

Recruiters' Inferences of Applicant Personality Based on Resume Screening: Do Paper People have a Personality?

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Published online: 28 November 2008
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Abstract Research shows recruiters infer dispositional characteristics from job applicants' resumes and use these inferences in evaluating applicants' employability. However, the reliability and validity of these inferences have not been empirically tested. Using data collected from 244 recruiters, we found low levels of estimated interrater reliability when they reviewed entry-level applicants' resumes and made inferences regarding applicants' personality traits. Moreover, when recruiters' inferences of applicant personality were correlated with applicants' actual Big Five personality scores, results indicated that recruiters' inferences lacked validity, with the possible exceptions of extraversion and openness to experience. Finally, despite being largely unreliable and invalid, recruiters' inferences of applicants' extraversion, openness to experience, and conscientiousness predicted the recruiters' subsequent employability assessments of the applicants.

Keywords Personnel selection · Resumes · Recruitment · Personality

Reviewing applicants' resumes is likely the most frequently used selection practice by organizations and is even more common than use of the employment interview (Dipboye and Jackson 1999). Organizations use resumes as the initial screening tool because they provide an opportunity to

determine if applicants possess requisite knowledge, skills, abilities, and other characteristics prior to investing in more expensive selection measures such as interviews or applicant testing. Because of these practices, recruiters' evaluations of applicants ultimately impinge on organizations' hiring decisions (Dipboye 1992). For instance, based on their resume reviews, recruiters act as an initial employment gatekeeper, deciding which applicants should remain active and which should be excluded from further consideration. This early phase is critical because recruiters' decisions to exclude prospective applicants for a job opening, based solely on their review of applicants' resumes, is tantamount to a rejection decision on the part of the organization (cf. Cable and Judge 1997; Higgins and Judge 2004).

In performing the initial screen, recruiters often focus on factual resume content perceived as relevant to the job. However, in addition to gathering factual information, recruiters apparently infer dispositional characteristics from applicants' resumes (Ash et al. 1989; Knouse 1989) and use these inferences in evaluating and comparing job applicants' employability (Brown and Campion 1994). Although the legitimacy of inferring applicants' subjective attributes from their resumes can be debated, it is widely accepted that recruiters often form impressions from resume data that go well beyond the educational achievements, work experiences, and skills reported on applicants' resumes (Cable and Gilovich 1998; Cole et al. 2004; Dindoff 1999; Glick et al. 1988). Qualitative data also exist supporting this view. For instance, during a National Association of Colleges and Employers (NACE) interview with a group of corporate recruiters, one recruiter stated he wanted resume information that demonstrates superior intelligence, motivation, leadership, resilience, and a strong work ethic. The recruiter further suggested that

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descriptions of past work experiences on a resume helped him with his task (*Job Choices: 1996 1995*). In sum, the successful recruitment and hiring of qualified applicants hinge on recruiters' ability to provide correct recommendations. If recruiters form inaccurate inferences that subsequently serve as a basis for evaluating and comparing job applicants, recruiters' recommendations may in fact sub-optimize the applicant pool.

Given the critical nature of recruiters' assessments of applicant employability, surprisingly little empirical data exist regarding the validity of resume-based inferences drawn by recruiters (Bright and Hutton 2000; Dindoff 1999; Harvey-Cook and Taffler 2000; Knouse 1994; Rubin et al. 2002; Thoms et al. 1999). For example, more than a decade has passed since Brown and Campion's (1994, p. 907) call for future research on the validity of recruiters' inferences of applicant personality from resume information. And yet, we are unaware of any published study that has addressed Brown and Campion's entreaty by determining if recruiters are capable of making valid inferences of applicant personality based solely on their review of job applicants' resumes.

The main purpose of the present research is to examine the construct validity of recruiters' personality-based inferences drawn from applicants' resumes. Although varied applicant attributes could be investigated, we chose to examine recruiters' Big Five personality inferences given that studies have demonstrated relationships between the Big Five and job performance (Hurtz and Donovan 2000). In addressing the basic recruiter-inference question, we have two specific research objectives. First, recruiters in the present research were asked to translate resume data into attributions concerning applicants' Big Five personality characteristics. We then examined the reliability and convergent validity of recruiters' inferences regarding applicants' personality by correlating recruiter pairs' independent judgments of applicant personality (reliability) and by correlating recruiters' inferences of applicant personality with applicants' personality self-reports (convergent validity). The second objective was to determine if recruiters' resume-based inferences of job applicants' Big Five personality dimensions were associated with pre-hire employability assessments (criterion-related validity).

Resume Information as Biographical Data

Mael (1991) has noted that any event or behavior that has taken place is a shaper of future behavior, and is, therefore, appropriate subject matter for biographical data. Asher (1972) has defined biographical information or "biodata" as representing "historical and verifiable pieces of

information about an individual (p. 266)." In applying such broad definitions, the only common characteristic that defines biographical information is that it echoes a person's life history (cf. Bobko et al. 1999, pp. 583–584). Because much of the information reported on resumes fits within this definition, Brown and Campion (1994) have contended that within an applicant-screening context, resume information represents a type of life history or biodata on job applicants. Although not a typical biographical data instrument per se, resume data are special in that resume content is a summary of what applicants' deem are their most important life experiences believed to be applicable to a work context. Moreover, Rubin et al. (2002) noted that although many biographical data instruments exist, the most widely used at the college recruitment level are resumes. Thus, resume information is a specific form of biographical information that summarizes selected historical events that have shaped an individual's behavior and identity (cf. Mael 1991).

The Ecology Model, Resume Biodata, and Applicant Personality

The rationale for recruiters using applicants' resume information as a predictor of personality is a logical extension of Mumford and Stokes' (1992) biographical information ecology model. The ecology model characterizes life experiences as a longitudinal progression of interactions among a person's resources (e.g., skills, abilities, human capital) and affordances (e.g., needs, desires, choices) and the environment. As a person engages in activities, the environment presents a variety of situations, some of which will satisfy the person's needs and values (Mumford and Stokes 1992). Because people have a limited amount of time and resources, they begin to select among situations and experiences in such a way that patterns emerge and personal attributes needed for affordance maintenance are developed.

