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Staffing in the 21st Century: New Challenges and Strategic Opportunities[†]

Robert E. Ployhart*

Management Department, Moore School of Business, University of South Carolina,
Columbia, SC 29208

Modern organizations struggle with staffing challenges stemming from increased knowledge work, labor shortages, competition for applicants, and workforce diversity. Yet, despite such critical needs for effective staffing practice, staffing research continues to be neglected or misunderstood by many organizational decision makers. Solving these challenges requires staffing scholars to expand their focus from individual-level recruitment and selection research to multi-level research demonstrating the business unit/organizational-level impact of staffing. Toward this end, this review provides a selective and critical analysis of staffing best practices covering literature from roughly 2000 to the present. Several research-practice gaps are also identified.

Keywords: *staffing; personnel selection; recruitment*

Staffing is broadly defined as the process of attracting, selecting, and retaining competent individuals to achieve organizational goals. Every organization uses some form of a staffing procedure, and staffing is the primary way an organization influences its diversity and human capital. The nature of work in the 21st century presents many challenges for staffing. For example, knowledge-based work places greater demands on employee competencies; there are widespread demographic, labor, societal, and cultural changes creating growing global shortfalls of qualified and competent applicants; and the workforce is increasingly diverse. A survey of 33,000 employers from 23 countries found that 40% of them had difficulty finding and hiring the desired talent (Manpower Inc., 2006), and approximately 90% of nearly 7,000

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*Corresponding author. Tel.: 803-777-5903; fax: 803-777-6782.

E-mail address: ployhart@moore.sc.edu

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managers indicated talent acquisition and retention were becoming more difficult (Axelrod, Handfield-Jones, & Welsh, 2001).

These challenges might lead one to think that organizational decision makers recognize staffing as a key strategic opportunity for enhancing competitive advantage. Because talent is rare, valuable, difficult to imitate, and hard to substitute, organizations that better attract, select, and retain this talent should outperform those that do not (Barney & Wright, 1998). Yet surprisingly, a study by Rynes, Brown, and Colbert (2002) found the staffing domain demonstrated the largest differences between academic findings and the beliefs of managers. This means that, although staffing should be one of the most important strategic mechanisms for achieving competitive advantage, organizational decision makers do not understand staffing or use it optimally. Given that the war for talent is very real and relevant to organizations around the globe, it is critical that organizations and organizational scholars recognize the value of staffing.

The first purpose of this review is to provide a selective summary of key developments in staffing. Research on recruitment and personnel selection practices will be reviewed, critically analyzed, and suggestions offered for future theory and practical application. A second purpose of this review is to critically evaluate the link between staffing theories and practices to organizational and business unit effectiveness. This is ultimately what HR managers and scholars must do to demonstrate the strategic value of staffing. Yet it will be shown there are numerous gaps between research and practice, and particularly little research showing the business value of staffing. Closing these gaps will be necessary to more strongly convey the strategic impact of staffing. Multi-level staffing research and models are proposed as one means to close these gaps.

Scope and Structure of the Review

This review is limited to research published since roughly 2000, the date of the last major journal reviews of recruitment and selection. The review is organized by themes instead of chronologically, and each theme is illustrated with *representative* (not exhaustive) citations. Note this review has implications for more than U.S. organizations (this is why legal issues are not discussed). It is intended to be relevant to both macro and micro organizational researchers, to consider how staffing contributes to outcomes at multiple levels of analysis, and to identify gaps in our understanding of staffing research and practice. Ultimately, it is to generate recognition that staffing should have a very real and important impact on organizational effectiveness, but also to recognize that staffing research needs to move beyond individual-level theories and methods to demonstrate this impact.

