

Using Recruiter Assessments of Applicants' Resume Content to Predict Applicant Mental Ability and Big Five Personality Dimensions

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Information provided on applicants' resumes provides a convenient, cost-effective means for applicant screening. We sought to determine if recruiters' assessments of the presence of certain types of information on job applicants' resumes was related to applicants' general mental ability and personality traits. Forty recruiters from 35 organizations assessed the extent to which specified items were present on the resumes of job applicants. Results indicated relationships between recruiters' judgments regarding applicants' resume information and applicants' cognitive ability and Big Five personality characteristics. Implications for the use of resume information in the selection process are discussed.

Introduction

When used as an initial screening tool, resumes provide employers the opportunity to quickly review applicants' qualifications in areas such as education, work experience, and special skills (Knouse 1989). For this reason, reviewing applicants' resumes has become a common practice among organizations filling entry-level positions (Hutchinson 1984) and especially for those considering large numbers of applicants competing for a limited number of job openings (Gatewood and Feild 2001). As early as the 1970s, it was estimated that one billion resumes and applications were screened each year (Levine and Flory 1975). Moreover, it is not atypical for a large corporation to review more than 50,000 resumes to fill thousands of positions in a year's time (Hays 1999; Useem 1999).

Resume Content and Applicant Attributes

When selection managers use applicants' resumes as a pre-employment screening tool, there is an implied assumption that information reported on the resume is linked to important, job-relevant attributes such as abilities (e.g., mental ability) or personality characteristics (e.g., conscientiousness; Ash, Johnson,

Levine and McDaniel 1989). That is, resume reviewers may believe that certain resume information is associated with applicant characteristics important for job success and consequently use these perceptions as a basis for evaluating job applicants (Dipboye, Fontenelle and Garner 1984). For example, Brown and Campion (1994) found that resume reviewers believed grade point average (GPA) as reported on college students' resumes reflected students' mental ability. Surprisingly, however, given the time and resources devoted to resume screening and the use of these data in initial screening decisions, there is little empirical research examining how the presence of specific resume topics are associated with job-relevant attributes (Ash *et al.* 1989; Brown and Campion 1994).

Much remains to be learned concerning how resumes are used in the initial screening of job applicants. In the present study, we sought to determine the extent to which specific resume topics serve as predictors of applicants' job-relevant attributes. More specifically, our principal objective involved the identification of resume content associated with applicant cognitive ability and Big Five personality attributes.

For the predictors in our study, we decided to use recruiters' perceptions of resume content rather than recruiters' inferences of applicant attributes based on resume content. We believe this approach is important for several reasons. First, because recruiters' evaluations and inferences from resume content regarding applicant psychological attributes are complex (e.g., Bretz, Rynes and Gerhart 1993; Dipboye 1994), a study of the linkages

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between resume content and applicant attributes offers a more straightforward way of predicting applicant characteristics. Second, assuming specific resume topics are found to predict applicant cognitive ability and personality traits, guidance could be provided to recruiters as to which specific resume topics predict desired applicant attributes. Recruiters could be trained to focus on reliably detecting and assessing specific resume content rather than making broad generalizations and inferences about applicants based upon unsystematic reviews of resume content.

The ability to predict general cognitive ability and personality attributes from resume data would be desirable for employers for several additional reasons as well. First, Huffcutt, Conway, Roth and Stone (2001) reported that basic personality tendencies and applied social skills were the most frequently rated constructs during employment interviews, followed by mental capability and knowledge/skills. Because applicants typically mail or send their resumes electronically, if resume information were linked to these important applicant constructs (e.g., personality and mental ability), substantial savings could accrue to an organization before investing in more-expensive, time-consuming selection techniques requiring on-site applicant presence.

