HIRING FOR RETENTION AND PERFORMANCE

MURRAY R. BARRICK AND RYAN D. ZIMMERMAN

This study evaluated the usefulness of several pre-hire variables to predict voluntary turnover and job performance. Analyses showed that applicants who knew current employees, had longer tenure with previous employers, were conscientious and emotionally stable, were motivated to obtain the job, and were confident in themselves and their decision making were less likely to quit, and had higher performance within six months after hire. Results also indicated that pre-hire attitudes (employment motivation and personal confidence) did not predict turnover and performance beyond biodata (pre-hire embeddedness in the organization and habitual commitment) and the personality traits (conscientiousness and emotional stability). For all predictors but personality, the strength of the relationships weakened over time up to two years after hire. Nonetheless, organizations can avoid voluntary turnover and increase performance by basing hiring decisions on the set of predictors analyzed in this study. © 2009 Wiley Periodicals, Inc.

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When making hiring decisions, organizations historically have focused on determining which job candidate will likely be the best performer. As it becomes more difficult to retain employees, organizations have also started to try to determine which candidates are most likely to stay with the organization. Finding constructs that predict both performance and turnover enables organizations to use fewer resources when selecting applicants. Since individual differences play an important role in established models of both turnover and performance (Johnson, 2003; March & Simon, 1958; Mobley, Griffeth, Hand, & Meglino, 1979; Schmidt & Hunter, 1998), it is important to consider which individual difference variables have significant effects on both criteria.

The vast majority of selection research has focused on pre-hire predictors of job performance. In contrast, very little research, excluding biographical information (biodata), has investigated whether employers can prevent turnover before employees start their jobs. One recent exception is a study by Barrick and Zimmerman (2005), which investigated the predictive validity of three theoretically relevant sets of turnover predictors. Analyses confirmed that biodata and other retention-related predictors were...
related to employee turnover \((R = .33)\) within six months after hire. What is virtually unmentioned in the literature is whether pre-hire predictors of turnover would also be effective predictors of work performance.

By examining the validity of pre-hire predictors of voluntary turnover, this study builds on prior research, particularly Barrick and Zimmerman (2005). It differs, however, in that it also examines whether predictors that are theoretically relevant to turnover also would relate to job performance as measured by supervisory ratings. Since job performance and voluntary turnover are two of the most important criteria affected by employee behavior, they warrant simultaneous study in determining joint causes of both outcomes. This study also examines whether individuals who have a history of job hopping will be more likely to leave their current organization (Ghiselli, 1974). It also examines whether these relationships exist long after the applicant is hired (up to two years), not just shortly after hire (up to six months). Thus, the purpose of this study is to systematically explore the ability of each pre-hire variable to predict both voluntary turnover and performance over an extended period of time.

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Theoretical Foundation for Pre-hire Predictors of Voluntary Turnover and Job Performance

An overarching theme common to most turnover theories is that some employees have greater feelings of attachment to their organizations than others do. Perhaps the first time this idea was codified in the management literature was with March and Simon’s (1958) discussion of factors influencing employees’ desire to leave their organizations. Later researchers (Lee, Mitchell, Sablynski, Burton, & Holtom, 2004; Mitchell, Holtom, Lee, Sablynski, & Erez, 2001) have examined how employee embeddedness can influence their desire to leave, whether through the employees’ perceptions of how well they fit with their jobs and organizations or the number of links the employees have with other individuals within their work environments. Other researchers (Maertz & Campion, 2004; Maertz & Griffeth, 2004) have focused on examining motivational forces that influence employees’ desire to remain in their jobs. These forces include organization-related factors, such as employees enjoying the jobs they hold, liking the organizations for which they work, or wanting to continue working with coworkers with whom they have close relationships. These forces also include individual-related factors, such as feelings of obligation to an employer who provides them with a job, an innate sense of responsibility not to quit their job, or even an escalation of commitment to their decision to work for the organizations that employ them. Although some factors that influence the desire to leave (or stay) can only be determined once individuals start their job and experience their work environment, other factors may be ascertained even before they are hired. Finally, some of these same researchers have suggested that the attributes that influence employees’ attachment to their organizations may also influence their motivation to perform well in their jobs (Lee et al., 2004; March & Simon, 1958). Therefore, the predictors used in this study were selected based on their theoretical relationship to factors that would influence employees’ desire to stay, as well as affect their level of job performance.

Effects of Biodata on Employees’ Turnover Decisions and Job Performance

Recent research using biodata has attempted to create a theoretical basis for the items used (Dean, Russell, & Muchinsky, 1999). Barrick and Zimmerman (2005) examined three theoretically relevant biodata items (number of friends and family working at the firm, referral by an employee, and tenure in prior job) and found that the items predicted...
voluntary, avoidable turnover ($R = .31$). The theoretical basis of these hypothesized effects is tied to the job embeddedness literature (Mitchell et al., 2001), realistic job preview literature (Breau & Dossett, 1989; Premack & Wanous, 1985; Rynes, 1991), and the finding that past behavior is the best predictor of future behavior (Owens & Schoenfeldt, 1979; Wernimont & Campbell, 1968). Supplementing the three items that Barrick and Zimmerman used, we add a fourth biodata item: the influence of frequent job changes. In this study, two measures composed of two biodata items each are used to reflect pre-hire embeddedness in the organization (employee referral; number of friends and family) and habitual commitment (tenure in prior job; number of jobs in last five years).