Recruitment

Most definitions of recruitment emphasize the organization's collective efforts to identify, attract, and influence the job choices of competent applicants. Organizational leaders are painfully aware that recruiting talent is one of their most pressing problems. Tight labor markets give applicants considerable choice between employers, particularly for those in

professional, information/knowledge-based, technical, and service occupations. Some reports indicate that nearly half of all employees are at least passively looking for jobs, and a sizable minority are continually actively searching (Towers Perrin, 2006). This is such a problem that many organizations actually face a greater recruiting challenge than a selection challenge. Selection will only be effective and financially defensible if a sufficient quantity of applicants apply to the organization. Compounding this challenge is that many organizations struggle with how to attract a diverse workforce. Thus, there is growing recognition that recruiting—by itself and irrespective of selection—is critical not only for sustained competitive advantage but basic organizational survival (Taylor & Collins, 2000). Reflecting this importance, there have been several excellent reviews on recruitment (Breaugh & Starke, 2000; Highhouse & Hoffman, 2001; Rynes & Cable, 2003; Saks, 2005; Taylor & Collins, 2000). This review obviously does not provide the depth or detail of those reviews. Rather, this review selects the more recent developments with the greatest implications for organizational effectiveness.

An excellent place to start the review is with the recruitment meta-analysis conducted by Chapman, Uggerslev, Carroll, Piasentin, and Jones (2005). They summarized 71 studies to estimate the effect sizes and path relationships between recruiting predictors (job/organizational attributes, recruiter characteristics, perceptions of recruitment process, perceived fit, perceived alternatives, hiring expectancies) and applicant attraction outcomes (job pursuit intentions, job/organization attraction, acceptance intentions, job choice). This meta-analysis helps organize and clarify a rather diverse literature, and there are many specific findings, with the key ones listed below:

Perceptions of person-organization fit (*PO fit*) and *job/organizational attributes* were the strongest predictors of the various recruiting outcomes. The next strongest set of predictors tended to be *perceptions of the recruitment process* (e.g., fairness), followed by *recruiter competencies* and *hiring expectancies*. Interestingly, *recruiter demographics* or *functional occupation* showed almost no relationship to the recruitment outcomes.

Gender and study context (lab-field) were the only two moderators found to be important (although others may exist that could not be tested). Interestingly, job/organizational attributes and justice perceptions were weighed more heavily by real applicants, suggesting lab studies may be primarily useful for studying early stages of recruitment.

There was support for mediated recruitment models, such that recruitment predictors influence job attitudes and job acceptance intentions, which in turn influence job choice. Although acceptance intentions are the best proxy for actual job choice, they are an imperfect proxy.

Discouragingly, actual job choice was studied infrequently and was poorly predicted. On the other hand, given the nominal nature of job choice measures, one must wonder how large this effect should be.

Overall, there is good support linking many recruitment predictors to intention and perceptual criteria. The attributes of the job/organization and fit with the job/organization will influence intentions and (modestly) behavior. Hard criteria are infrequently studied, and when they are, the relationships are much smaller. We need to know how large these relationships could be, or can be, for the top predictors. Finally, demographics of both the applicant and recruiter seem to play a minor role, although individual differences may be more important.

Person-Environment Fit

Perceived person-environment fit (PE fit) is arguably the central construct in recruitment and has been an active area of research (see Ostroff & Judge, in press). The Chapman et al. (2005) meta-analysis, and another focused solely on fit (Kristof-Brown, Zimmerman, & Johnson, 2005), suggest multiple types of fit have broad implications for numerous criteria. Consequently, research has begun to examine the meaning, measurement, and antecedents of subjective fit.

For example, Kristof-Brown, Jansen, and Colbert (2002) found support for a three-level conceptualization of fit: person-job, person-group, and person-organization. Participants not only made distinctions between these types of fit but also combined them in fairly complicated ways. Taking a different perspective, Cable and DeRue (2002) argued for three types of subjective fit perceptions. According to the authors, *PO fit* represents the congruence between the applicant's values and the organization's culture, *person-job (PJ) fit* represents the congruence between the applicant's competencies and the competency demands of the job, and *needs-supplies (NS) fit* represents the congruence between the applicant's needs and the rewards provided by the job. They found discriminant validity for the three types of fit, and each type showed some unique relationships with different criteria. As one might expect, PO fit related most strongly to organizational criteria, and NS fit related most strongly to job/career criteria. Interestingly, PJ fit was unrelated to any of the criteria.

Cable and Edwards (2004) examined the similarities and differences between *complementary fit* (operationalized as psychological need fulfillment, or whether the work meets an individual's needs) and *supplementary fit* (operationalized as value congruence, or whether an organization's culture and values are similar to those of the individual). More important, they argued both complementary fit and supplementary fit can focus on the same dimensions (e.g., participation, autonomy), but they differ such that complementary fit emphasizes an amount on each dimension, whereas supplementary fit emphasizes the relative importance on each dimension. Although they found both types of fit were related, each independently predicted the same criteria (and of approximately equal magnitude).