Second, the types of information provided on a resume generally possess substantial face validity from an applicant's perspective. As Mael, Connerly and Morath (1996) reported, applicant information, such as biographical data, that is verifiable, transparent in purpose, and more impersonal (e.g., work experience information, extracurricular activities participation) are perceived as less invasive by applicants. Therefore, rejected applicants are likely to be less aggrieved, and consequently less likely to publicly criticize the organization or initiate legal action after being eliminated from the selection process following the use of a face valid measure (Elkins and Phillips 2000). Third, organizations are not only concerned with the prediction of success in jobs that applicants hold initially but also with the prediction of success in subsequent, higher-level jobs as well. The use of mental ability (Schmidt and Hunter 1998) and core personality characteristics (Murphy and Cleveland 1995) would appear quite useful for this purpose. Assuming relationships exist between resume information and applicant mental ability and personality attributes, resumes would provide an initial means for making such organizational career assessments. Resume information would serve as an inexpensive, face-valid, and quick selection tool that may predict certain applicants' abilities, dispositions, and work attitudes across jobs. Early evidence indicates that recruiters believe resume information predicts some of these key attributes (Brown and Campion 1994). If so, this information would be particularly useful for

organizations hiring new college graduates, as the number of potential career paths for these individuals is typically greater than for experienced employees who have progressed further in their careers.

Research Hypotheses

Previous research (Bretz *et al.* 1993; Kinicki, Lockwood, Hom and Griffeth 1990; Zedeck, Tziner and Middlestadt 1983) has found that recruiters and managers vary in how they process and use informational cues from applicants to reach hiring decisions. Bretz *et al.*, for example, concluded that beyond general dimensions of job fit, idiosyncratic patterns existed among recruiters' evaluations of job applicants. Therefore, we focused on an applicant screening function where we felt adequate agreement among recruiters could be obtained, i.e., the extent to which recruiters can reliably detect the presence of specific resume content (e.g., receiving scholastic rewards, having full-time work experience). In Cable and Gilovich's (1998) study, two student judges utilizing the resume items studied by Brown and Campion (1994) exhibited a mean interrater reliability of .84 in judging the presence of resume content. However, their results were obtained only after combining resume items between which the judges stated they could not distinguish and also discarding resume items that had interrater reliabilities below .60. In the present study, we expected that recruiters experienced in screening resumes as part of their job responsibilities would demonstrate adequate interrater reliability in their judgments of applicants' resume content. Although we are unaware of a suggested minimum standard when calculating interrater reliability, both Brown and Campion (1994) and Cable and Gilovich's (1998) studies suggest interrater reliabilities above .60 are acceptable. Therefore, we proposed the following hypothesis:

Hypothesis 1: Recruiters will reliably ($> .60$) assess the extent to which specific biographical topics (e.g., volunteering for community service) are present on applicant resumes.

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). 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. As such, resume biodata provide employers with a rich source of information that is historical and easily checked (Becker and Colquitt 1992).

Because biographical data have been found to predict general cognitive ability (Schmidt and Hunter 1998), it might be expected that certain resume items may also be reflective of applicant mental ability. For instance, Roth and Bobko (2000) reported correlations between GPA and Scholastic Aptitude Test (SAT) scores ranging from .37 to .45 depending on students' year of academic classification (i.e., freshman, sophomore, junior, or senior). Roth, BeVier, Switzer and Schippmann (1996) found previous academic achievement, as represented by GPA, predicted job performance one year later. Similarly, Ferguson, Sanders, O'Hehir and James (2000) noted previous academic achievement (i.e., GPA) was a predictor of individuals' trainability (cf. Schmidt and Hunter 1998). Based on these findings, it might be expected that other resume variables closely linked to academic achievement (e.g., being on the Dean's list, scholastic awards received) would also predict applicants' mental ability. Therefore, we hypothesized the following:

Hypothesis 2: Academic achievement information as reported on job applicants' resumes (e.g., being on the Dean's list, scholastic awards received) will be positively related with applicants' general mental ability.

In the job-search process, GPA has a major impact on students' success in receiving job offers (Roth and Bobko 2000; Rynes, Orlitzky and Bretz 1997; Thoms, McMasters, Roberts and Dombkowski 1999). For instance, in Brown and Campion's (1994) study, recruiters reported using GPA in hiring decisions more than any other resume biodata item because they believed GPA represented personal motivation and both verbal and mathematical ability. Characterized as purposeful, determined, and reliable, persons high in conscientiousness have also been reported to exhibit academic and professional achievements (Ferguson *et al.* 2000; Hogan and Hogan 1995). From recruiters' perspective, resumes reporting GPA information have generally been rated higher than resumes not providing GPA information (Oliphant and Alexander 1982), and resumes indicating higher GPAs have been judged better than those listing lower ones (Thoms *et al.* 1999). However, given the emphasis placed on GPA, what conclusions concerning applicant attributes such as mental ability and conscientiousness should be made if grade point average is not listed on an applicant's resume?