Biodata items assessing the impact of whether current employees referred the applicants and whether they have friends or relatives working at the organization have their theoretical basis tied to the job embeddedness literature (Mitchell et al., 2001), which suggests that the greater the number of links to the organization, the less likely employees are to quit. In addition, if applicants have contacts within the organization, they are more likely to understand the advantages and disadvantages of the position for which they are applying. Hence, they are better able to engage in self-selection (Rynes, 1991; Wanous, 1980), because their perceptions of fit with the job and the organization (Hom & Griffeth, 1995; Premack & Wanous, 1985) are better informed. The ability to better assess fit, in addition to more embedded social links, will likely increase the probability that employees will remain with the organization. Thus, these two biodata items are combined into one measure to reflect pre-hire embeddedness.

The other two biodata items, tenure in last job (Barrick & Zimmerman, 2005) and number of jobs over the past five years (Price & Mueller, 1986), reflect commitment to prior employers. These two items were combined into one biodata measure to reflect habitual commitment. Since past behavior is the best predictor of future behavior (Owens & Schoenfeldt, 1979; Wernimont & Campbell, 1968), individuals who have a habit of seeking new jobs, as represented by how long they stayed in the previous job and the number of jobs held over the previous five years, could be expected to do so again. According to the unfolding model of turnover (Holtom, Mitchell, Lee, & Inderrieden, 2005; Lee & Mitchell, 1994), some individuals are likely to be impulsive quitters who terminate their employment spontaneously. Similarly, Ghiselli (1974) noted that some individuals are more likely to develop a habit of quitting job after job, which he termed “hobo syndrome.” Empirical research by Judge and Watanabe (1995) has supported this contention.

The four biodata items used in this study also are likely to correlate with job performance. In a recent study on job embeddedness, Lee et al. (2004) theorized that employees with a greater number of links to other coworkers would be more likely to be motivated to perform than employees with fewer links. Furthermore, they suggested that the more individuals are socially enmeshed in an organization, the more likely they are to engage in contextual performance. Embedded employees are likely to have larger social networks from which to obtain assistance in performing their jobs effectively (Settoon, Bennett, & Liden, 1996). Lee et al. found that on-the-job embeddedness was a significant predictor of both in-role and extra-role job performance. Positive performance not only helps avoid termination, but also helps preserve the reputation of the coworkers closest to the employee, specifically friends and family employed at the organization. Therefore, the more friends and family members an employee has working at an organization, the more likely it is that the employee will perform well. In addition, there is evidence that current employees are likely to refer more capable applicants (Breau & Starke, 2000; Rynes, 1991).

An applicant’s tenure in prior jobs and the number of jobs recently held may be
influenced by several factors, including previous performance. An applicant who left previous jobs because of poor performance will likely exhibit a similar level of performance in the new position. Because poor performers tend to be terminated before good performers, poor performers will have less tenure in their previous job. If poor performers are not fired, they are more likely to decide to leave their organizations (Griffeth, Hom, & Gaertner, 2000) because of decreased job satisfaction (Judge, Thoresen, Bono, & Patton, 2001). In addition, a meta-analysis by Meyer, Stanley, Herscovitch, and Topolnytsky (2002) showed a positive relationship between affective organizational commitment and supervisor-rated job performance ($\rho = .17$), as well as between affective organizational commitment and contextual performance ($\rho = .32$). Since past job-hopping behaviors also indicate a historical lack of commitment to employers, employees who have a track record of job hopping are also more likely to have lower job performance if they are uncommitted to their current employer.

There are two hypotheses for these two biodata measures in reference to both turnover and performance:

**H1:** Employees who have greater pre-hire embeddedness in the organization will be (a) more likely to remain with their current employers and (b) better performers than those with lower embeddedness.

**H2:** Employees who had greater habitual commitment to their former employers will be (a) more likely to stay with their current employers and (b) better performers than those with less commitment.

### Effects of Pre-hire Attitudes on Employees’ Turnover Decisions and Job Performance

Employee pre-hire attitudes were found to differentially predict turnover in the Barrick and Zimmerman (2005) study. Specifically, they found that personal confidence scales (called disguised-purpose scales) added incremental validity to the prediction of voluntary turnover beyond the biodata predictors, while employment motivation scales (termed clear-purpose scales) did not. This study will examine whether this distinction also matters in this setting for turnover and extends to predictions of job performance.

#### Personal Confidence Scales

Barrick and Zimmerman (2005) found that two measures of confidence, confidence with self and confidence with decisions, predicted voluntary, avoidable turnover ($r = -.17$ and $- .22$, respectively), because employees with higher confidence will be more persistent in striving to adapt to novel job demands or the work setting and will be less likely to withdraw from work because of anxiety over low performance or ineffective adjustment (Lee, Ashford, Walsh, & Mowday, 1992). Higher confidence also should be related to higher job performance, as employees with greater confidence are likely to be more involved in their jobs, exert greater effort, and persist at a task longer. Kanfer and Ackerman (2005) theorized that self-confidence affects job performance through self-regulatory behaviors because individuals with higher self-confidence are more likely to persist in performance-related goals, even in the face of obstacles. Furthermore, self-confidence can affect employees’ motivation in such a way that employees low in self-confidence perceive the effort-performance relationship to be flat even if objective information indicates the contrary (Kanfer & Ackerman, 2005). In addition, previous empirical research has determined that job performance is positively affected by both self-confidence (Linnehan, 1998) and confidence with decisions (or decisiveness) (Kipnis & Glickman, 1962; Pynes & Bernardin, 1992). Finally, both self-efficacy and generalized self-efficacy have been shown to moderately correlate with job performance ($r = .38$ for self-efficacy, Stajkovic & Luthans, 1998; $\rho = .23$ for generalized self-efficacy, Judge & Bono, 2001). Although confidence is a broader, more distal construct than
self-efficacy, both reflect the impact of one's perceived competence in a setting.