Based on the ecology model, some of these incidents are reflected in information reported on a graduating senior's resume. Thus, students' underlying psychological traits such as extraversion and conscientiousness interact with situational demands to condition students' behavior and experiences that occur during college life (cf. Mumford et al. 1996). As observed by Caldwell and Burger (1998), students engaging in more group or social activities while in college may be more extraverted while those achieving more during college might be more conscientious. College experiences are important developmental exercises (e.g., Howard 1986) and, therefore, may be useful in characterizing or predicting student attributes such as abilities, interests, and personality.

Previous Research on Resume Screening

Although the accuracy of recruiters' inferences of applicant personality based on resume review has largely escaped the attention of human resource management research, empirical evidence suggests recruiters use resume information as indicators of applicants' personal characteristics. Dipboye et al. (1984) examined the accuracy of interviewers' judgments of applicants' self-reported personality. Interviewers who made personality assessments based solely on applicants' resumes were just as accurate, and, in certain instances, more accurate, than recruiters who made judgments based only on the interview or those who made judgments based on both resume and interview. Of the information typically reported on resumes, academic achievement is most frequently used within personnel selection for entry-level positions (Rynes et al. 1997). Brown and Campion (1994) suggested, for example, that the frequent use of grade point average (GPA) is due to recruiters' beliefs that GPA partially reflects intelligence, motivation, and other abilities needed on the job. In addition to academic achievements, previous studies' results have also highlighted the importance of applicants' participation in extracurricular activities (e.g., Rubin et al. 2002).

In a study involving 90 recruiters from 54 organizations, Cable and Gilovich (1998) compared postinterview evaluations of applicants who had been prescreened (based on their resume) with postinterview evaluations of applicants who were not prescreened. What makes Cable and Gilovich's study so interesting is that 71 applicants participated in a total of 390 interviews, some involving their resume being prescreened by a recruiter and in other instances; their resumes were not prescreened before the interview. In addition to the preinterview impressions and postinterview evaluations, recruiters were also asked to rate applicants' objective attributes (e.g., work experience, relevant classes) and subjective attributes (e.g., confidence, enthusiasm). Cable and Gilovich found that when applicants' resumes were prescreened by recruiters, postinterview evaluations of subjective qualifications (viz., initiative, enthusiasm, confidence, professionalism, communication, and presentation) were higher than when the same applicants' resumes were not prescreened, later interviewed, and evaluated by different recruiters. Next, they examined the prescreening effect relative to the effect of candidates' resume biodata. Results confirmed that prescreening was related to postinterview evaluations of applicants' subjective attributes. Furthermore, a number of resume biodata items were related with recruiters' evaluations of applicants' subjective and objective attributes. Thus, when recruiters use applicants' resumes as the initial screening tool, there is an implied assumption that information reported on the resume is linked to job relevant

attributions, including personality characteristics (Ash et al. 1989; Cole et al. 2003a; Rubin et al. 2002), which are important for job success.

Extending this line of research, others have sought to determine the extent to which specific resume biodata items are useful for predicting applicants' abilities, interests, and personality. Much of this research was inspired by Brown and Campion's (1994) study. The premise in Brown and Campion's research was that recruiters' interpret resume biodata as indicators of underlying attributes that predict job performance. Based on a literature review, interviews with employment recruiters, and the analysis of 249 actual resumes of applicants, Brown and Campion first identified 22 categories representing a wide range of resume biodata items encountered by recruiters. In study 1, they asked recruiters to judge the degree to which each of 22 common resume biodata items reflected three ability (math, language, physical) and three non-ability (leadership, motivation, interpersonal) attributes. Their results indicated recruiters (a) reliably judged resume content and (b) interpreted resume content as reflecting applicant ability and non-ability attributes. Further, the perceived amount of each attribute was correlated with the perceived usefulness of the biodata indicators for personnel screening. In study 2, recruiters examined eight fictitious resumes for two different jobs. Results showed that applicant employability was a function of job (sales versus accounting) requirements and the existence of specific resume biodata thought to reflect those job requirements. Study 3 provided a qualitative assessment of recruiters' perceptions of resume biodata, with recruiters' comments complementing the two previous studies' findings. In sum, Brown and Campion concluded that recruiters perceive certain resume items as indicators of applicants' basic abilities (e.g., math ability) as well as personal characteristics (e.g., interpersonal skill, leadership, motivation levels) and use these inferences as a basis for making applicant hiring decisions.

Finally, Cole (2003) and Cole et al. (2003a, b) (a) asked experienced recruiters to rate the extent to which Brown and Campion's resume biodata items were present on actual applicants' resumes and (b) assessed applicants' Big Five personality dimensions. The overarching goal of their research was to determine whether specific resume topics were predictive of applicants' personality traits. This group of researchers has also computed a correlation matrix between applicants' self-reported trait ratings and recruiters' ratings of the presence of resume biodata reported on the applicants' resumes. Consistent with the Mumford and Stokes' (1992) ecology model assertions, Table 1 shows that there are a number of resume biodata items associated with applicants' Big Five personality characteristics. Cole and his colleagues' research suggest that there are specific

Table 1 Correlations of job applicant resume biodata items with Big Five personality dimensions

Applicant resume biodata item ^a	<i>N</i>	<i>M</i>	<i>SD</i>	Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
Education								
College major	122	4.6	.68	.01	.07	.03	-.07	.05
Overall grade point average	122	2.6	1.63	-.12	-.11	-.09	-.02	.28**
Grade point average in major	122	3.1	1.70	-.01	-.14	.08	-.05	.19*
Earned % college expenses	221	1.6	1.03	-.07	-.02	-.06	-.02	-.05
Has computer experience	221	3.1	1.53	-.01	-.11	-.10	-.11†	.03
Knows foreign language(s)	221	1.5	1.05	-.05	-.03	.04	-.08	.10
Listed relevant courses	122	2.7	1.53	.03	-.23*	-.07	-.01	-.04
Work experience								
Has full-time work experience	221	2.9	1.12	-.03	-.05	-.03	-.10	-.08
Has supervised others	221	2.1	1.18	.12†	-.09	.00	-.16*	-.22**
Exhibited job achievement(s)	221	2.7	1.10	-.11	.06	-.00	.04	.07
Has held summer internship	221	2.2	1.24	-.12†	.13†	.00	.15*	.20**
Worked (part-time) while in college	221	3.6	1.00	-.07	.08	.01	-.11†	.07
Honors/extracurricular activities								
Was member of professional societies	221	2.7	1.35	-.06	.12†	.03	.04	.23**
Was member of college clubs	221	2.7	1.35	-.18**	.23**	.02	.01	.21**
Was member of social fraternity/sorority	221	2.2	1.46	-.15*	.20**	-.07	.02	.16*
Has held elected office(s)	221	2.1	1.29	-.15*	.26**	.01	.00	.12†
Was athletics captain	99	1.9	.64	-.02	.00	-.05	.03	-.02
Received scholastic award(s)	221	2.2	1.39	.00	.02	.06	.01	.16*
Was on the Dean's list	221	1.7	1.15	.05	-.09	.01	.06	.05
Volunteered for community activities	221	2.1	1.29	-.02	.15*	.11†	.05	.05