When decision makers must choose between candidates for which they have differing amounts of information, they devalue missing information and prefer candidates with complete information as long as the candidates with complete information are rated at least average on the focal attribute (i.e., attribute information missing for the other candidates) (Highhouse and Hause 1995). Further, when it is the choice of applicants to

withhold information, applicants are rated less suitable than those applicants who report such information (Stone and Stone 1987). Likewise, from the applicants' viewpoint, those who have not achieved at a reasonably high level may choose to avoid pointing out these areas rather than to present weak credentials, while intelligent, motivated applicants are more likely to have achievements worthy of highlighting.

Thus, in the case of missing GPA information, we would expect that the net effect of applicants not reporting GPA is that they will be devalued (i.e., considered below average) when compared to applicants reporting GPA. Apparently, however, no research has investigated whether applicants who omit GPA from their resumes actually possess lower levels of desirable job attributes (e.g., mental ability, conscientiousness). Therefore, we proposed that:

Hypothesis 3: Applicants reporting GPA on their resumes will have higher mental ability and conscientiousness scores than applicants not reporting GPA.

In addition to general mental ability, biographical data have been found to reflect a diverse set of individual difference variables (Bobko, Roth and Potosky 1999; McManus and Kelly 1999; Mumford and Stokes 1992; Schmidt, Ones and Hunter 1992). Biodata's relationship with such diverse variables is explained, in part, because it is believed that as a person engages in activities representing a variety of situations the environment presents, some of these activities will satisfy the person's needs, values, and goals while other activities will not (Mumford, Snell and Reiter-Palmon 1994). Because persons have limited time and resources, they begin to select among the situations in such a way that patterns emerge and personal attributes needed for goal maintenance are developed. Based on Mumford and colleagues' rationale (Mumford *et al.* 1994), one might conceive that certain of these experiences translate into activities encountered during the course of one's undergraduate college career. In turn, some of these experiences would likely be reflected in the information reported on a graduating senior's resume. Therefore, students' standing on psychological constructs such as extraversion and conscientiousness interact with situational demands to condition students' behavior and experiences that occur during college life (cf. Mumford, Costanza, Connelly and Johnson 1996). As observed by Caldwell and Burger (1998), those achieving more academic accolades during college might be more conscientious while those engaging in more group or social activities while in college may be more extraverted. We anticipated that certain resume items reflect such attributes. Based on the general biodata literature (see, for example, Carlson, Scullen, Schmidt, Rothstein and Erwin 1999; Mael and Hirsch 1993; Mumford *et al.* 1996;

Wilkinson 1997) and Mumford *et al.*'s (1994) observations, we formed the following hypotheses:

Hypothesis 4: Applicants' academic achievement information (e.g., received scholastic awards) as reported on job applicants' resumes will be positively related to applicants' conscientiousness.

Hypothesis 5: Applicants' resume information involving social interaction (e.g., membership in social fraternity/sorority, elected offices held) will be positively related to applicants' extraversion.

Method

Participants

Applicants. Upper-level undergraduate students enrolled in three upper-division management classes were recruited to participate in the study for extra course credit. As participants, the students were asked to (a) submit a current resume to the study investigators and (b) complete a mental ability test and personality inventory at the end of the academic term (administered approximately five weeks after students submitted their resumes). Of the 217 students invited to participate, 99 (46%) submitted their resumes and completed the study measures. Approximately half (49%) of the participants were male, 87% were White, and 89% were seniors with an average age of 22.6 years ($SD = 2.7$).

Resume reviewers. Experienced resume reviewers were recruited from an employer contact list maintained by the College of Business at the university where the study was conducted. The list consisted of recruiters and their employing organizations that had previously recruited and hired College of Business graduates from the university.

Initially, a letter was sent to a pool of 105 recruiters soliciting their participation in the study. If interested in participating, the potential resume reviewers were asked to contact the first author. We then mailed the volunteer resume reviewers a packet containing a description of the study, resume scoring forms, and 10 randomly assigned student resumes. For their participation, recruiters were promised a technical report that summarized the study's findings. Of the initial 40 recruiters who volunteered to participate, two decided to withdraw from the project and were replaced by two other recruiters solicited from the employer contact list.