**H3:** Employees with higher confidence will be (a) more likely to stay with the organization and (b) better performers than those with lower confidence.

**Employment Motivation Scales**

Barrick and Zimmerman (2005) showed that applicants differ in their attraction to the job or organization even before they are hired, and these differences were predictive of voluntary, avoidable turnover. Specifically, they found that two measures of the applicant’s motivation to obtain the job, the applicant’s desire for the job and prehire intent to quit, were related to turnover ($r=.20$). These results reveal that one of the best predictors of voluntary turnover for current employees, that is, intent to quit (Griffeth et al., 2000), may also predict turnover when assessed before the employee is hired.

Employment motivation is also expected to relate to job performance. Breaugh and Mann (1984) posited that active job seekers tended to be better performers than passive job seekers because they were more motivated to obtain a job with that particular employer. Also, new employees who have a strong desire to work for an organization likely require less time to be socialized into its culture (Van Maanen & Schein, 1979). Employees who are more effectively socialized into an organization should achieve higher performance (Wanous & Colella, 1989). In addition, according to the theories of social exchange (Van Dyne & Ang, 1998), norms of reciprocity (Gouldner, 1960), and perceived organizational support (Rhoades & Eisenberger, 2002), applicants who are more attracted to the job are more likely to repay the organization through greater effort (Lee et al., 2004).

Applicants who intend to quit or who lack desire for their job will have lower commitment to the job or organization, which may lead to lower job performance (Meyer et al., 2002). A meta-analysis by Zimmerman and Darnold (2009) indicated a negative relationship between intent to quit and job performance ($\rho=-.14$). For these reasons, the employment motivation scales (desire for the job and intent to stay) are likely to be related to turnover, even when assessed before hire, as well as to overall job performance.

**H4:** Employees who are more motivated to obtain the job will be (a) more likely to stay and (b) better performers than those who are not as motivated.

**Effects of Personality Traits on Employees’ Turnover Decisions and Job Performance**

Theoretically, both conscientiousness and emotional stability should be negatively related to voluntary turnover (Barrick & Mount, 1996). Maertz and colleagues (Maertz & Campion, 2004; Maertz & Griffeth, 2004) suggested that conscientiousness, partially defined as being dependable and reliable (Barrick & Mount, 1991), is a factor in the contractual and moral/ethical motivational forces that affect employees’ turnover decisions. Specifically, Maertz and Griffeth stated that individuals who consider leaving their employers may reflect, “Do I owe any obligation to the organization that I would break by leaving?” Therefore, in a contractual situation, such as accepting a job offer, conscientious employees are more likely to perceive that obligations exist to their employers and are more likely to adhere to these obligations by staying at the organization. These perceived obligations have been termed **normative commitment** (Meyer & Allen, 1991) and have been found to negatively relate to intent to quit (Shore, Tetrick, Shore, & Barksdale, 2000). For moral/ethical motivational forces discussed by Maertz and Griffeth (2004), conscientious individuals are more likely to believe they have a moral obligation to stay with an organization. Maertz and Griffeth
posited that individuals with religious or moral beliefs, such as the Protestant work ethic, believe that perseverance is good regardless of the circumstances (Blau & Ryan, 1997; Niles, 1999), and that switching jobs indiscriminately is a sign of poor character. Conscientiousness also has well-established relationships with job satisfaction ($\rho=.26$, Judge, Heller, & Mount, 2002; Judge, Locke, Durham, & Kluger, 1998; Organ & Lingl, 1995), an important predictor of employees’ turnover decisions.

There are also reasons to believe that emotional stability would be negatively linked to turnover. Individuals low in the trait (or high in neuroticism) tend to have negative perceptions of themselves and their environment (Burke, Brief, & George, 1993; Watson, Clark, & Tellegen, 1988). This leads to an increased likelihood of experiencing negative states of mind or mood, which are associated with encoding and recalling negative information (Watson & Clark, 1984; Weiss & Cropanzano, 1996), and higher levels of conflict with coworkers (Organ, 1994). Because neurotic individuals tend to be in negative moods more often than emotionally stable individuals are and tend to have more conflicts with coworkers (Organ, 1994), they are less likely to become effectively socialized into their organizations. Cote (2005) theorized that individuals exhibiting negative emotions, such as sadness and anger, are less likely to receive social support from coworkers and more likely to experience interpersonal conflict, thereby increasing their stress levels and intentions to quit (Spector & Jex, 1998).

In discussing the affective motivational forces influencing voluntary turnover, Maertz and Griffeth (2004) noted that employees who have negative views of their work environments are more likely to leave (Meyer & Allen, 1991). Judge et al. (2002) found that of all the five factor model (FFM) traits, emotional stability had the largest true score correlation with job satisfaction, at .29, while Barrick and Mount (1996) noted that conscientiousness and emotional stability were predictive of turnover of semi-truck drivers ($\rho=-.26$ for conscientiousness; $\rho=-.22$ for emotional stability). This evidence indicates that both personality traits should be negatively related to voluntary turnover.

**H5:** Employees who are more conscientious will be (a) more likely to stay with the organization and (b) better performers than those who are less conscientious.

**H6:** Employees who are more emotionally stable will be (a) more likely to remain with the organization and (b) better performers than those who are less stable.

The full value of using FFM personality traits during selection emerges when one simultaneously considers the predictive validity with both turnover and performance. Research (e.g., Barrick, Mount, & Judge, 2001) has shown that the two FFM traits examined here are valid predictors of performance in all, or nearly all, jobs. Hence, these two traits should be correlated with job performance, as well as with voluntary, avoidable turnover.

