\gamma_{44} = .00$, $t(54) = .09$, $p > .05$), feedback ($\gamma_{43} = -.05$, $t(55) = -.96$, $p > .05$), or autonomy ($\gamma_{55} = .07$, $t(53) = .97$, $p > .05$) to predict the intent to apply. Hypotheses 10a through 10c were not supported.

Three of the tested interactions were statistically significant. As predicted, agreeableness and autonomy interacted negatively to predict the intent to apply ($\gamma_{52} = -.18$, $t(53) = -1.88$, $p < .05$). Figure 8 (produced using R-code from Preacher, Curran, and Bauer, 2006), shows intent to apply predicted by autonomy at the minimum, median, and maximum levels of agreeableness (grand mean centered). As the figure indicates, the positive relationship between autonomy and intent to apply becomes weaker with increasing levels of agreeableness. Hypothesis 7c was supported. Also as predicted, conscientiousness and autonomy interacted to positively predict the intent to apply ($\gamma_{53} = .23$, $t(53) = 2.88$, $p < .05$). Figure 9 (produced using R-code from Preacher et al., 2006) shows intent to apply predicted by autonomy at the minimum, median, and maximum levels of conscientiousness (grand mean centered). As the figure indicates, the positive relationship between autonomy and intent to apply becomes stronger with increasing levels of conscientiousness, with the lowest level showing almost no relationship with intent to apply. Hypotheses 8c was supported. Although the interaction between neuroticism and autonomy significantly predicted intent to apply ($\gamma_{54} = .11$, $t(53) = 2.01$, $p < .05$), the estimate was not in the hypothesized direction. Therefore, hypotheses 9d was not supported. Finally, task identity ($\gamma_{20} = .03$, $t(56) = 1.92$, $p < .05$), task significance ($\gamma_{30} = .18$, $t(55) = 4.52$, $p < .001$), feedback ($\gamma_{40} = .12$, $t(55) = 3.32$, $p < .01$), and autonomy ($\gamma_{50} = .45$, $t(53) = 6.95$, $p < .001$) remained significantly and positively predictive of intent to apply, further supporting hypotheses.
2 through 5. That is, task identity, task significance, feedback, and autonomy appear to be stable predictors of applicant attraction in low information, early stages of recruitment. The Pseudo-$R^2$ calculations for model 3 yielded the same results as those for model 2, however, suggesting adding level 2 predictors did not account for any further variance in the outcome. Again, this appears to be an artifact of 93% of the variance in the outcome residing at level 1.

Discussion

This study aimed to test the attractiveness of job descriptions in the low information, early stages of recruitment (Breaugh, 2008). Symbolic attraction was used as a framework to highlight how job description content, written using elements of the Job Characteristics Model, could be manipulated to improve applicant attraction (Hackman & Oldham, 1975). To review, symbolic information, or information about intangible aspects of an organization or job prospective applicants use to make inferences about organizations, is thought to attract applicants because of a desire to enhance social identity or self-concept or a need for self-expression. Past research on the JCM suggests that skill variety, task identity, task significance, feedback, and autonomy are valued job characteristics, insofar as they reliably predict experienced meaningfulness and internal motivation (Behson, Eddy, & Lorenzet, 2000). Moreover, the elements of the JCM are thought to increase meaningfulness because they satisfy specific needs and values that are widely held (Hackman & Lawler, 1971). These, in turn, were related to the self-expression and self-concept needs that underlie symbolic attraction. Given the potential relationship between the JCM and symbolic attraction, then, it was hypothesized that higher levels of these job characteristics as described in job ads would be related to job attraction. At the between-person level, dynamic interactionism (see Ickes et al., 1997, for a review), provided the framework for the hypothesized cross-level interactions. Dynamic interactionism proposes that
the behavioral consistency attributed to traits, such as those in the five factor model (e.g., Costa & McCrae, 1992), is actually due to a complex interaction between traits and situations such that individuals choose to enter into situations that allow them to express their behavioral and cognitive tendencies, which then reinforces those tendencies (Ickes et al., 1997). Using lexical trait descriptions (e.g., Saucier & Goldberg, 1996), facet and measurement markers of traits (Costa & McCrae, 1995), and values (Roccas et al., 2002), needs (Costa & McCrae, 1988), and job interests (Larson et al., 2002) associated with the traits within the FFM, a set of cross-level interactions were hypothesized to predict applicant attraction.