Judges of the students' resumes were 40 human resource recruiters or managers involved in recruiting, and came from 35 organizations representing a wide variety of industries including manufacturing, retail, telecommunications, technology, and professional services. The resume reviewers were primarily female

(53%), White (93%), and averaged 35 years of age ($SD = 8.0$). All were college graduates, with 35% reporting graduate work or having a master's degree. Over two-thirds of the recruiters (68%) indicated they spent at least 25% or more of their time reviewing job applicants' resumes.

Measures

General mental ability. The Wonderlic Personnel Test (WPT) was used to assess students' general mental ability. The WPT is a paper-and-pencil test composed of three types of items: vocabulary, arithmetic reasoning, and spatial relations. The WPT has been shown to be psychologically equivalent to other measures of mental ability (Hunter 1989). In the current sample, students' mental ability scores ($M = 24.11$, $SD = 5.51$) were similar to those of other business undergraduates ($M = 25.79$, $SD = 4.48$; Rubin, Bommer and Baldwin 2001). The participants' median correct score of 25 was comparable with the 1992 national norm of 26 for college graduates between the ages 20-24 (Wonderlic Inc. 1999). Previous research has reported test-retest reliabilities ranging from .82 to .94, alternate form reliabilities ranging from .73 to .95, and measures of internal consistency ranging from .88 to .94 (Wonderlic Inc. 1999).

Personality. Big Five personality dimensions were assessed 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 and contains 12-item scales for each of five personality domains. The domains assessed and coefficient alphas for each in the present study were Conscientiousness ($\alpha = .71$), Extraversion ($\alpha = .77$), Agreeableness ($\alpha = .72$), Neuroticism ($\alpha = .87$), and Openness to Experience ($\alpha = .69$). These computed internal consistency estimates were consistent with those reported in the NEO-FFI test manual (Costa and McCrae 1992). Respondents indicated their agreement or disagreement with the items using a five-point rating scale, where 1 = 'Strongly Disagree'; 5 = 'Strongly Agree'.

Resume rating form. Based on a literature review, reviews of actual employment resumes, and interviews with employment recruiters, Brown and Campion (1994) identified 22 biodata items common to resumes developed by students seeking employment. To reduce the time required for each recruiter to rate 10 resumes on the resume rating form, we excluded four resume biodata items used by Brown and Campion (1994). Two resume items, 'dorm advisor' and 'recreational sports participant', were eliminated since they were not reported by applicants in our study. Two other resume biodata items, 'individual job achievement' and 'work awards', were

judged to have excessive overlap with each other. Support for this conclusion is provided by Brown and Campion's finding that both these items were judged to reflect applicant motivation. Therefore, of these two items, we eliminated the one judged by Brown and Campion's recruiters to have the lowest mean reported use, i.e., 'work awards'. Finally, we excluded the biodata item 'job-related degree,' since we used a similar variable (academic major) as a control.

Each of the 40 resume reviewers was randomly assigned 10 resumes to rate. The resumes were assigned so that four recruiters rated each applicant's resume. For 16 of the 18 biodata topics, the resume reviewers rated the extent to which each topic was reported on each applicant's resume. Judgments of the extent to which a biodata topic was present on a resume were made using a slightly modified version of Brown and Campion's (1994) five-point rating scale (1 = None; 5 = Considerable amount). Our scale was the same as theirs, with the exception of the lowest scale point where we used 'Did not mention' rather than 'None'. We felt our terminology made it clear to resume reviewers that they should provide a rating of 2 or greater only if an attribute were specifically mentioned on the resume. This should help to avoid the possibility of resume reviewers inferring that an applicant possessed an attribute to some extent, but for some reason had simply not listed it on the resume. In order to make the two GPA variables (overall GPA and GPA in major) consistent with the five-point rating scale used with the other 16 biodata items, GPA was coded as 1 if the student did not list it on the resume. Next, listed GPAs were divided into quartiles, with the lowest quartile being assigned a value of 2, the next highest equal to 3, the next highest equal to 4, and the highest quartile set to 5. As a result, then, our GPA measure reflects previous research that has indicated, when missing, applicant GPA is assumed to be lower than that for applicants who report such information (Stone and Stone 1987; Thoms *et al.* 1999). Scores representing recruiters' perceived presence of biodata information on the resumes were created by averaging the four recruiters' judgments on each of the biodata items (except for overall GPA and GPA in major) for each applicant. As described above, the two GPA items were coded directly from information furnished on the resumes (by the first author).