**The Temporally Dynamic Nature of Turnover**

How do the effects of the variables examined in this study endure over time? Theoretically the biodata measures and pre-hire attitude scales are expected to primarily affect turnover early in the job. When applicants begin new jobs, socialization has been shown to have a disproportionately large effect on turnover (Berlew & Hall, 1966). Socialization promotes sense making, situational identification, acculturation (Louis, 1980), and creation of relationships and social integration (Louis, Posner, & Powell, 1983). Basing his work on field theory (Lewin, 1951), Allen (2006) noted that employees who fail to adapt to a new job environment may take the extreme response of leaving the organization, particularly during the early stages of socialization. Learning how to do the job, meeting the “right” people from whom to
learn about the organization, and figuring out the power structure of the firm and the organization’s goals and values are important to employee success and lead to lower turnover (Chao, O’Leary-Kelly, Wolf, Klein, & Gardner, 1994; O’Reilly, Caldwell, & Barnett, 1989).

Employees who were referred by other employees and who have more friends and family in the organization are more likely to have been provided with a realistic job preview and therefore are more familiar with the job requirements. These employees also have a pre-established social network within the organization, which provides a means of social support early in their tenure. Similarly, the employment motivation and personal confidence scales relate to the internal resources employees have to deal with these issues. Specifically, greater confidence, desire for the job, and intention to stay contribute to overcoming the new and uncertain situations inherent in the early stages of organizational entry. Hence, employees who rate higher on these constructs are better able to cope with the demands of a new job early in their tenure, while employees who rate lower on these constructs are more susceptible to the psychological upheaval that can occur during the early stages of employees’ socialization into an organization (Bauer, Morrison, & Callister, 1998).

According to attitude theory (Fishbein & Ajzen, 1975), however, pre-hire attitudes about a job are likely to change over time, based on on-the-job experiences. These experiences may affect how employees feel about their positions, including their desire to stay, their confidence in having made the right job choice, and their efficacy in completing their job duties. Furthermore, later in their job tenure, employees without pre-existing social networks will establish their own social circles with the organization. Taken together, these predictors are expected to have stronger relationships with turnover early in the job but weaker effects over time, as the social and coping benefits derived from these variables become less important. Conversely, personality and habitual commitment are expected to have a continuous effect on turnover and performance. In keeping with this reasoning, we propose:

**H7: The impact of more pre-hire embeddedness, attraction, and confidence on turnover and performance will be greater earlier in employees’ job tenure than later in their tenure.**

**Research Methodology and Measures Used in the Study**

The sample consisted of job applicants at a large financial company in the Rocky Mountain region. The total sample was 354 applicants, of whom 119 were hired as credit union tellers. The typical participant was white (93%), female (about 75%), in her early twenties (median age was 20 or 21), with at least a high school education. The respondents had a stake in the outcome of the assessments and consequently were motivated test takers who thought their responses would influence the hiring decision. However, the results from these questionnaires were not used for hiring purposes. Applicants who were not hired (N=235) were told so at that time and were excluded from consideration for the purposes of this study. Thus, all analyses were based on responses from hired applicants (N=119).

As part of a formal job selection process, all applicants completed a pre-hire assessment based on the scales used in this study. All predictor measures, except the biodata measures, used a 5-point Likert rating format (1=strongly disagree to 5=strongly agree).

**Biodata Measures**

The first biodata measure, number of friends and family, asked the applicant the number of friends working at the organization and how many family members work at the organiza-
tion (Breaugh & Dossett, 1989). The sum of both answers was used to reflect the number of friends and family variable. Employee referrals, the second biodata measure (Breaugh & Mann, 1984), asked whether the applicant had been referred by an employee of the company. Those who were referred were coded as a 1, and those who were not were coded as a 0. Each biodata item was converted to a z-score, and these scores were added together to reflect the biodata/pre-hire embeddedness measure.

The number of months the applicant had worked in his or her most recent job represented the third theoretically relevant biodata item, time in prior job. The fourth theoretically relevant item was number of jobs held in the past five years. Again, these two items were converted into z-scores and then combined to form the biodata/habitual commitment measure. Standardized scores for the number of jobs in the last five years variable were calculated to classify applicants into four groups: those less than 18 years old, those 18 to 19 years old, those 20 to 21 years old, and those over age 21. These scores were compared only to those of other applicants in the same category to control for differences in the opportunity to switch jobs, depending on time in the workforce. The number of jobs in the last five years variable was reverse-coded before being combined with the time in prior job variable, so high scores on both were equated with greater commitment to prior employers.

**Employment Motivation Scales**

The measure of applicant attraction to the employment opportunity focused on the applicants’ pre-hire desire for the job at the firm and pre-hire intent to stay. Desire for a job was assessed with eight items from the Lee et al. (1992) job desirability scale ($z=.76$). Examples were “I have a strong desire to be an employee of this company” and “I feel very committed to this company.” Intent to stay was assessed with five items ($z=.80$) from Chatman (1991). These were based on items written for traditional intent-to-quit scales. Examples were “I intend to remain with this company for a long time,” and “If I have my own way, I will be working for this company six months from now.” Confirmatory factor analyses indicated that a one-factor model fit the data better than a two-factor model. Fit statistics for the one-factor model were: $\chi^2$: 151.78, 65 $df$; PNNFI: .77; SRMR: .049; PGFI: .67. Fit statistics for the two-factor model were: $\chi^2$: 143.20, 64 $df$; PNNFI: .76; SRMR: .047; PGFI: .66. The coefficient alpha for the combined scale was .70.