A two-level model based on a policy capture study design provided some support for the within-person, symbolic-attraction-based hypotheses, with task identity, task significance, feedback, and autonomy emerging as positive, significant predictors of job attraction at the first level (i.e., the level of job attraction ratings). Moreover, consistent with findings in Behson's and colleagues' (2000) study that showed autonomy as the strongest predictor of satisfaction, growth satisfaction, and motivation, autonomy was shown to be the strongest predictor of job attraction in this study. The stability of the coefficient estimates across models appears to support the general notion that the elements of the JCM can attract potential applicants. Unfortunately, because of the number of job descriptions participants were asked to assess, this study did not include questions regarding whether or not respondents used the JCM elements to make abstract inferences about the hypothetical organization in the study, as the theory of symbolic attraction suggests (Lievens & Highhouse, 2003). These findings are suggestive of this mechanism, but further study is needed to provide stronger evidence that the elements of the JCM not only predict job attraction, but do so as forms of symbolic information.
The second level (i.e., the between person level) included a number of hypothesized relationships with elements of the FFM as moderators of the relationships between the factors of the JCM and intent to apply. Of those, only three were significant (agreeableness, conscientiousness, and neuroticism all with autonomy). The interactions between agreeableness and autonomy (weaker) and between conscientiousness and autonomy (stronger) were in the expected directions. Neuroticism was expected to interact with autonomy to negatively predict the intent to apply, but the tested model estimated a significant and positive relationship. There is evidence that suggests the impulsivity facet of neuroticism is positively related to self-direction values (Roccas et al., 2002) and that the hostility facet is positively related to a need for dominance (Costa & McCrae, 1988). These relationships could explain this unexpected finding.

In general, the study was unable to support the cross-level hypotheses based on dynamic interactionism. That is, with just two exceptions, none of the hypotheses regarding situational choice based on individual differences of personality were supported. As discussed in the results section, very little variance existed between individuals in the outcome (only about 7%). Additionally, the only job characteristic that showed substantial between-person variation about its slope parameter was autonomy. Within interactionist perspectives of personality, a competing framework with dynamic interactionism is situational strength (Mischel, 1973, 1977). Situational strength theory poses that external cues provide strong signals as to what specific behavior is desired to such an extent that behavioral tendencies attributable to individual trait differences become irrelevant. Specifically, Mischel (1973) argued that situations are strong to the extent that individuals construe situational cues in the same way so that all individuals decide the same patterns of behavior would be the most appropriate. Given the lack of between person variation in this sample, this seems a plausible explanation for the findings in this study. Further
supporting the situational strength argument is that the characteristics within the JCM were selected specifically to appeal to the needs and motivations of as wide a swath of individuals as possible (Hackman & Lawler, 1971). Because the job descriptions presented in this study only included information from the JCM, the purported universalism of that model could have largely presented participants with strong situations.

The one exception to the situational strength argument appears to be autonomy as a predictor of applicants’ intent to apply. Individuals high on agreeableness were predicted to be less likely to choose situations high in autonomy due to a constellation of values and needs suggestive of an aversion for agreeableness: such as negative relationships between agreeableness and needs for self-direction and power (Costa & McCrea, 1988) as well as associations among the highly agreeable with valuing tradition and the maintenance of social structures (Roccas et al., 2002). This hypothesis was supported, with increasing levels of agreeableness being associated with progressively weaker associations between autonomy and intent to apply. Those high on conscientiousness were predicted to choose situations with high autonomy because of the needs for order and achievement associated with conscientiousness (Costa & McCrea, 1988). This hypothesis was supported, with increasing levels of conscientiousness related to a stronger relationship between autonomy and intent to apply. These findings point to the plausibility of dynamic interactionism in recruitment research, although further study is needed (discussed below).