Thus, recent research on the structure and measurement of subjective fit perceptions finds there are many different types. Even though the various types are related to each other, they are not redundant because each type appears to provide unique prediction for specific criteria. Truly understanding the consequences of fit perceptions will require correctly identifying the appropriate form of fit for the particular criterion (e.g., organizational criteria predicted best by PO fit perceptions). On the other hand, if each type of fit predicts different outcomes, one can speculate that each also has different antecedents (as do complementary fit and supplementary fit).

Employer Brand Image

One clear finding in recent recruitment research is the importance of the employer's image or reputation (Saks, 2005). Employer image has been examined by different researchers using different operationalizations (e.g., image, reputation, brand, symbolic attributes), but all converge around the finding that this image has important effects on recruitment outcomes. This

review examines all such research under the heading *employer brand image* (see Collins & Stevens, 2002).

For example, Turban and Cable (2003) showed how the reputation of an organization, operationalized as the organization's ranking in various popular business publications (e.g., *Fortune*, *Business Week*), had an effect on objective applicant pool characteristics. Firms with more positive reputations increased the number of applicants and influenced applicant behavior. On the downside, both low- and high-ability applicants were likely to apply to organizations with a favorable reputation, thus increasing recruiting costs. On the upside, having more applicants should allow the organization to make finer distinctions and be more selective of top talent. Cable and Turban (2003) helped explain these results by showing that applicants use the firm's reputation as a signal about the job attributes and as a source of pride from being a member. Interestingly, they even found participants would accept a 7% smaller salary as a result of joining a firm with a highly favorable reputation.

Collins and Stevens (2002) have borrowed from the marketing literature to consider the concept of *brand equity*. There are many similarities facing marketing and recruiting departments. For example, brand equity research suggests that organizations can create a marketing advantage by fostering recognition and favorable impressions of the organizations' brand. More important, brand image allows people to differentiate the product from competitors' products. When the image is positive, it creates positive attitudinal reactions to the organization and the product's attributes. Collins and Stevens (2002) argued that in the early stages of recruitment, organizations can use publicity, sponsorship of universities and schools, word-of-mouth, and advertising to create a positive brand image. These practices are particularly important in the early stages because the applicants have little information about the firm. They found these practices (excluding sponsorship) influenced employer brand image, which in turn influenced applicant decisions. Using multiple practices produced a stronger effect. Collins and Han (2004) conducted a similar study but examined between-organization differences in early recruiting practices, employer advertising, and firm reputation. They found these practices and information positively influenced applicant quality and quantity, demonstrating recruiting practices and organizational information can have organizational-level consequences. Advertising was the most important determinant of multiple measures of quality and quantity.

Lievens and Highhouse (2003) took the marketing perspective a step further and introduced the instrumental-symbolic framework to recruiting. *Instrumental attributes* tend to represent objective job and organizational attributes (e.g., pay, location), whereas *symbolic attributes* represent the subjective meanings and inferences that people ascribe to the job and organization. These symbolic attributes tend to be expressed in terms of trait or personality inferences. More important, they found symbolic attributes provided incremental explanation of organizational attractiveness beyond that provided by instrumental attributes. These symbolic attributes also provided a more useful source of differentiation between competitors. For example, jobs may be highly similar in terms of pay, benefits, and location, so the only way to differentiate two organizations is in terms of their symbolic attributes. Similarly, Slaughter, Zickar, Highhouse, and Mohr (2004) developed an individual measure of organizational personality and found individuals use organizational trait inferences to distinguish them from each other. These organizational trait inferences were also related to attraction.

Overall, employer brand image offers another possibility of sustained competitive advantage because it is rare, difficult to imitate, valuable, and cannot be substituted (Turban & Cable, 2003). Fostering favorable employer brand image can be accomplished through advertising and similar practices (Collins & Stevens, 2002) and can influence both applicant and organizational-level recruiting outcomes (Collins & Han, 2004; Turban & Cable, 2003). Employer brand image offers a way for organizations to differentiate themselves among applicants, even when they cannot compete in terms of location or wages. Together, this research provides important insights into how organizations can use their reputation and climate to attract and retain applicants. It will be important to learn how symbolic attributes are similar/different to employer brand image, organizational culture, and organizational values.