**Personal Confidence Scales**

The measure reflecting applicant confidence was the sum of two scales: confidence with self and confidence with decisions. Confidence with self was assessed with eight items from Lee et al. (1992) ($z=.76$). Examples of confidence-with-self items include “I have always been able to do well in anything I have tried,” and “I expect to do well at this company.” Confidence with decisions was measured with a five-item scale adapted from Lee et al. (1992) ($z=.76$). Examples were “I never make major decisions quickly,” and “I always carefully weigh costs and benefits when making decisions that affect my life.” Confirmatory factor analyses indicated that a one-factor model fit the data either the same as or slightly better than a two-factor model. Fit statistics for the one-factor model were: $\chi^2$: 281.12, 65 $df$; PNNFI: .69; SRMR: .074; PGFI: .64. Fit statistics for the two-factor model were: $\chi^2$: 239.97, 64 $df$; PNNFI: .69; SRMR: .074; PGFI: .64. The coefficient alpha for the combined scale was .73.

**Personality Traits**

The personality assessment consisted of 60 items designed to comprehensively measure conscientiousness and emotional stability, with 30 items measuring each personality trait. Coefficient alpha reliabilities were .87
and .86, respectively. Examples of items for conscientiousness were, “I put a great deal of effort into my work,” and, “Others have described me as a very disciplined person.” Examples of emotional stability items were, “I become irritated when others criticize me,” and “I tend to get over embarrassing situations very quickly.”

Turnover

Turnover data were collected over a two-year period after the applicants were hired and were categorized as having occurred within six months or after this period, up to two years. Within the first six months, there were 95 stayers (coded as 0) and 24 leavers (coded as 1). Of the employees who left during this period, 18 left for voluntary, avoidable reasons, and 6 left for voluntary, unavoidable reasons. Of those leaving between six months and two years after hire, there were 70 stayers and 25 leavers. Of the employees who left during this period, one left because of involuntary reasons (was fired); 18 left for voluntary, avoidable reasons; and 6 left for voluntary, unavoidable reasons. Reasons for turnover decisions were coded according to the classification scheme developed by Abelson (1987). The voluntary, avoidable turnover category refers to turnover that reflected the individual’s decision to leave and that the organization may have been able to avoid (e.g., through raises or by providing better work conditions). Voluntary, unavoidable turnover occurs when the employee chooses to leave but the organization had no control over it (e.g., quitting to trail a relocating spouse or to resume education). Abelson (1987) found that those who leave the organization for unavoidable reasons resemble stayers more than they resemble the leavers whose departure is avoidable. In fact, Hom and Griffeth (1995) stated that voluntary, unavoidable turnover is “a superior criterion for testing prevailing turnover models”. For these reasons, this study examines the predictive validity of the various selection variables (e.g., biodata and personality) by focusing on voluntary, avoidable turnover. Correlations with voluntary turnover also are reported, but only for comparative purposes with previous findings.

Job Performance Ratings

The employees’ supervisors rated their job performance after 30 days, 6 months, and 1 year. Employees were evaluated on nine dimensions: quality of work, quantity of work, job knowledge, interpersonal skills, rule-following behavior, communication skills, initiative, punctuality, and customer service. Performance was evaluated on a five-point Likert scale ranging from “unsatisfactory” to “far exceeds expectations” (α=.75–.84). Overall performance was the mean of the ratings across all dimensions. Correlations between other variables and job performance for time 1 (up to six months) used the 30-day performance ratings, while correlations with job performance for time 2 (up to two years after hire) used the most recent performance rating (either performance rated at six months or at one year) for employees who remained after six months.

Study Results: Pre-hire Predictors Are Related to Both Turnover and Job Performance

Table 1 reports the means, standard deviations, and zero-order correlations among the variables. For variables 1 to 9, correlations greater than .15 are significant at the .05 level using a one-tailed test; for variables 10 to 12, correlations greater than .17 are significant. All the predictors were negatively related to voluntary, avoidable turnover (r ranges from −.18 to −.27) during the six-month period, as hypothesized. These results provide initial support for the hypotheses that pre-hire embeddedness (r=−.22, hypothesis 1a), habitual commitment (r=−.21, hypothesis 2a), personal confidence (r=−.20, hypothesis 3a), motivation for employment (r=−.18, hypothesis 4a), conscientiousness (r=−.19, hypothesis 5a), and emotional stabil-
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<th>Variables</th>
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<td>1a. Employee Referral</td>
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<td>1b. Number of Friends and Family</td>
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<td>2a. Time on Prior Job (in months)</td>
<td>22.6</td>
<td>26.3</td>
<td>.28</td>
<td>.25</td>
<td>.17</td>
<td>.87</td>
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<td>2b. Number of Jobs in Last Five Years</td>
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<td>3. Personal Confidence</td>
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**Up to six months after hire**

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**Up to two years after hire**

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Note: For variables 1–9, N=113–119, p<.05 for correlations >.15; for variables 10–12, N=88–95, p<.05 for correlations >.17.
ity (r = −.27, hypothesis 6a) predict who is likely to remain working for a company six months after hire. Table I also reports the correlations between these predictors and a broader turnover category, one that reflects all voluntary turnover. This outcome reflects all turnover decisions when the employee voluntarily chooses to leave, regardless of whether the company could reasonably do anything about it (avoidable) or not (unavoidable). As expected, these correlations are comparable to those reported for voluntary, avoidable turnover (r ranges from −.13 to −.27).

After the six-month period and up to two years later, conscientiousness and emotional stability were still related to voluntary, avoidable turnover, as expected (r = −.22 and −.21, respectively). All other predictors (pre-hire embeddedness, habitual commitment, employment motivation, and personal confidence scales) had correlations with voluntary, avoidable turnover that were nearly equal to zero (r ranges from −.06 to .04). Overall, there was initial partial support for hypothesis 7. Specifically, the validity of pre-hire embeddedness, employment motivation, and personal confidence scales decreased over time for these predictors when predicting voluntary, avoidable turnover. However, the validity of the habitual commitment measure, which was expected to be a valid predictor during the later time period, also decreased over time. As expected, personality was found to be a useful predictor of voluntary, avoidable turnover up to two years after hire.