All tests are two-tailed

^a Classified according to Brown and Campion (1994). Recruiters' ratings of the extent to which resume biodata items were present on applicants' resumes (1 = None/Did Not Mention; 5 = Considerable Amount)

† $p < .10$; * $p < .05$; ** $p < .01$

Source: Adapted from Cole (2003) and Cole et al. (2003b)

resume topics that recruiters can use as signals of certain Big Five personality traits.

In summary, previous research has found recruiters are able to make reliable assessments regarding the presence of resume content (Cable and Gilovich 1998; Cole et al. 2003a) and applicant attributes when screening applicant resumes (Brown and Campion 1994). Research findings from a number of studies, both experimental and field-based, also suggest that recruiters form impressions of applicants' subjective attributes based on resume content (Cable and Gilovich 1998), and, more importantly, they use these inferences when evaluating applicants' employability (Brown and Campion 1994; Cole et al. 2004). While these and other studies (e.g., Cole et al. 2003b) have provided a wealth of information regarding the linkages between resume content with recruiters' perceptions of underlying applicant attributes and employability, a common

limitation exists across them. Specifically, recruiters' personality inferences were assumed to be valid rather than empirically demonstrated.

Research Hypotheses

Because recruiters' evaluation of applicants' resumes is inherently judgmental in nature, the reliability and validity of recruiters' inferences of applicants' traits is called into question. For instance, what are the implications for an organization if recruiters' inferences of job applicants' traits are unreliable or inaccurate? Differing impressions of applicants among organizational recruiters would introduce rating errors that, subsequently, might attenuate the reliability and validity of recruiters' inferences and their employability assessments. Thus, reliability and validity

reflect the *quality* of recruiters' inferences concerning job applicants.

Reliability and Validity of Recruiters' Inference Making

Although research has begun to investigate the validity of observers' judgments concerning applicant personality and subsequent fit with an organization (e.g., Cable and Judge 1997; Kristof-Brown 2000), the extent to which recruiters can draw valid inferences regarding applicants' personality from resume information has yet to be addressed (Brown and Campion 1994; Caldwell and Burger 1998). Nevertheless, the person-perception literature has reported valid self-other trait inferences for certain Big Five personality traits. This research suggests that the ease of trait judgment and trait visibility is associated with self-other personality agreement (Funder and Colvin 1997; Hays and Dunning 1997). As defined by Funder (1995), "good" traits are those providing raters with frequent cues regarding the target's standing on the personality dimension. For example, Barrick et al. (2000) found agreement was higher between self-ratings and interviewer-ratings on traits that were easier to judge because they were more observable in an interview (e.g., extraversion, openness to experience) compared to less visible, internal traits (e.g., neuroticism).

Prior research has consistently found extraversion the easiest trait to assess and neuroticism the most challenging (Hays and Dunning 1997). In the present study, applicant extraversion was expected to be the easiest personality dimension to judge within a resume-screening context. This is because the extent to which an applicant is extraverted is likely to be reflected by the types and numbers of extracurricular activities listed on the resume (Cole et al. 2003a; Rubin et al. 2002). While perhaps not as visible as extraversion, applicants' conscientiousness is likely to be relatively straightforward to infer from a resume. Characterized as hard-working, reliable, and motivated, conscientious applicants will probably have achieved more, and this will likely be reflected in resume information indicating higher academic achievements. In the case of the trait, openness to experience, Connolly and Viswesvaran (1998) observed the trait's self-stranger correlation as being somewhere between a visible trait (e.g., extraversion) and a less visible, more internal trait (e.g., neuroticism).

Consequently, we speculated that self-recruiter correlations for openness to experience will be similar in size to correlations observed for extraversion and conscientiousness. This is anticipated because applicants' openness to experience is expected to manifest itself in specific ways (e.g., artistically sensitive, open to worldly travel and foreign languages, volunteering for community sponsored activities) that are easily visible on applicants' resumes.

We expect there to be less agreement among recruiters regarding agreeableness. This is because agreeableness is probably not indicated by the common types of resume information presented on applicant resumes. Similarly, applicant neuroticism is likely to be the most difficult dimension to assess because it is a less visible, internal psychological trait. Therefore, we hypothesize:

Hypothesis 1a Based on information reported on applicants' resumes, recruiters' interrater reliability for applicant extraversion, conscientiousness, and openness to experience will be higher than the interrater reliabilities for applicant agreeableness and neuroticism.

Hypothesis 1b Recruiters' validity coefficients for their assessments of applicant traits (operationalized as the correlation between recruiters' personality inferences from applicants' resumes and applicants' self-assessments of Big Five personality dispositions) will be higher for applicant extraversion, conscientiousness, and openness to experience than for applicant agreeableness and neuroticism.

Recruiters' Perceptions of Applicant Personality and Employability Assessments

While recruiters are probably unaware of the statistical validities of certain personal characteristics associated with job performance, they may discern them through practical work experiences (Dunn et al. 1995). Therefore, after choosing among applicants' resumes and later receiving feedback on applicants' successes (or failures) in getting hired and their ensuing performance, recruiters form perceptions concerning what types of resume cues are characteristic of effective employees. More heavily weighted attributes will likely have more influence over the hiring decision. For instance, Dunn et al. (1995) described hypothetical applicants in terms of Big Five personality dimensions and found managers' impressions of applicants' conscientiousness predicted their assessments of applicants' employability.