We conducted an exploratory factor analysis to determine if the resume items clustered into one or more common factors.¹ Oblimin rotation was employed because some resume items, e.g., scholastic awards received and listed on Dean's list, were expected to exhibit moderate intercorrelations. Additionally, we chose to include only overall GPA because of its more generalizable characteristics regarding applicants' academic achievements, and because of its high correlation with applicants' GPA-in-major ($r = .88$, $p < .001$). The analysis had a sample-to-item ratio of 5.8:1

which exceeds the recommended ratio of 5:1 (Hair, Anderson, Tatham and Black 1998).

From the exploratory factor analysis, a three-factor solution emerged explaining approximately 50% of the common variance. Factor 1, labeled *Academic Achievement/Education* ($\alpha = .77$), was composed of overall GPA, scholastic awards received, membership in professional societies, Dean's list membership, and summer internships held. It accounted for 20% of the shared variance. Factor 2, named *Work Experience* ($\alpha = .74$), was comprised of resume biodata items that included full-time work experience, worked while in college, and supervision of others; it explained 15% of the shared variance. Factor 3, explaining 16% of the total variance, was labeled *Social/Extracurricular Activities* ($\alpha = .66$). It consisted of social fraternity/sorority membership, elected offices held, computer experience (negative loading), and community activities participation. These three factors represent the three general categories of applicant information typically found on resumes (Brown and Campion 1994). Scores used in subsequent analyses for each of the three factors were computed by adding the standardized scores for their respective items.

The college clubs membership item loaded on both factors 1 and 3, and the individual job achievements item cross-loaded on factors 1 and 2. Due to their cross-loadings, both items were eliminated from further analysis. Three resume biodata items (knows foreign languages, earned percentage of college expenses, and athletics captain) did not load on any factor and were also deleted.

Control variables. Because the content of a resume might vary due to academic major or gender, these two variables were used as controls in all analyses. Academic major was coded directly from the participants' resumes by the first author. Regarding academic major, over 75% were College of Business majors (e.g., marketing, finance, information systems and technology, aviation management) with the remainder receiving a business minor or fulfilling elective requirements (e.g., building sciences, human sciences). Participants self-reported gender (1 = male; 2 = female).

Analyses

Following Brown and Campion (1994), testing the reliability of recruiters' judgments (Hypothesis 1) was performed by calculating intraclass correlation coefficients. Hypotheses 2, 4, and 5 were tested using hierarchical multiple regression. In the first step, we entered the control variables. In the second and final step, we entered the three resume biodata factors obtained from the exploratory factor analysis. Second-order partial correlations were used to test Hypothesis 3.

Results

Descriptive statistics, intercorrelations, and coefficient alphas are reported in Table 1. As may be seen from the table, each of the three resume biodata item factors was correlated with two of the mental ability or personality characteristics criteria.

Tests of Hypotheses

Hypothesis 1 stated that the recruiters would agree in their judgments regarding the extent to which resume biodata items were present on applicants' resumes. Based on Brown and Campion's (1994) methodology, we computed intraclass correlations among the recruiters' ratings of the resume biodata items to determine their degree of rating similarity. Similar to previous studies (e.g., Brown and Campion 1994; Cable and Gilovich 1998), intraclass correlations should exceed .60 to support Hypothesis 1. Table 2 shows that the intraclass correlations ranged from .64 to .93 with 8 of 11 (73%) coefficients being .80 or higher, thus supporting Hypothesis 1. These results showed that the groups of four recruiters rating items from the same resumes displayed generally high levels of agreement.

Hypothesis 2 predicted that recruiters' inferences regarding the presence of academic achievement/education information on applicants' resumes would be positively related with applicants' general mental ability. As shown in Table 3, the academic achievement/education factor was positively related to applicant mental ability ($\beta = .31, p < .01$). Although not hypothesized, the work experience factor also exhibited a positive relationship with applicant mental ability ($\beta = .20, p < .05$). As expected, social/extracurricular activities was not related to applicants' mental ability ($\beta = .15, p = ns$).