Table I also provides information as to whether the turnover that occurs is functional (poor performers leave) or dysfunctional (good performers leave). In accordance with the Griffeth et al. (2000) meta-analysis, voluntary, avoidable turnover is negatively correlated with performance (r = −.25 at up to six months and r = −.27 up to two years). This supports the contention that those who stay tend to be better performers. The results in Table I also demonstrate that a number of the variables that predict turnover also predicted job performance at up to six months. Specifically, pre-hire embeddedness and habitual commitment are both related to supervisory ratings of job performance at six months with correlations of .29 and .22, respectively. These results provide initial support for hypotheses 1b and 2b. In addition, hypotheses 5b and 6b were initially supported, given that conscientiousness and emotional stability predicted job performance at six months (r = .18 and .19, respectively). However, personal confidence and motivation for employment were not related to job performance at six months, which fails to support hypotheses 3b and 4b. After the six-month period, only the two personality traits (r = .18 for both) were significantly related to performance. The other predictors, including the two biodata measures and pre-hire attitude scales, were not significant predictors (r ranges from −.08 to .14). Therefore, hypothesis 7 was again only partially supported.

Although the primary analyses involving the biodata items were for the broader construct-level composites, the results for the individual items comprising the composites were also included in the correlation matrix for informational purposes. As can be seen in Table I, both items making up the pre-hire embeddedness composite had fairly similar relationships with turnover and performance up to six months after hire. However, for the habitual commitment composite, the number of jobs held over the previous five years was a better predictor of early turnover, while tenure on the most recent job was more predictive of early job performance.

These findings suggest that although all the predictors studied here are able to forecast who leaves within six months, only the biodata measures and personality traits predicted employees’ job performance early in their jobs. Furthermore, only the personality traits were correlated with performance after six months. Finally, the pre-hire attitude scales did not predict who is likely to be

This study examines the predictive validity of the various selection variables (e.g., biodata and personality) by focusing on voluntary, avoidable turnover.
successful in the job either early or up to two years later.

Although the post-six-month analyses considered only the employees who were still employed at the credit union at the time, the decrease in the magnitude of the correlations was not due to restriction in the variability of the predictor variables. The degree of range restriction between the time 1 and time 2 samples was extremely small, with range restriction values (SD for time 2/SD for time 1) of .96 to 1.01 across all the predictors, although the means were higher at time 2. Although the organization did not use the results of the assessments to make hiring decisions, it was still important to evaluate possible range restriction in the hired sample versus the applicant sample. Similar to the results between the time 1 and time 2 samples, the degree of range restriction was very small (range restriction values of .90 to 1.06) for most of the variables. However, employment motivation and emotional stability had higher levels of range restriction: values of .76 and .82, respectively. This finding indicates that range restriction may be responsible for the somewhat lower correlations that employment motivation has with turnover and performance compared to the other predictors.

Similarly, the effects of personality, especially the trait of emotional stability, on turnover and job performance are even greater when accounting for range restriction.

Another important purpose of this study was to establish the incremental validity of these theoretically relevant predictors of voluntary, avoidable turnover and performance. For each set of predictors (e.g., biodata), regressions were run three ways by entering the set of predictors in each step. In this way, it was possible to assess the incremental gain provided by each set of predictors, after accounting for the effects of other sets of predictors. For step 2, the results for both possible orders of entry are presented as steps 2a and 2b, with the subhead indicating which construct was entered first. Specifically, biodata were entered after either personality (2a) or pre-hire attitudes (2b), personality after biodata (2a) or pre-hire attitudes (2b), and pre-hire attitudes after personality (2a) or biodata (2b).

For each regression, we assessed the overall variance accounted for ($R^2$) and the relative change in prediction ($\Delta R^2$) obtained by adding the set of variables in each step of that regression. Thus, the relative change ($\Delta R^2$) demonstrates the incremental gain of that predictor set, once other sets (steps) of variables are included in the regression. For the logistic regression results presented in Tables II and III, the $R^2$ values are Cox and Snell analogs to ordinary-least-squares $R^2$ estimates. In addition, the odds ratios are also presented. The odds ratio indicates the ratio of relative importance of the independent variables in terms of their effect on the dependent variable's odds of occurring.

The overall regression equations for turnover and performance, assessed at six months, were of comparable magnitude ($R^2=.134$ to .143), indicating that these three sets of variables (biodata, pre-hire attitudes, and personality traits) are useful predictors of both outcomes at up to six months after hire. As shown in the logistic regression results presented in Table II, each set of predictors significantly predicted voluntary, avoidable turnover during the six-month period when entered alone (step 1). The only significant gains in incremental validity occur when personality is entered either second after biodata in the regression equation ($\Delta R^2=.050$ for step 2a) or when biodata are added ($\Delta R^2=.059$ for step 2a or 3, $\Delta R^2=.066$ for step 2b). The odds ratios confirm these results. Specifically, including biodata in the logistic regressions at steps 1, 2a, 2b, or 3 indicates that employ-
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Note: $R^2$ values are Cox and Snell $R^2$.  
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Note: $R^2$ values are Cox and Snell $R^2$. *p < .05
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Note: *p < .05
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<td>—</td>
<td>1.917; 2, 85</td>
<td>.045</td>
<td>.007</td>
<td>.012</td>
<td>.011</td>
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<td>.033*</td>
<td>.046</td>
<td>.045*</td>
<td>.051</td>
<td>.039*</td>
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<td>.033*</td>
<td>.046</td>
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<td>Pre-hire Attitudes</td>
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<td>.008</td>
<td>.012</td>
<td>.001</td>
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<td>.006</td>
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<td>1.955; 2, 85</td>
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Note: *$p < .05$
ees who were one standard deviation above the mean had less than one-quarter the odds of turnover as employees at the mean. In- cluding personality in the logistic regressions at step 1 or 2a indicates that employees one standard deviation higher on personality had less than half the odds of turnover as employees at the mean. As these findings il- lustrate, once personality and biodata are included in the regression of voluntary, avoidable turnover, most of the available variance is accounted for ($R^2=.123$).