One advantage of the Big Five taxonomy is its ability to make predictions as to which personality dimensions will relate to job success for different occupations (Barrick and Mount 1991). For the current study, we propose recruiters' inferences of applicants' conscientiousness and extraversion will correlate most strongly with recruiters' employability judgments for entry-level positions sought by recent business school graduates. Conscientiousness has demonstrated a consistent relationship with performance in most jobs (Hurtz and Donovan 2000; Mount and Barrick 1995; Salgado 1997), and extraversion has an established linkage with performance for jobs involving a significant amount of interpersonal interaction (Mount et al. 1994, 1998; Vinchur et al. 1998).

There is also evidence that hiring entry-level applicants is regarded as a long-term investment, sacrificing short-term productivity for long-term growth potential (Rynes et al. 1997). Recruiters have been found to evaluate entry-level applicants as being far superior in their willingness and ability to learn new things, open-mindedness, and their creativity and new ideas versus more experienced applicants (Rynes et al. 1997). In considering the Big Five factors of personality, many elements considered part of the openness to experience dimension were just described (e.g., imaginative, intellectually curious, divergent thinking, creative). Open individuals are curious about their inner and outer worlds, are willing to consider novel ideas and unconventional values, and generally show a proclivity for learning (Costa and McCrae 1992). Recruiters may, therefore, also recognize the need for entry-level college hires that demonstrate a potential for being open, flexible, and innovative. Thus, we posit the following hypothesis:

Hypothesis 2 Applicants perceived by recruiters as having higher levels of conscientiousness, extraversion, and openness to experience will receive more positive employability assessments than applicants perceived to possess lower levels of conscientiousness, extraversion, and openness to experience.

The two remaining Big Five dimensions, agreeableness and neuroticism, were beyond the scope of the present study given that we were interested in inferable personality traits. One could speculate, however, that most recruiters would indicate that they want agreeable applicants and would like to avoid neurotic applicants. Accordingly, relationships between recruiters' inferences of applicants' agreeableness and neuroticism and employability assessments will be explored for completeness but not included in a formal hypothesis.

Method

Preliminary Studies: Rating Scale Development

Pilot Study 1

As part of the recruiter questionnaire development, first-year Master's of Business Administration (MBA) students were solicited during a regular class period to participate in a pilot study. The objective of pilot study 1 was to develop rating scales recruiters could use after reviewing job applicant resumes to rate applicants' personality attributes.

Sample and Procedures Forty-one MBA students provided data for developing the scales. They reported an average of three years' work experience ($SD = 4.7$), and

37% had screened resumes for hiring purposes. The MBAs were told to assume the role and mindset of an organizational recruiter and to screen one of three actual job applicant resumes. After reviewing each resume, they judged the applicant's attributes using adjective trait rating scales developed to assess the Big Five model of personality.

Measures For the adjective trait rating scales, we identified ten personality adjectives for each personality dimension based on studies developing markers for the Big Five taxonomy (Goldberg 1992; McCrae and Costa 1992). Previous studies examining the validity of observer ratings of personality measures have selected similar adjectives (Barrick et al. 2000; Mount et al. 1994). For example, the ten adjective traits for extraversion were as follows: friendly, enthusiastic, outgoing, aloof (reverse-scored), cheerful, assertive, sociable, energetic, extraverted, and active. We asked respondents, "From the information contained in this person's resume, to what extent does this adjective describe this person?" They used a five-point scale (1 = can't determine from the resume information; 3 = somewhat descriptive of this person; 5 = very descriptive of this person) to rate the adjectives.

Results For each of the five personality dimensions, the set of ten adjectives was reduced to the five adjectives exhibiting the highest coefficient alpha. The number of adjectives per trait was reduced to develop short, reliable measures that recruiters could complete quickly. Final alphas for the five dimensions were: neuroticism ($\alpha = .94$), extraversion ($\alpha = .82$), openness to experience ($\alpha = .91$), agreeableness ($\alpha = .93$), and conscientiousness ($\alpha = .95$).

Pilot Study 2

Although the personality measures developed for our study are similar to measures used by Barrick et al. (2000), the objectives of the second pilot study (using a different sample) were to obtain additional coefficient alpha and also test-retest reliabilities of the five-adjective trait measures and to assess their convergent validities with the NEO Five-Factor Inventory (NEO-FFI; Costa and McCrae 1992), a psychometrically sound, widely-used personality inventory.

Sample and Procedures Upper-level undergraduate business students ($n = 88$) were used for the second pilot study. Of these, 51% were male, and they averaged 23 years of age ($SD = 3.5$). At time 1, the students indicated the extent to which the 25 personality adjectives identified in pilot study 1 described them (1 = strongly disagree; 5 = strongly agree). Four weeks later (time 2),

these same students again rated themselves on the 25 adjective traits and also completed the NEO-FFI.

Results Responses to the five adjective traits per construct were averaged to create five personality composite measures. Coefficient alphas for the two administrations of the adjective rating scales were: neuroticism ($\alpha = .66; .76$), extraversion ($\alpha = .77; .81$), openness to experience ($\alpha = .78; .65$), agreeableness ($\alpha = .71; .68$), and conscientiousness ($\alpha = .71; .75$). Mean test–retest reliability (over 4 weeks) for the five adjective trait measures was .68. The personality measures (adjective measures collected at time 1 and NEO-FFI dimensions gathered at time 2, 4 weeks later) also exhibited acceptable convergent validity, i.e., neuroticism ($r = .53, p < .001$), extraversion ($r = .60, p < .001$), openness to experience ($r = .32, p < .01$), agreeableness ($r = .32, p < .01$) and conscientiousness ($r = .60, p < .001$).

Primary Study

General Procedures

Applicant Resume Collection and Measure Administration Approximately two-thirds through the semester, seniors enrolled in upper-level management classes in a college of business at a large southeastern university were invited to participate in the study. A small, extra-course credit incentive was offered by the course professors for participation. If interested, students submitted copies of their resume. Six weeks later, 178 students who had submitted their resumes were given the NEO-FFI during a regular class period. Almost all (98.8%) participants who had submitted resumes completed the measures.