**Contributions**

Although job characteristics have been shown to be among the strongest predictors of job attraction, most studies of job attraction tend to focus on characteristics like pay, benefits, location, and so on (Uggerslev et al., 2012). This study provides evidence for the benefits of
expanding the set of job characteristics studied in job attraction research to include elements of the nature of the work itself. From a practical perspective, although applied work in the field is focusing on new technologies and platforms for recruitment (Ployhart et al., 2017), job postings websites like Monster and Indeed are still ubiquitous and still employ job descriptions as a recruitment tool. This study suggests that including information regarding the design of the work (specifically including information geared towards task identity, task significance, feedback, and autonomy) might increase job attraction and application intentions. In particular, autonomy or related constructs like decision-making latitude appear to have the greatest effect size in terms of applicant attraction, as well as the greatest source of inter-individual differences. This particular job characteristic might also provide the strongest opportunity to recruit applicants with an eye towards a specific, desired trait (such as conscientiousness). Such information need not be limited to more traditional job descriptions, however. Web-based recruitment tools, such as highly interactive situational judgment tests (SJTs), for example, offer organizations an opportunity to embed job and organizational characteristics as a realistic job preview within the context of the selection test (Lievens, Peeters, & Schollaert, 2008). Although the elements of the JCM were tested only in terms of job descriptions in this study, it is possible the relationships might hold when displayed in recruitment videos on websites or tests, such as SJTs.

From a methodological standpoint, this study also contributes to research using policy capture designs. Specifically, Aiman-Smith and colleagues (2002) explained that the preponderance of past policy capture studies answered either an idiographic question (assessing individual decision policies) or a nomothetic question (predicting mean-level decision tendencies), but noted the promise of random coefficient modeling (RCM) as an analytic tool that would allow researchers to ask both question types simultaneously. Although examples of
PC MODEL OF SYMBOLIC ATTRACTION

this approach are in the extant literature (e.g., Dalal & Bonaccio, 2010; Hurt, Maver, & Hofmann, 1999; Klaas, Mahony, & Wheeler, 2006), these studies each used multi-level approaches in a wide range of ways. Using Bliese's and Ployhart's (2002) sequential model building approach in this application can further standardize the analysis of policy capture designs. Moreover, this cursory search of policy capture studies in organizational research did not include the use of cross-level interactions in a policy capture context, as was done here. Including cross-level interactions, as well as cross-level direct effects (not appropriate for this study), expands the set of research questions one can ask in organizational decision making research.

Limitations and Future Directions

There are a number of limitations associated with this study. First, the job descriptions displayed little ecological validity. That is, the job descriptions were not keyed to a specific job or organization and included only information on the five job characteristics being tested. Not included were common aspects of job descriptions such as job title, education or experience requirements, benefits or pay, location, and so forth. As such, conclusions regarding how predictive the factors of the JCM are of application intentions are limited to the extent that these factors were only compared among each other and not competing information typically viewed in a job description. Consequently, it is unclear the relative importance of the level 1 findings with regards to the importance these other, common types of information.

Also, and generally common to policy capture designs, is that the full factorial design risks presenting an individual set of factor levels that might not exist in actual settings. That is, policy capture designs ignore natural correlations among factors that exist in actual applications (Karren & Barringer, 2002). As an example, it seems unlikely that a very high level of feedback
(e.g., once a month) would be associated with a job that is also very high on autonomy, as such levels of feedback might also be conflated with an environment of micro-management. Regardless of the realism of individual cues in a policy capture study, participants are still asked to provide ratings based on them. This could present unrealistic relationships among the predictor variables and the outcome.

Finally, the length of a full-factorial policy capture design also presents limits (Aiman-Smith et al., 2002; Karren & Barringer, 2002). In this specific study, participants rated 245 cues and 25 personality items across two survey sessions. More generally, the number of presented cues can be calculated as the number of levels raised to the power of the number factors (in this study, three levels of five factors yields $3^5 = 243$). Although the descriptions in this study were relatively short, which helps to alleviate concerns over participant fatigue, this potential issue is a concern. It is unclear, however, what overall pattern of results one might expect in the case of participant fatigue (e.g., consistent responses at one level of the response scale, random responding, etc.).