Furthermore, the magnitude of the predictions obtained from the biodata and pre-hire attitudinal predictors of voluntary, avoidable turnover attenuates over time. In fact, as shown in Table III, only personality significantly added incremental validity to the prediction of voluntary, avoidable turnover up to two years after hire, regardless of when personality was entered in the regression equation ($\Delta R^2=.053, .052, .070$, or $.070$ for steps 1, 2a, 2b, or 3, respectively). For steps 1 and 2a, employees one standard deviation above the mean on personality have less than half the odds of turnover as employees at the mean. For steps 2b and 3, the odds of turnover are about 38% of those for employees at the mean.

In Table IV, two sets of predictors, biodata and personality traits, were shown to have added significant incremental gains in validity when predicting early job performance. The results reveal that biodata significantly improved the prediction, regardless of when they were added ($\Delta R^2=.079, .103$, or $.082$ in steps 2a, 2b, and 3, respectively). The two personality traits also added significant incremental predictive validity after pre-hire attitudes were entered ($\Delta R^2=.062$ in step 2b) or after all other predictors (pre-hire attitudes and biodata) were accounted for ($\Delta R^2=.040$ in step 3). Consequently, once personality and biodata were included in the regression of early job performance, most of the available variance was accounted for ($R^2=.118$).

In order to ensure that the regression results were not affected due to a common antecedent, such as differences in ability level, supplemental analyses were performed using level of education as a proxy for ability. The pattern of results for the regressions between job performance at time 1 and the three sets of predictors still held even when controlling for the employee's level of education. The variance in performance attributable to the biodata scales decreased slightly (step 1 $\Delta R^2=.084$; step 2a $\Delta R^2=.061$; step 2b $\Delta R^2=.087$; step 3 $\Delta R^2=.064$), but the results at each step were still significant. For personality and pre-hire attitudes, the variance explained actually increased by extremely small amounts (maximum increase in the $R^2$ or change in $R^2$ of .008). Education was not significantly correlated with performance at either time 1 or time 2 ($r=.15$ and .11, respectively).

As shown in Table V, only personality significantly added incremental validity to the prediction of job performance up to two years after hire, and this finding is true regardless of when personality was entered into the regression ($\Delta R^2=.038$,.033,.045, and .039 for Steps 1, 2a, 2b, or 3, respectively). Thus, by accounting for biodata and personality, one is able to account for nearly all the incremental gain when predicting either voluntary, avoidable turnover or performance after six months. In contrast, only personality added significant incremental validity for either turnover or performance two years after hire.

**Discussion of Implications of Findings, Study Limitations, and Future Research Opportunities**

The purpose of this study was to examine the extent to which employers can reduce turnover and simultaneously increase performance during the selection process by using predictors related to applicants’ propensity to become attached to their organizations. Turnover researchers have historically neglected this question with actual job applicants (Griffeth et al., 2000). To fully evaluate the utility of assessing pre-hire retention-related individual differences, however, it is
important to examine whether these predictors of turnover are also simultaneously related to job performance. This study brings together biodata, pre-hire attitudes, and personality traits for the first time to determine their ability to jointly predict turnover and performance.

Consistent with earlier research (Barrick & Zimmerman, 2005), the results indicate that biodata measures that assess pre-hire embeddedness in the organization and habitual commitment and pre-hire attitude scales that measure employment motivation, personal confidence, and the traits of conscientiousness and emotional stability predicted voluntary, avoidable turnover during a six-month period after hire. However, these results also show that the biodata and pre-hire attitude scales’ validities attenuate rapidly, as only the personality traits were relevant predictors of turnover up to two years later. The results also indicate that biodata and personality predicted job performance, although personality was the only valid predictor of performance after six months. Furthermore, the study showed that the pre-hire attitude scales (employment motivation and personal confidence) were not related to job performance. These results also indicate another potential benefit of using personality-based integrity tests: reduction of turnover. Possibly because of the indirect measure of the personality constructs of conscientiousness and emotional stability (Ones, 1993), integrity tests predict not only thievery and other deviant behaviors, but also job performance (Ones, Viswesvaran, & Schmidt, 1993) and, as implied by the results of this study, turnover.

Despite the presence of individual differences in most models of turnover, they are the least understood. The use of these distinct sets of individual differences begins to fill in the empirical gaps in theoretical models of turnover, particularly in relation to pre-hire antecedents of turnover. One of the most frequently examined pre-hire antecedents of turnover has been realistic job previews. However, as Phillips (1998) illustrates, these effects are modest at best (mean $r=-.09$ in field settings, $R^2=.03$). The magnitude of the effects reported here ($R^2=.14$ at up to six months) far exceeds those obtained using realistic job previews. Consequently, the understanding that differences in employees’ likelihood of becoming attached to the organization influence their turnover decisions provides future researchers with a foundation to examine how individual differences work through job satisfaction and organizational commitment to predict turnover. In fact, researchers (Hom & Grif-
Feth, 1995) have been critical of structural equation model tests and accompanying parameter estimates that do not include all the necessary variables. Our findings suggest that omitting individual differences, such as those examined in this study (particularly the personality and biodata variables), from the model may affect the accuracy of the parameter estimates of other variables studied.