Recruiter Measure Administration In the second phase of data collection, we mailed an initial letter to company recruiters belonging to the Society of Human Resource Management (SHRM) requesting their participation in the study. We then mailed volunteering recruiters a survey packet including an applicant resume, resume rating booklet, and questionnaire. Two recruiters independently evaluated each resume. Upon completion, the recruiters returned the questionnaire in a self-addressed, stamped envelope.

Job Applicant and Recruiter Participants

Job Applicants Of the 178 students who submitted resumes, 56 either (a) reported non-business academic majors, (b) submitted resumes that were obviously poorly prepared, or (c) failed to provide complete data. Elimination of these participants reduced the useable sample to 122

resumes. No demographic or personality scale differences were found between the retained job applicant resumes and those removed from the study.

The applicant sample ($n = 122$) was 50% female, 90% White, and averaged 22 years of age ($SD = 1.4$). Approximately, 85% indicated they would be seeking full-time employment in the next 6 months; 71% reported having previously interviewed for a full-time job.

Recruiters We contacted 5,000 recruiters by mail in five southeastern states using a mailing list purchased from the Society for Human Resource Management (SHRM). Because diversity among organizations and recruiters would aid the generalizability of study results, we solicited study participation from recruiters in service and manufacturing organizations, government and nonprofit organizations, and small (i.e., less than 500 employees) as well as large (i.e., more than 10,000 employees) organizations.

Approximately 4% of the solicitation letters mailed were returned marked “Returned to Sender” or “Insufficient Address.” Of the remaining recruiters, 321 (7%) volunteered to participate. Although this is a low response rate, it may be explained by (a) the mailing list use requirements mandated by the database owner, SHRM and (b) the nature of the recruiters’ job responsibilities. First, in terms of mailing list use guidelines, SHRM required a signed contract stating we could only send an officially approved solicitation letter to SHRM members; no initial mailing of a questionnaire was permitted. If interested in participating, recruiters were required to contact us indicating they would be willing to participate. Only then were we allowed to mail recruiters a packet containing a description of the study, one applicant resume, resume rating booklet, questionnaire, and a self-addressed, stamped return envelope. A second reason for the low response rate may be due to the nature of recruiters’ jobs. Recruiters travel extensively and many expressed that travel and time constraints prohibited their participation. It should also be noted that other studies utilizing the SHRM database have experienced low return rates (e.g., 14%, Rynes and Rosen 1995).

Of the 321 recruiters who responded to the initial letter, 244 (2 recruiters for each of the 122 applicant resumes) were subsequently sent a packet. Thus, the final recruiter sample consisted of 244 human resource professionals specializing in recruitment and representing a variety of organizations including services (48%), manufacturing (19%), government or nonprofit (16%), and other (18%). Over 60% of the resume reviewers were employed by organizations with 1,000 or more employees and had a mean organizational tenure of 72 months ($SD = 77.9$). They represented a wide variety of job titles, the most common being Human Resource Manager (29%). The

reviewers were primarily female (68%) and averaged 39 years of age ($SD = 9.5$). Most were college graduates (92%), with 40% reporting an advanced degree. Over half (53%) indicated they spent at least 25% of their time reviewing job applicants' resumes.

Job Applicant Measures

Personality As mentioned earlier, we assessed job applicant personality using the NEO Five-Factor Inventory (NEO-FFI; Costa and McCrae 1992). The NEO-FFI is an abridged version of the *NEO PI-R: Form S* containing 12-item scales for each of five personality dimensions. The domains assessed and coefficient alphas for each in the present study were *Neuroticism* ($\alpha = .86$), *Extraversion* ($\alpha = .81$), *Openness to Experience* ($\alpha = .74$), *Agreeableness* ($\alpha = .72$), and *Conscientiousness* ($\alpha = .82$). Respondents indicated their agreement or disagreement with the items using a five-point rating scale, where 1 = strongly disagree; 5 = strongly agree.

Recruiter Measures

Position-hiring Scenario In order to provide a common job referent for recruiters making resume judgments (cf. Thoms et al. 1999), we developed a hypothetical, position-hiring scenario applicable to a variety of college majors (A. M. Ryan, personal communication, March 5, 2002). The position description gave the recruiters a standardized understanding of the position for which applicants were being considered (Weiner and Schneiderman 1974).

The *Position-hiring Scenario's* directions noted that recruiters were to assume this scenario applied to entry-level positions suitable for recent business school graduates in each department or functional area of their current organization, e.g., accounting, human resources, marketing, and information systems. After reading the hiring scenario, they were told to assume that they had received the enclosed resume from a new college graduate who was applying for an open position that fit their major field of study as indicated on their resume. After reading the applicant's resume, they answered specific questions regarding the job applicant.

Applicant Personality Inferences Recruiters assessed applicants' personality using the five adjective trait rating scales developed in the pilot studies. In a study by Costa and McCrae (1992), the researchers showed 21 of the 25 personality markers strongly correlated ($p < .001$) with their respective personality dimension (p. 49). Recruiters were asked, "To what extent do you agree or disagree that each adjective accurately describes this applicant?" The domains and five adjectives comprising each were: (a)

neuroticism = envious, discontented, relaxed (recoded), stable (recoded), and calm (recoded) ($\alpha = .62$); (b) *extraversion* = enthusiastic, sociable, energetic, extraverted, and active ($\alpha = .90$); (c) *openness to experience* = versatile, wide interests, adventurous, creative, and insightful ($\alpha = .85$); (d) *agreeableness* = kind, cooperative, warm, charming, and unselfish ($\alpha = .91$); and (e) *conscientiousness* = hardworking, organized, thorough, responsible, and systematic ($\alpha = .88$). Recruiter responses (1 = strongly disagree; 6 = strongly agree) to the five adjective traits per construct were averaged to create composite adjective trait scores.