Future studies should explore the elements of the JCM in a more realistic recruitment context. This could take the form of using fewer levels of the factors as a way to present fewer, yet more information rich cues. As an example, two levels of the five JCM factors with two levels of another two predictors would result in only 128 cues, rather than the 243 used in this study. This opens up the possibility of comparing the relative importance of the five JCM factors as compared to other types of information one might find in a job description. Past research on symbolic attraction typically included instrumental information, as well, to test the incremental value of symbolic attraction (e.g., Lievens & Highhouse, 2003; Van Hoye, Bas, Cromheecke, Lievens, 2013; Van Hoye & Saks, 2011). By changing the policy capture design in these ways,
the full Instrumental-Symbolic framework could be tested. Other policy capture designs that involve presenting sub-sets of the study cues to different blocks of individuals also presents an opportunity to include more factors and information in a job attraction study without the concern over participant fatigue (Aiman-Smith et al., 2002; Karren & Barringer, 2002). For example, a study with eight factors and two levels results in a set of 256 cues. These could be blocked into four subsets of 64, however. Although the full range of level 1 predictors could still be assessed, such a study requires more participants to achieve the same power as a full-factorial design and limits the ability to test between-individual differences because different participant blocks respond to different cues. Although, between-individual hypotheses could be tested within blocks. Block assignment would present another opportunity for experimental manipulation, depending on the rules employed for how the presented decision-making situations are blocked.

A methodologically simpler approach to further studying the JCM as a source of attraction would be to test different individual difference variables than those studied here or use a different outcome variable, as either approach would not affect the number of situations presented within the policy-capture design. As noted previously, growth need strength was not included in this study, but it was part of the original JCM (Hackman & Oldham, 1976). Although the relationship between personal values and traits (Roccas et al., 2002) were used in the formulation of the interaction hypotheses in this study, testing personal values directly as possible moderators could provide evidence that the job characteristics within the JCM attract applicants by signaling the possibility for self-expression. Additionally, rather than taking a variable-centered approach as was done in this study, a person-centered approach wherein personality clusters that describe types of people should also be considered. As an example, De Fruyt (2002) used the FFM to generate two person-types that exhibited either internalizing or
externalizing behaviors and found membership in one of these two person typologies predicted interest in different job types.

With regard to choice of outcome variable, it is possible that in a low-information, early recruitment stage situation (Breaugh, 2008), potential applicants are not yet making the decision to apply. As indicated in the results section, despite mostly significant main effects, average levels of the outcome variable fell close to the middle of the response range. Perhaps using a more direct measure of applicant attraction or having participants indicate a desire to “learn more about the job” would have been more appropriate in such a low-information scenario.

**Conclusion**

In the early, low information stages of recruitment, job advertisements serve as an important information source from which applicants begin forming their initial perceptions of and attitudes towards prospective employers (Breaugh, 2008). From a marketing perspective, for these job ads to effectively attract applicants, they need to speak to those job seekers’ needs, values, and motives for working (Lievens & Highhouse, 2003). In particular, describing the job in such a way that communicates that the work would be potentially meaningful for applicants could be one avenue to communicate that a given job would likely satisfy those needs or allow individuals to express their values (Rosso et al., 2010). This study showed that manipulating job content in a job ad using the elements of the Job Characteristics Model (Hackman & Oldham, 1976), which does explain how work can be experienced as meaningful, can attract potential applicants. These findings might be particularly impactful as labor market forces suggest job seekers may place greater value on meaningful work than they have in the past (Petriglieri et al., 2018). Although it was hypothesized that preferences for the different aspects of the JCM in job ads would differ according to personality, such differences were mostly not observed. Although
the JCM suggests that the factors within the model generally predicts experienced
meaningfulness for most, further study is needed to truly ascertain whether or not there exist
between-person differences in how the JCM-coded job ad content attracts applicants. If the JCM
really does predict attraction variably between individuals, additionally research is needed to
explain those differences.
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Figure 1. Process Model for the Formation of Job Expectations and their Influence on Important Employee Attitudes and Behaviors (Breaugh & Starke, 2000).
Figure 2. Level 1 Direct Effects (Hypotheses 1-5)
Figure 3. Hypothesized Interactions with Extraversion
**Figure 4.** Hypothesized Interactions with Agreeableness
Figure 5. Hypothesized Interactions with Conscientiousness
**Figure 6.** Hypothesized Interactions with Neuroticism