In Hypothesis 3 we tested the relationships between reporting versus not reporting overall GPA on applicants' resumes with applicants' mental ability and conscientiousness. After coding the 99 applicant resumes for presence of overall GPA (0 = did not list GPA; 1 = did list GPA), we computed second-order partial correlations (controlling for academic major and gender) between presence of overall GPA information and the applicants' mental ability and conscientiousness scores. The two partial correlations supported the hypothesis. Applicants reporting overall GPA had higher mental ability ($r_{1234} = .28, p < .01$) and conscientiousness scores ($r_{1234} = .24, p < .05$) than those who did not.

In Hypothesis 4, we hypothesized that recruiters' perceived presence of academic achievement information on applicants' resumes would be positively associated with applicant conscientiousness. Table 3 shows that support was found for this hypothesis, as only applicant academic achievement/education information was related

to conscientiousness ($\beta = .32, p < .01$). In Hypothesis 5, we predicted that recruiters' perceived presence of resume information involving social/extracurricular activities would be positively correlated with applicants' extraversion. The social/extracurricular activities factor was related to applicants' extraversion ($\beta = .32, p < .01$) providing support for the hypothesis. As we expected, neither academic achievement information ($\beta = -.05, ns$) nor work experience ($\beta = .07, ns$) were associated with applicants' extraversion.

In addition to the results for our hypotheses, Table 3 also shows the hierarchical regression results for the three resume biodata factors and the three remaining Big Five personality constructs (i.e., agreeableness, neuroticism, and openness to experience). Although we did not formulate hypotheses regarding these three criteria, we report the relationships of the three resume biodata factors with them for completeness. The social/extracurricular activities biodata factor was negatively related to neuroticism ($\beta = -.28, p < .05$); however, the ΔR^2 for the set of the three biodata factors with neuroticism was not significant ($\Delta R^2 = .08; ns$). No other relationships were found.

Discussion

Although Brown and Campion (1994) found that recruiters inferred job applicant attributes (e.g., motivation) from resume data, their study did not answer the question of whether applicants actually possessed the inferred attributes. Therefore, in our study, we sought to determine if information presented on applicants' resumes empirically predicted job-relevant applicant attributes, i.e., mental ability and personality characteristics.

In regard to Hypothesis 1, recruiters reliably judged the extent to which various types of information were present on applicant resumes. An inspection of average intraclass correlations within the three general categories of resume information revealed that social/extracurricular activity items exhibited the highest overall agreement among the recruiters and work experience the least. Cable and Gilovich's (1998) lowest reliabilities for work experience items, as well as our own results, suggest that recruiters may have greater difficulty judging more subjective issues such as the types of work experience possessed by applicants as opposed to more factual information (e.g., whether one is a member of a social fraternity or sorority).

Our mean intraclass correlation (.84) was the same as that found in Cable and Gilovich's (1998) study. However, as noted earlier, they combined pairs of items and deleted items due to low interrater agreement before the computation of their average intraclass correlation. Our more promising interrater reliability results may be

Table 1: Descriptive statistics and intercorrelations among study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
<i>Resume biodata item factors^a:</i>											
1. Academic achievement/education	0.00	3.59	(.77)								
2. Work experience	0.00	2.43	-.05	(.74)							
3. Social/extracurricular activities	0.00	2.84	.27**	-.27	(.66)						
<i>Mental ability/Big Five personality characteristics:</i>											
4. Mental ability	24.10	5.51	.30**	.20*	.09						
5. Conscientiousness	3.99	0.42	.34***	-.06	.17	-.05	(.71)				
6. Extraversion	3.71	0.49	.05	-.04	.32***	.00	.41***	(.77)			
7. Agreeableness	3.57	0.46	.15	-.23*	.17	-.08	.25*	.20	(.72)		
8. Neuroticism	2.60	0.68	.02	-.09	.20*	.03	-.34***	-.47***	-.30**	(.87)	
9. Openness to experience	3.32	0.48	.04	.08	.13	.10	-.04	.23*	.03	-.27**	(.69)

Note. $N = 99$. Coefficient alphas are shown in parentheses. All tests are two-tailed.