Employability Assessment Recruiters were asked to refer back to the position hiring scenario and screen the applicant for an appropriate position. Recruiters assessed applicants' employability using a four-item scale. These items were chosen because they represented frequently used variables in previous selection decision research (e.g., Cable and Judge 1997; Kristof-Brown 2000). Two of the four items asked recruiters to indicate the likelihood that they would (a) be interested in interviewing the applicant and (b) recommend the applicant be hired. Recruiters were also asked, "If hired for the hypothetical position, how likely is it that this applicant would succeed in the job?" Recruiters' responses to these three items were given using a six-point, Likert scale (1 = extremely unlikely; 6 = extremely likely). The final item asked recruiters, "Taking everything into consideration regarding the applicant's resume, what is your overall evaluation of the candidate?" (1 = very negative; 6 = very positive). An exploratory factor analysis showed the four items loaded on a single factor that explained 86% of the variance; $\alpha = .94$ (cf. Cable and Judge 1997). Due to differences among scale anchors for the four items, responses were standardized before scale scores were computed.

Results

Means, standard deviations, coefficient alphas, and inter-correlations among the study variables are shown in Table 2.

Hypotheses 1a and 1b proposed that the extent to which recruiters could reliably and validly infer applicant personality traits after reviewing applicants' resumes would vary for different personality traits. With regard to reliability, we hypothesized highest interrater reliability for extraversion and lowest for agreeableness and neuroticism; interrater reliabilities for conscientiousness and openness to experience were posited to be similar to that found for extraversion. We examined estimated interrater reliability by correlating the recruiter pairs' judgments of applicants'

Table 2 Intercorrelations among study variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
Applicant personality ^a													
1. Neuroticism	2.53	0.65	(.86)										
2. Extraversion	3.74	0.53	-.44**	(.81)									
3. Openness to experience	3.23	0.52	-.28**	.26**	(.74)								
4. Agreeableness	3.61	0.48	-.39**	.08	-.05	(.72)							
5. Conscientiousness	3.90	0.52	-.35**	.22**	-.11	.32**	(.82)						
Recruiter inferences ^b													
6. Inferred neuroticism	4.70	0.65	-.09	-.14*	-.04	-.05	-.05	(.62)					
7. Inferred extraversion	4.43	0.96	-.07	.13*	-.04	-.01	.14*	-.26**	(.90)				
8. Inferred openness to experience	3.71	0.90	-.02	.06	.07	-.10	.07	-.24**	.66**	(.85)			
9. Inferred agreeableness	3.89	0.90	.08	-.02	-.03	-.04	-.07	-.31**	.40**	.56**	(.91)		
10. Inferred conscientiousness	4.40	0.83	-.01	-.03	-.07	-.09	.02	-.40**	.42**	.50**	.36**	(.88)	
11. Rated applicant employability	0.01	0.91	-.09	.05	.01	-.04	.13*	-.28**	.39**	.42**	.17**	.52**	(.94)

n = 240–244. Coefficient alphas are shown on the diagonal

^a Assessed from applicants’ scores on the NEO Five-Factor Inventory

^b Assessed from recruiters’ ratings of applicant resumes using the Adjective Trait Rating Scale

* *p* < .05 (two-tailed); ** *p* < .01 (two-tailed)

resumes for each of the five personality traits. The correlations were corrected for two raters using the Spearman-Brown formula. These coefficients show (see Table 3) the degree of reliability that two recruiters judging resumes independently and using the adjective trait rating scales produced when their responses were averaged (Westen 1996).

Based on the relative magnitudes of the traits’ reliability coefficients, the results suggested partial support for our reliability hypothesis (Hypothesis 1a). As predicted, extraversion had the highest estimated reliability ($r_{tt} = .56$) and was judged significantly ($p < .05$) more reliably than the other four traits. In addition, as predicted, neuroticism had the lowest estimated reliability ($r_{tt} = .14$) and was

significantly ($p < .05$) lower than the four other traits. Although the pattern of results were in general agreement with our hypothesis, the reliability estimates for recruiter personality inferences were generally low, ranging from .14 to .56. Thus, it seems that there is considerable error present in recruiters’ inferences of applicant personality from applicants’ resumes.

Hypothesis 1b predicted that, based on applicants’ resumes, recruiters would make valid inferences of applicant extraversion, conscientiousness, and openness to experience but would not validly infer applicant neuroticism and agreeableness. Validity coefficients were calculated by correlating the two recruiters’ averaged ratings of applicants’ personality attributes with applicants’

Table 3 Estimated interrater reliability coefficients, uncorrected (r_{xy}), and corrected validity (r_c) coefficients for recruiters’ inferences of applicants’ personality traits

Applicant personality trait	<i>N</i> ^a	Interrater reliability of recruiters’ ratings of personality traits from applicant resumes ^b	Validity of <i>averaged</i> recruiter ratings	
			r_{xy}	r_c^c
Extraversion	121	.56 _a	.15*	.22
Conscientiousness	121	.31 _b	.03	.06
Openness to experience	120	.40 _{bc}	.08	.15
Neuroticism	120	.14 _d	-.11	-.32
Agreeableness	118	.33 _{bc}	-.05	-.14

^a Sample size for interrater reliability and validity of averaged recruiter ratings represents number of recruiter *pairs*

^b Interrater reliability coefficients that do *not* share a common subscript differ at $p < .05$. All tests are one-tailed

^c Corrections for unreliability in the criterion are based on coefficient alpha. Corrections for unreliability in the predictor are based on interrater reliability coefficients shown in this table (cf. Viswesvaran et al. 1996)

* $p < .05$

self-reports to the personality inventory. As recommended by Hunter and Schmidt (1990), pp. 124–125), we corrected validity coefficients for unreliability in both the criteria and predictors. Mount et al. (1994) and Barrick et al. (2000) reported similar adjustments for attenuation in their research investigating the validity of observers' ratings of personality domains. The uncorrected (r_{xy}) and corrected (r_c) correlations (i.e., validity coefficients) between recruiters' inferences of applicant personality using the adjective trait scales and applicants' personality self-reports for the NEO-FFI personality attributes are reported in Table 3.

As predicted, recruiter inferences from applicants' resumes regarding applicant extraversion were associated with applicants' personality ($r_{xy} = .15$, $p < .05$; $r_c = .22$) inventory scores. In contrast, valid inferences regarding applicant conscientiousness ($r_{xy} = .03$, $p = ns$; $r_c = .06$) and openness to experience ($r_{xy} = .08$, $p = ns$; $r_c = .15$) were not supported by our results. Because only extraversion's validity coefficient was statistically significant, Hypothesis 1b was not supported. Further, we should note that the magnitudes of the validity coefficients were low. In fact, two (for Neuroticism and Agreeableness) were negative.