Applicant Reactions

Research on applicant reactions is similar to recruitment but focuses specifically on how applicants perceive and react to personnel selection practices (e.g., interviews, tests). A review by Ryan and Ployhart (2000) identified two main streams of applicant reactions research. The first examines the perceptions and reactions that influence test-taker performance, giving special emphasis to understanding whether demographic differences in perceptions and reactions explain demographic differences in test performance. The second examines a variety of attitudinal perceptions and reactions to selection practices, giving special emphasis to fairness.

Reactions and test-taker performance. One of the key constructs in applicant reactions is test-taking motivation, which is theoretically a proximal determinant of selection predictor performance. Unfortunately, prior research had been plagued with a hodgepodge of motivation measures with questionable construct validity. Sanchez, Truxillo, and Bauer (2000) addressed this problem by developing a more construct-valid measure of test-taking motivation that is based on valence-instrumentality-expectancy (VIE) theory. This measure should prove useful and widely applicable.

There has also been active research linking demographic differences in selection perceptions and reactions to test performance. Most of this research has focused on examining the implications of stereotype threat in selection or "high-stakes" testing contexts. Stereotype threat has its origins in social psychology. An individual experiences stereotype threat when he or she perceives there is a negative stereotype about his or her group's performance on some task; the threat of confirming that negative stereotype interferes with the person's performance (there are other conditions that must be met that are too detailed to discuss). Examples of stereotype threat include Blacks performing on intelligence tests, women performing on math tests, and Whites performing on physical tasks. Despite considerable appeal, stereotype threat has not been found to explain subgroup test performance differences in selection contexts. A special issue of *Human Performance* in 2003 was devoted to four studies that manipulated stereotype threat for Blacks and women in simulated selection contexts. These studies call into question the theory's applicability to employment testing contexts. Commentaries by Sackett (2003) and Steele and Davies (2003) present interesting alternative explanations of the

findings. The lack of stereotype threat effect was also found in a high-stakes field study by M. J. Cullen, Hardison, and Sackett (2004).

Attitudinal perceptions and reactions. There have been several advancements in understanding applicants' attitudinal perceptions and reactions. First, a special issue of the *International Journal of Selection and Assessment* published in 2003 presented a variety of new theoretical developments, including understanding when fairness most matters, applicant decision making, the role of applicant expectancies, and the applicant attribution process. These articles represent several new and different theories for studying applicant reactions and should serve to stimulate considerable empirical research. Second, Bauer, Truxillo, Sanchez, Craig, Ferrara, and Campion (2001) made an important methodological contribution by developing a measure of procedural justice applicable to selection contexts. As noted above, this area has been plagued by poor measures (Ryan & Ployhart, 2000).

Finally, a meta-analysis by Hausknecht, Day, and Thomas (2004) summarized 86 studies and examined a host of applicant reaction predictors (e.g., predictor type; justice rules like consistency, explanations, job relatedness; demographics) and outcomes (e.g., procedural and distributive justice, test motivation, organizational attractiveness, self-efficacy/self-esteem). To summarize the major findings:

In general, selection procedures that are perceived as consistent, job-related/face valid, and are explained to applicants will be perceived more favorably. In some cases, actual test motivation and performance are enhanced. Job relatedness and face validity appear to be the most important perceptions. The demographics of the applicant show small relationships with the various outcomes, although personality-based perceptions are slightly stronger with some criteria (e.g., conscientiousness with test-taking motivation).

Interviews and work samples are perceived most favorably, followed by cognitive ability tests, which are followed by personality tests, biodata, and honesty tests. Resumes and references are perceived more favorably (but not significantly) than cognitive ability.

Nearly half of the studies in this meta-analysis were based on student samples, with most of the others based on civil service positions (e.g., police, firefighter). Although there were many differences between the lab-field contexts and a slight trend for stronger relationships in lab studies, no consistent pattern emerged about which context produced higher/lower effect sizes. Note that the slightly stronger effect size for justice variables in lab contexts is counter to Chapman et al. (2005). Many of the studies used intentions and perceptual measures as criteria. One may question the discriminant validity of these criteria, as the relationships were quite large.