^aResume biodata items were first standardized with $M = 0.0$; $SD = 1.0$ and then summed to create composites.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2: Descriptive statistics and reliabilities for resume biodata items

Applicant resume biodata items ^a	M	SD	Intraclass correlation
<i>Academic achievement/education:</i>			
Overall grade point average ^b	2.31	1.48	— ^c
Grade point average in major ^b	1.82	1.36	— ^c
Was member of professional societies	2.51	1.25	.86
Received scholastic awards	1.95	1.24	.87
Has held summer internship	1.92	1.08	.80
Was on the Dean's list	1.59	1.12	.91
<i>Work experience:</i>			
Has full-time work experience	2.51	.98	.64
Has supervised others	1.80	.98	.79
Worked while in college	3.47	1.00	.77
<i>Social/extracurricular activities:</i>			
Has held elected office	2.04	1.27	.90
Was member of social fraternity/sorority	1.99	1.33	.90
Volunteered for community activities	1.77	1.09	.87
Has computer experience	2.75	1.51	.93

Notes: ^a Recruiters' ($N = 40$) ratings of the extent to which resume biodata items were present on applicants' resumes (1 = Did Not Mention; 5 = Considerable Amount).

^b GPA item (1 = Did Not Mention, 2 = Lowest GPA Quartile, 3 = Second GPA Quartile, 4 = Third GPA Quartile, 5 = Upper GPA Quartile).

^c Reliability could not be calculated.

Table 3: Summary of hierarchical regression analyses

Regression step	Mental ability/Big Five personality criteria					
	Mental ability β	Conscientiousness β	Extraversion β	Agreeableness β	Neuroticism β	Openness β
<i>Step 1: Controls</i>						
Applicant gender	-.20*	.00	.14	.04	.05	.00
Job-applicant major	-.16	-.04	.00	-.02	.00	-.20
ΔR^2 after Step 1	.05	.01	.04	.02	.00	.03
<i>Step 2: Resume biodata item factors</i>						
Academic achievement/education	.31**	.32**	-.05	.12	.08	-.00
Work experience	.20*	-.03	.07	-.20	-.15	.13
Social/extracurricular activities	.15	.09	.32**	-.08	-.28*	.20
ΔR^2 after Step 2	.16***	.12**	.08*	.06	.07	.04
Overall R^2	.20***	.12*	.12*	.08	.07	.07
Overall Adjusted R^2	.16	.08	.07	.03	.02	.02

Note. $N = 97$. Standardized beta weights shown are with all variables entered. All tests are two-tailed.

* $p < .05$. ** $p < .01$. *** $p < .001$.

due to personal characteristics and experiences of the judges themselves (Dipboye 1992). For instance, we drew upon experienced recruiters, with over two-thirds spending at least 25% or more of their time screening applicants' resumes. In contrast, Cable and Gilovich's judges were not recruiting professionals but college students who were given a moderate level of training (D.M. Cable, personal communication, 2 April 2001). In regard to our interrater reliabilities being higher than those of Brown and Campion (their average intraclass correlation was .68), we believe the difference may lie in the nature of the questions asked. Whereas we asked recruiters to judge the presence of resume biodata items on applicant resumes, Brown and Campion (1994) asked recruiters to judge the extent to which resume biodata items were representative of underlying applicant attributes (e.g., math ability, leadership, motivation). The more subjective nature of their rating task may account for their lower interrater reliabilities.

Hypothesis 2, which pertained to the relationship of recruiters' perceptions of the existence of academic achievement information on applicants' resumes with applicants' mental ability, was confirmed. Our results indicated applicants who scored higher on the academic achievement/education dimension (e.g., higher GPAs, membership in professional societies, receipt of scholastic awards) exhibited higher mental ability. Because it has been shown that mental ability is associated with performance in more complex jobs (Schmidt and Hunter 1998), recruiters should consider emphasizing these resume items for such positions when prescreening applicant resumes. Hypothesis 3, which posited that applicants reporting GPA on their resume will have higher mental ability and conscientiousness than applicants not reporting GPAs, was also supported. These results indicate that recruiters may be justified in placing a lower priority in the screening process on applicants who do not list GPA on their resumes. Interestingly, in our sample of undergraduate students, slightly over half (54%) reported overall grade point average. These results may be compared with a corresponding figure of 44% for Cable and Gilovich's (1998) sample composed of 47% master's and 53% undergraduate students. Only 31% of our students reported GPA in major.