Hypothesis 2 predicted that applicants perceived by recruiters as high in extraversion, conscientiousness, and openness to experience would receive more positive employability assessments than applicants exhibiting an opposite personality profile. We tested the hypothesis using multiple regression analysis. Averaged recruiters' inferences regarding applicant personality constructs were used to predict recruiters' employability assessments. Overall, recruiters' inferences of applicant personality accounted for a significant amount of variance ($R^2 = .43$, $p < .001$) in recruiters' employability assessments. As shown in Table 4, recruiters' inferences of applicant conscientiousness ($\beta = .45$, $p < .001$) and openness to experience ($\beta = .25$, $p < .05$), and extraversion ($\beta = .17$, $p < .05$) predicted their employability assessments. No association with recruiters' employability assessments was found for agreeableness or neuroticism. Thus, we concluded that our results supported Hypothesis 2.

Discussion

Recruiters make applicant attributions that extend beyond applicants' education and experience when reviewing their resumes. For instance, recruiters infer applicants' subjective attributes from resume biodata and use these attributions when forming initial impressions regarding applicant employability (Brown and Campion 1994). The present study extends previous research by exploring the

Table 4 Multiple regression results for recruiters' inferences of applicants' personality and ratings of applicant employability

Recruiters' inference of applicant personality	Recruiters' applicant employability rating (β)
Extraversion	.17*
Conscientiousness	.45**
Openness to experience	.25*
Neuroticism	-.05
Agreeableness	-.12
F-value	16.69**
R^2	.43
Adjusted R^2	.41

$n = 115$

* $p < .05$ (one-tailed); ** $p < .01$ (one-tailed)

reliability and validity of recruiters' inferences regarding applicant personality after reviewing applicants' resumes.

Concerning the reliability of applicant personality inferences, our results indicated that the reliability estimates of recruiter pairs' judgments were relatively low in magnitude. The general pattern of results indicated the recruiter pairs' ratings of applicants' extraversion, conscientiousness, openness to experience, and agreeableness were associated to a modest extent (mean $r = .43$). Although lower than anticipated, the reliability estimates were appreciably higher than those reported by Barrick et al. (2000). Specifically, Barrick et al. reported the average reliability estimate between interviewers and strangers providing personality inferences of an applicant was .13. Our results indicate that at least for some personality attributes, recruiters' ratings are not completely idiosyncratic.

In terms of validity, recruiters were asked to screen applicants' resumes and provide judgments of applicants' Big Five personality dimensions. Our results showed that recruiters were generally unable to infer applicant personality from applicants' resume information. Of the Big Five dimensions, recruiters' most valid inference involved applicants' extraversion. This finding is consistent with extant research, as extraversion is reported to be a highly visible trait that exhibits self-other personality convergence within personnel selection contexts (Barrick et al. 2000; Connolly and Viswesvaran 1998). Contrary to expectations, recruiters were generally unable to infer applicants' conscientiousness and openness to experiences from resume information. Recruiters were worse at inferring applicants' attributes generally considered to be internal traits and, therefore, less visible on applicants' resumes (i.e., neuroticism and agreeableness). In fact, recruiters' inferences for both applicant neuroticism and agreeableness exhibited negative validity coefficients. Based on

existing self-other personality research, however, these results were not unexpected. Connolly and Viswesvaran (1998) noted that level of acquaintanceship influences the convergence between self-ratings and observer ratings. In the Barrick et al. (2000) study, for example, only extraversion and agreeableness' self-stranger correlations ($r = .17$ and $r = .18$, respectively) even approached statistical significance, and they therefore concluded strangers' ratings were not convergent with applicants' self-ratings. Similarly, in the current study, applicants (i.e., self) and recruiters (i.e., observers) were strangers, and the magnitudes of our self-recruiter correlations essentially paralleled Barrick et al.'s findings. Overall, these results generally suggest inferring applicants' psychological traits without a significant period of concrete applicant-recruiter interaction is an extremely difficult task even for experienced recruiters.

Based on the study findings, our hypotheses regarding the reliability and validity of recruiter inferences of applicant personality received only limited support. Even when hypothesized relationships achieved statistical significance, the magnitudes of these relationships were generally low. We speculate that, when combining information to form a single judgment (e.g., personality inference), recruiters have a difficult time weighting and integrating information relevant to their judgments (cf. Slovic 1995). For instance, Viswesvaran et al. (1996) reported that 20 to 30% of the variance in performance ratings of the average rater was due to rater idiosyncrasy. Furthermore, others have found that when recruiters interpret applicant information, recruiters' impression formation of applicant attributes was oftentimes informal, unstructured, and varied among individual evaluators (Bretz et al. 1993; Graves 1993; Kinicki et al. 1990). Therefore, it is important to consider that when impressions differ among recruiters, error is introduced that curtails the reliability and validity of applicant information gathered (Dipboye 1992). An alternative explanation for the low validity coefficients concerns Hogan's (1991) view-of-personality responding (see also Van Iddekinge et al. 2005). Hogan has argued that individuals' responses to personality inventories are not truthful self-reports, but rather are self-presentations. Particularly in job applicant situations, Hogan has suggested individuals respond to personality items in an attempt to convey a particular image of an ideal employee.

Our results for Hypothesis 2 suggested that recruiters, when forming impressions regarding applicant employability, considered their inferences of applicants' personality traits that would aid incumbents in performing the job. This is consistent with past research that has found subjective impressions formed by recruiters tend to have a strong influence on recruiters' employability decisions (Cable and Gilovich 1998; Kinicki et al. 1990). Overall, what do these results tell us regarding how recruiters

inferred applicant personality? Our results seem to suggest that recruiters, to a limited extent, use certain resume items to derive personality attributes for applicants. Indeed, if such inferences were entirely idiosyncratic, we would not have been able to find evidence of reliability and validity. Moreover, in judging applicant employability for a position opening, the recruiters apparently incorporated these personality traits in making their employment determinations. Our findings provide a preliminary template for an ideal applicant personality profile most predictive of positions typically "filled" by recent graduates of business schools. Successful applicants were those perceived as being responsible and attentive to detail, having an inclination for trying new things, and possibly enjoying friendly and frequent interactions with others.