Another contribution of this study is the evidence that the validities of several predictors of turnover decline over time. This finding is consistent with the Griffeth et al. (2000) meta-analysis, which found that the relationships of both performance and commitment with turnover were weaker when turnover was measured more than 12 months after the measurement of the predictor. Researchers who develop turnover models need to be explicit regarding whether their model explains turnover decisions shortly after hire or after an extended period, as the antecedents of turnover during these two time frames may differ (Mitchell & James, 2001). Although there have been repeated calls for the investigation of the effects of time in organizational research (Wright, 1997, 2002), such studies are still few and far between.

In this study, the decline in predictive validity may have resulted from changes in employees' ability to deal with job requirements early in their tenure as opposed to after having been on the job for an extended period. This change in predictive validity may be related to Murphy's (1989) conceptualized division of job tenure into a "transition" phase, when job demands are uncertain and stressful, and a "maintenance" phase, when the demands are no longer novel after the employee learns how to effectively perform the job. While turnover in either phase may be detrimental to organizational performance, turnover early in an employee's tenure may be particularly harmful. Besides losing a potentially productive employee, turnover during the transition phase is likely to be costly because the organization has yet to recoup the direct and indirect costs associated with hiring and training the employee. Organizations would benefit from implementing programs (e.g., formal socialization, mentoring, or training) that minimize turnover by reducing an employee's uncertainty and ambiguity during the transition phase.

Surprisingly, whether the individual was referred by an employee (one of the items in the pre-hire embeddedness scale) changed from being negatively related to turnover at time 1 to being positively related to turnover at time 2. The reason is unclear, but it may be that people who are referred by employees (particularly friends or family members) often feel obligated to accept the job, even if they are not sure that it is the best position for them. Although they may initially stay because of such feelings of obligation, they may later realize that they made a wrong decision and leave for a job with another organization. This explanation is pure conjecture, however. Future research should focus specifically on replicating this finding and examining the underlying causes.

One limitation of the study is the possibility that candidates engaged in impression management. This would possibly attenuate the correlation between the measured constructs and turnover (Barrick & Mount, 1996; Bernardin, 1987). In particular, employment motivation items, such as “If I have my own way, I will be working for this company six months from now,” could be influenced by applicant faking. Nevertheless, even these predictors were found to be significantly related to turnover in an actual applicant setting. Future research should examine the effects of impression management on these measures.

In addition, as a precondition for collecting enough data to provide reliable effect size estimates, researchers typically study jobs that have sufficient quit rates to afford the large sample sizes needed to examine turnover. Although a strength of this study was its departure from the use of health care professionals and military personnel as subjects, the reliance on a lower-level job (credit union teller) may mean that the findings do
not necessarily apply to all types of positions. Similar to the finding that level of job complexity moderates the relationship between general cognitive ability and performance (Schmidt & Hunter, 1998), job level may also moderate the relationships between the predictors in this study and turnover. Future research should replicate these findings in upper-level jobs, where the costs associated with turnover are typically much higher (Hom & Griffeth, 1995).

Another limitation of the study is the fairly homogeneous sample used, particularly in terms of minorities and individuals over age 40 (which is also likely a function of the type of job in the sample), both of whom made up 7% or less of the sample. Because of this, meaningful adverse impact analyses would be impossible. However, we refer readers to findings by Barrick and Zimmerman (2005) in reference to the minimal adverse impact caused by the predictors included in both that study and this one, as well as Hough (1998) and Hough, Oswald, and Ployhart (2001) regarding the low d-scores of personality traits.

Further research also should investigate the incremental validity of other pre-hire methods of predicting turnover and performance, such as person-environment fit (Kristof-Brown, Zimmerman, & Johnson, 2005) and extraorganizational loyalties (e.g., moonlighting), to gain a more comprehensive picture of the value of each predictor. Although considerable research has been conducted on the incremental validity of predictors of performance (Schmidt & Hunter, 1998), we know of no such research for voluntary, avoidable turnover.

This study has identified a number of individual differences related to organizational attachment that can be used to predict both turnover and performance before the applicant is hired, with biodata and personality being among the most effective. However, pre-hire attitudes (employment motivation and personal confidence) did not predict turnover and performance beyond biodata (pre-hire embeddedness in the organization and habitual commitment) and the personality traits (conscientiousness and emotional stability). Therefore, organizations would benefit most from including the biodata and personality trait predictors in their hiring process. This study also illustrates that except for personality, the importance of these predictors attenuates over time. The finding that the constructs that best predicted early job turnover are related to employees having social and psychological support provides indirect endorsement of developmental programs designed to reduce employees’ uncertainty and ambiguity shortly after they begin their jobs. Future research should replicate these findings in higher-level jobs and include other predictors related to job performance and voluntary turnover.

MURRAY R. BARRICK is the department head and Robertson Chair in Business at the Mays Business School, Texas A&M University. He earned his PhD in industrial/organizational psychology from the University of Akron. His research interests include assessing the impact individual differences in behavior and personality have on job and team performance and on methods of measuring and predicting such differences. His work has been cited more than 5,300 times (Google Scholar, Nov. 2008). Along with Mick Mount, Barrick is the 2009 recipient of the Distinguished Scientific Contributions Award from the Society for Industrial and Organizational Psychology.

RYAN D. ZIMMERMAN is an assistant professor of human resource management in the Management Department at Texas A&M University. He earned his PhD in HRM from the University of Iowa. His research interests include personnel selection, employee turnover,
References