Hypothesis 4, which proposed that the extent of information concerning applicants' academic achievement would be positively related to their levels of conscientiousness, was supported. This finding is consistent with the description of conscientious persons (Digman 1990), who are characterized as hard-working, achievement-oriented individuals. Because conscientiousness has been found to predict performance across jobs (Barrick and Mount 1991), this finding suggests that recruiters should pay particular attention to resume items reflecting academic achievement information. Finally,

Hypothesis 5, which posited that the extent of information on resumes indicating social/extracurricular activities would be positively related to applicants' extraversion scores, was also confirmed. Because extraversion is a valid predictor of performance for sales representatives (Barrick and Mount 1991), recruiters hiring for sales positions should carefully consider resume items reflecting participation in social and extracurricular activities.

One potential limitation of the present study is the limited range of work experience among students. The increased variability in resume work experience items for more experienced candidates may have allowed recruiters to distinguish greater variation in these measures. However, it should be noted that a limited range of work experience is typical for this applicant pool (i.e., graduating college students) and does not represent an inherent defect in the sample utilized in the present research. Nonetheless, future research should replicate our results with a larger, more diverse group of applicant resumes.

A second limitation involves the use of extra credit to solicit participation in the study. Offering extra credit as an inducement for study participation possibly led to an under-representation of the highest-performing students. Mean mental ability scores ($M = 24.1$) in our sample of business undergraduates, for example, were lower than those in Rubin *et al.*'s (2001) sample ($M = 25.8$). Further, if it can be assumed that our offering an extra credit incentive eliminated the highest-performing students from the study, then our study findings may be conservative estimates of true relationships due to restriction in range of participants' mental ability test scores.

The present study focused on new college graduates preparing to apply for entry-level positions. Due to the entrenched practice of resume submittal for entry-level positions, we suggest our approach to inferring applicants' attributes has the advantage of face validity and, therefore, applicants are less likely to react negatively if rejected. However, this supposition may not always hold true.² Therefore, in future research, it would be interesting to examine applicants' reactions to resume screening (to infer attributes) when used for high stakes assessment rather than just for preliminary screening.

The literature on person-organization fit suggests organizations seek applicants whose traits match those valued by the organization (Cable and Judge 1997). In addition, Kristof-Brown (2000) reported that after reviewing a video-based interview, recruiters more frequently referred to applicants' values and personality as indicators of a good person-organization fit than applicants' knowledge, skills, and abilities. Therefore, future research should study the relationships among traits valued by the organization (with the assessment of

organizationally desired traits perhaps being made by top-level executives), recruiters' judgments of applicant traits from resume information, and the extent to which recruiters adhere to organizationally desired traits when recommending applicants for further consideration in the selection process. In addition, longitudinal studies could examine the influence of these trait-related variables upon more distal criteria such as job performance and tenure.

To summarize, the relationships found in the present study between recruiters' perceptions of resume information and applicants' mental ability and personality scores, coupled with results from past research (Brown and Campion 1994), appear promising for the resume screening process and initial applicant selection. Given the evidence that general mental ability and conscientiousness generalize across jobs and are consistent, valid predictors of job performance (Barrick and Mount 1991; Schmidt and Hunter 1998), our results suggest recruiters should focus on resume items indicative of these characteristics. In our study, these items were mainly found in the academic achievement/education category. In addition, studies have shown particular personality traits to be related to specific job families. Barrick and Mount (1991) reported meta-analytic results suggesting extraversion is a valid predictor for managers and sales representatives. Mount, Barrick and Strauss (1994) also found that observer ratings of conscientiousness and extraversion were valid predictors of sales performance. To the extent that a position or job family requires applicants who are extraverted, our results suggest that recruiters, when reviewing resumes, should balance the emphasis placed on applicants' social/extracurricular activities (e.g., volunteering for community activities) and their academic achievements. On a more general level, our study findings have practical implications for organizations. Since our study indicates that recruiters can reliably judge the extent of applicants' resume information, it therefore appears worthwhile for organizations to assess recruiters' implicit assumptions about applicants with various resume information configurations. Furthermore, given the relationships of resume content with applicant mental ability and personality, training of resume reviewers to focus on specific resume content may be warranted.

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Notes

1. The rotated factor structure for the resume items is available from the first author.
2. We thank a reviewer for bringing this point to our attention.

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