Study Limitations and Strengths

There are several limitations to this study that should be mentioned. The first limitation involves recruiters' judgments of applicants' personality traits using adjective trait ratings scales. The low levels of interrater agreement and validity of recruiters' inferences we observed could be a result of the adjectives composing the scales we employed. We made a considerable effort (in the form of two pilot studies) to ensure the adjectives that composed the final personality measures were reliable and exhibited convergent validity. Furthermore, the adjectives we included have been used to assess personality (see, for example, Barrick et al. 2000; McCrae and Costa 1992; Mount et al. 1994); moreover, most of the adjective trait scales had generally acceptable coefficient alphas. Consequently, we do not believe our use of adjective trait rating scales explain the low levels of interrater agreement and validity.

A second concern entails recruiters' low response rate to our initial letter soliciting their participation in the study. As described earlier, the proactive steps required of recruiters to contact us if interested in completing survey materials significantly reduced the participation rate. Nevertheless, the participation rate and recruiters' characteristics are comparable to those attained in other survey research involving recruiters (e.g., Rynes and Rosen 1995; Rynes et al. 1997). A third concern is related to the issue of common method variance. In spite of the potential for common method bias, we regressed recruiters' employability assessments on their applicant personality inferences. Two points should be made regarding the common method bias issue. First, in the real world of recruiting, recruiters retain both roles of information gatherer and judge. Therefore, the psychology of the underlying phenomenon of interest subsumes same-source bias. We believe our methodology maintains the ecological validity, both internal and external, of the study. Second,

the major purpose of the study was to determine the *relative* degree to which recruiters' inferences of applicant personality were related to employability assessments. Since method variance by definition should similarly inflate relationships among all variables assessed in the same questionnaire, the relative levels of relationships in comparison to each other should be largely unaffected.

In addition to limitations, we believe our study has strengths as well. For instance, much of the extant resume research exhibits the methodological limitation of being conducted in laboratory settings under experimental conditions. In our study, however, recruiters were asked to judge applicants' personality as they perceived the *actual* applicants' resumes to portray the applicants. Moreover, we employed *experienced* recruiters who reviewed actual resumes to form initial impressions of applicant employability. Finally, our study examined the validity of recruiters' attributions using constructs extensively studied and included in personnel selection, i.e., Big Five personality dimensions.

Implications and Future Research Directions

Although Big Five personality dimensions have been studied extensively within applied psychology, to our knowledge they have not been examined in the context of resume screening and evaluation. Results from our study are particularly interesting in this respect because recruiters' inferences of applicants' personality (despite their low validities) predicted employability assessments as we predicted by theory and past research. In the present study, the job applicants' characteristics were homogeneous (i.e., new graduates of a business school). Recent graduates likely have less tangible experiences to report than more experienced applicants so the level of inference required of recruiters was greater. Thus, results concerning recruiter reliability and validity might have been very different had we employed more experienced applicants' resumes.

Understanding recruiters' attribution processes when screening and evaluating applicants' resumes have important implications for organizations. Past research has explained applicant evaluations by suggesting recruiters utilize implicit theories to evaluate applicants (Brown and Campion 1994; Knouse 1994). Future research should assess recruiters' schemas of applicants' personality attributes associated with perceptions of applicant employability to determine whether implicit theories are functioning. The repertory grid methodology has been used successfully to investigate recruiters' person-organization (P-O) fit perceptions (e.g., Bretz et al. 1993; Kristof-Brown 2000), and therefore could possibly be used to examine recruiters' implicit theories of the ideal applicant.

Empirical research shows resume reviewers infer that certain resume information is associated with applicant characteristics important for job success and employ these inferences in evaluating job applicants. Thus, whether inferred correctly or incorrectly, recruiters' resume evaluations matter because their recommendations influence organizations' hiring decisions. Because resumes are mailed or sent electronically, to the extent that recruiters' impressions are accurate, financial savings could accrue to an organization before investing in more expensive and time-consuming selection methods requiring on-site applicant presence. On the other hand, the cost of recruiter errors is high. Given the frequency of resume screening, it is important to examine the factors believed to influence the psychometric properties of resume screening and evaluation. More specifically, we believe that by (a) identifying the resume items known to be associated with key job success criteria, (b) incorporating additional structure to focus on such items in resume evaluation, and (c) providing resume screening training to recruiters, the utility and payoff of resume screening can be enhanced.

In our study, the low interrater reliability and validity of recruiters' inferences are evidence that additional structure in resume evaluation is needed. Incorporating additional structure in the resume evaluation process should decrease rating biases and might enhance recruiters' ability to infer applicants' traits. If successful, a structured resume assessment might serve as a prescreening tool used to predict applicants' basic personality tendencies and social skills, which happen to be the most frequently rated constructs during employment interviews (Huffcutt et al. 2001). Moreover, the legal defensibility of a structured resume evaluation process makes it an attractive alternative to the status quo. A structured resume screening process might require applicants to report all relevant resume information on a standardized form (as might be presented on a company Web site). Recruiters might also use standardized rating scales to evaluate the same types of resume content across resume screenings (see, for example, structured rating procedures employed by Pulakos et al. 1996; Stevens 1998).

Training is also likely to have a significant impact on recruiter accuracy. In particular, frame-of-reference (FOR) training is one possible approach for improving rater reliability and accuracy (London et al. 2004; Schleicher et al. 2002). FOR training changes the impression formation process of raters to more trait-based (as opposed to behavioral-based) representations of the ratee (Schleicher et al. 2002).

Finally, current thinking regarding person-environment fit suggests it is important to select applicants with personalities and values that are congruent with those of the organization (Kristof-Brown et al. 2005; Saks and Ashforth

2001). Ultimately, if future resume research identifies stronger, more consistent ties between resume information and applicant personality, resume evaluation's greatest contribution may be as a pre-screening selection tool to aid in assessing applicants' person-job, person-team, and person-organization fit.

Acknowledgments We thank Jeremy O. Stafford for his assistance with the data collection and Robert S. Rubin for vetting a draft manuscript.

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