Overall, there are several themes consistent with the Chapman et al. (2005) meta-analysis. There is good support linking many applicant reaction predictors to intention and perceptual criteria, but links to objective criteria and actual decisions are much more limited. It is disappointing that we still do not know whether applicant reactions influence applicant behavior and choices in the private sector. These reactions should matter a great deal to organizations competing for talent, and most staffing managers probably consider these reactions when deciding whether to implement a particular practice. Perhaps we should be studying staffing managers' reactions to staffing practices because these are likely to have a strong impact on their implementation decisions.

Internet Recruiting

Organizations have been using the Internet as a recruiting mechanism almost as soon as it became popular. This use ranges from massive job search engines such as Monster.com, to providing job and career information on the organization's Web site, to using the Internet as a means to screen and process applicants (discussed shortly). The Internet has become an important job search tool for applicants, and it appears that the job search behavior of a sizable minority is influenced by Web sites (Karr, 2000). These are nothing short of radical transformations, yet research has been slow to catch up. This is finally starting to change.

Cober, Brown, Keeping, and Levy (2004) presented a model describing how organizational Web sites influence applicant attraction. In their model, the Web site's façade influences the affective reactions of job seekers, which in turn influence perceptions of Web site usability and search behavior. Usability and search behavior influence attitudes toward the Web site, and search behavior and Web site attitude then influence image and familiarity. These in turn influence applicant attraction to the organization. Descriptive information about Web site façade and usability was provided by Cober, Brown, and Levy (2004). Examining the Web sites of *Fortune's* "100 Best Companies to Work For," for 2 years, they identified a number of common features and decomposed the Web sites into three dimensions: form (e.g., pictures, vividness, diversity images), content (e.g., culture, compensation information, fit messages), and function (e.g., interactivity, online applications). They consider the interaction between form, content, and function to be critical. Finally, research has found the Internet can be an effective means to influence fit perceptions (Dineen, Ash, & Noe, 2002) and applicant attraction (Cober, Brown, Levy, Cober, & Keeping, 2003; Williamson, Lepak, & King, 2003). An entire special issue of the *International Journal of Selection and Assessment* (2003) examined these issues.

There can be no question that research on Internet recruitment must continue. Theoretical and classification work by Cober and colleagues (Cober, Brown, Keeping, et al., 2004; Cober, Brown, & Levy, 2004) is particularly helpful in identifying the main features of Web sites that should be examined. But there is a long way to go. The little prescriptive advice this research can offer is helpful even if sometimes obvious (e.g., Web sites should be up-to-date, easy to navigate, aesthetically appealing, etc.; Cober, Brown, Keeping, et al., 2004; B. J. Cullen, 2001; Jones & Dage, 2003). This research has scarcely scratched the surface. For example, What are the truly *critical* features of a Web site that *most* affect recruitment outcomes? How much real-world impact, and how many differences in applicant quantity and quality, or actual job choices are based on organizational Web sites? Do they increase fit, reduce turnover, or improve job satisfaction among applicants? How do recruitment Web sites fit into mainstream recruiting research? Does this medium present any substantive differences from other recruiting mediums? Is the Internet a more efficient or effective recruiting medium? How do different racial and ethnic groups react to Web sites? We simply do not know much about these questions.

Practical Recommendations and Implications for Organizational Effectiveness

Recruitment efforts are likely to be most effective when an organization emphasizes fit information, provides details about the job and organization; selects and trains recruiters, treats applicants with fairness and respect, uses job-related procedures and explains the

purpose of the selection process, articulates the right employer brand image, and ultimately creates a unified, consistent, and coherent recruiting campaign (perhaps marketing and recruiting departments should work together?!). Furthermore, organizations that use Web sites for recruitment should ensure they are aesthetically pleasing, easy to use, and provide the appropriate content for their purpose.

Although these are helpful implications, there is considerably more that must be learned to increase the practical usefulness of recruitment. As Saks so eloquently argued,

Even though there has been a great deal of research on recruitment over the last thirty years (Breaugh & Starke, 2000), it is fair to say that a) there are few practical implications for recruiters and organizations, b) the practical implications that can be gleaned from recruitment research have been known for more than a decade, and c) the main practical implications are at best obvious and at worst trivial. (2005: 69)

Not all findings appear obvious (e.g., little effect for recruiter diversity), and there are new practical implications (e.g., Web site design, fit perceptions), but Saks's assertion poses a serious challenge to recruitment research. Advancements in recruiting theory have been important, but do they correspond to advancements in application? Table 1 lists a collection of key research-practice gaps in need of more attention.