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Figure 7. Hypothesized Interactions with Openness to New Experiences
Figure 8. Agreeableness and Autonomy Interaction
Figure 9. Conscientiousness and Autonomy Interaction
### Table 1. Study Demographics

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### Table 2. Results of Multilevel Models

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<td>Level 1, residual</td>
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</table>

*** p < .001, ** p < .01, * p < .05
Table 3. Psuedo R2 of Models 1 through 3

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<tr>
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<th>R^2 Within</th>
<th>R^2 Between</th>
<th>Total Pseudo R^2</th>
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<td>.10</td>
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<tr>
<td>Model 2</td>
<td>.31</td>
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<tr>
<td>Model 3</td>
<td>.31</td>
<td>-.52</td>
<td>-.22</td>
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</table>

Calculated using the formulae from Kreft & de Leeuw (1998) and Singer (1998)
Appendix: Policy Capture Cue Generation

Description Template:

<table>
<thead>
<tr>
<th>Job Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Skill Variety</td>
<td>This job requires the use of [insert skill variety cue]</td>
</tr>
<tr>
<td>Task Identity</td>
<td>Individuals are responsible for [insert task identity cue].</td>
</tr>
<tr>
<td>Task Significance</td>
<td>The output from this job has [insert task significance cue] impact on others in the organization.</td>
</tr>
<tr>
<td>Feedback</td>
<td>You can expect feedback approximately once every [insert feedback cue].</td>
</tr>
<tr>
<td>Autonomy</td>
<td>You will have [insert autonomy cue] freedom to make decisions in this role.</td>
</tr>
</tbody>
</table>

The following are the cue levels for skill variety:
- Low: “few skills”
- Moderate: “a moderate number of skills”
- High: “many skills”

The following are the cue levels for task identity:
- Low: “a single part of the process”
- Moderate: “multiple parts of the process”
- High: “the entire process”

The following are the cue levels for task significance:
- Low: “minimal”
- Moderate: “moderate”
- High: “significant”

The following are the cue levels for feedback:
- Low: “year”
- Moderate: “6 months”
- High: “month”

The following are the cue levels for autonomy:
- Low: “no”
- Moderate: “some”
- High: “great”
Appendix: Sample Policy Capture Cue

This job requires the use of few skills. Individuals are responsible for a single part of the process. The output from this job has minimal impact on others in the organization. You can expect feedback approximately once every 6 months. You will have great freedom to make decisions in this role.

- Extremely likely (1)
- Somewhat likely (2)
- Neither likely nor unlikely (3)
- Somewhat unlikely (4)
- Extremely unlikely (5)
Appendix: Personality Assessment

**Prompt:** Please indicate how accurately the following 25 items describe you. (1 = Very Inaccurate, 2 = Moderately Inaccurate, 3 = Neither Accurate nor Inaccurate, 4 = Moderately Accurate, 5 = Very Accurate)

1. I often feel blue.
2. I dislike myself.
3. I am often down in the dumps.
4. I have frequent mood swings.
5. I panic easily.
6. I feel comfortable around people.
7. I make friends easily.
8. I am skilled in handling social situations.
9. I am the life of the party.
10. I know how to captivate people.
11. I believe in the importance of art.
12. I have a vivid imagination.
13. I tend to vote for liberal political candidates.
14. I carry the conversation to a higher level.
15. I enjoy hearing new ideas.
16. I have a good word for everyone.
17. I believe that others have good intentions.
18. I respect others.
19. I accept people as they are.
20. I make people feel at ease.
21. I am always prepared.
22. I pay attention to details.
23. I get chores done right away.
24. I carry out my plans.
25. I make plans and stick to them.

**Note:** Neuroticism (items 1-5), Extraversion (items 6-10), Openness to Experience (items 11-15), Agreeableness (items 16-20), Conscientiousness (items 21-25)