There is a danger that recruitment research will fragment itself into very complex micro theories (e.g., complex theories specific to each kind and level of fit, employer brand image, Web site design, etc.), but the application will be lost in the details. Consider that despite impressive theoretical precision around some key aspects of recruitment research, there is still little information about such basic practical recruitment challenges as how to best recruit a diverse workforce/use targeted recruiting (Avery & McKay, 2006), how stage of recruitment affects practical effectiveness, how recruitment practices influence actual job choice, and perhaps most important, whether recruitment research offers a meaningful impact on *organizational* effectiveness. At a time when organizations struggle with recruitment issues more than ever before, not having answers to these questions represents a missed opportunity to convey the value of recruitment research.

Personnel Selection Best Practices

Personnel selection practices (e.g., interviews, ability and personality tests) continue to capture the most attention from staffing scholars. There are several comprehensive reviews of selection practices (e.g., Evers, Anderson, & Voskuijl, 2005; Schmitt, Cortina, Ingerick, & Wiechmann, 2003), as well as discussions of research and practical applications (Guion & Highhouse, 2006; Ployhart, Schneider, & Schmitt, 2006; Ryan & Tippins, 2004). Rather than review all this research, the present review summarizes the major new developments.

New Developments in Selection Practices

This section considers new developments in selection practices. Only those practices that have been the most active area of research or are likely to show the most important practical

Table 1
Key Recruitment Research-Practice Gaps

What We Know	What We Need to Know
There are multiple types of subjective fit perceptions.	<ul style="list-style-type: none"> What are the antecedents and consequences of each type of fit? How do applicants actually acquire and combine fit perceptions over time? What can organizations do to most effectively influence fit perceptions?
Employer brand image is an effective means to differentiate the firm from competitors.	<ul style="list-style-type: none"> What should an organization actually do with brand image information to effectively influence job choice? How do organizations best acquire a brand image, present it, and manage it? How do organizations that lack a familiar brand image compete?
Recruitment and staffing practices influence applicant perceptions and intentions.	<ul style="list-style-type: none"> Do reactions influence applicant job choice and behavior in the private sector? Do reactions to staffing processes operate similarly for applicants, human resource (HR) managers, non-HR managers, and lawyers?
Applicants and organizations use the Internet for recruitment.	<ul style="list-style-type: none"> How much real-world impact do Web sites have on recruitment outcomes, job search processes, and job choice behavior? What are the truly critical Web site form, content, and function attributes, and which are desirable but not necessary?
Organizations struggle with finding the best ways to attract and retain a diverse applicant pool.	<ul style="list-style-type: none"> How can organizations best attract and retain a diverse applicant pool? What are the most effective recruitment practices for enhancing diversity?
HR managers struggle to determine how to demonstrate the business value of recruitment.	<ul style="list-style-type: none"> Need more organizational-level, multifirm, and multi-level recruitment research, using outcomes such as applicant quantity, quality, and competency of human capital.

implications are discussed. Cognitive ability tests are first considered because they are among the most predictive of selection practices but exhibit such large racial subgroup differences that the other practices discussed in this section have become increasingly important.

Cognitive ability. The main emphasis of recent cognitive ability selection research has been to identify ways of using cognitive ability that do not negatively affect racial diversity. This issue seems to polarize the profession like no other, as evidenced by surveys of staffing researchers (Murphy, Cronin, & Tam, 2003) and a recent published debate on the subject

(*Human Performance*, 2002). The challenges with balancing validity and diversity, along with a considerable amount of research, are described in Sackett, Schmitt, Ellingson, and Kabin (2001) and Hough, Oswald, and Ployhart (2001). They discuss numerous strategies that may reduce subgroup differences, such as supplementing cognitive tests with noncognitive tests, weighting criterion dimensions to de-emphasize task performance, minimizing reading requirements, enhancing face validity, and offering training and preparation opportunities. Although valuable, none of these strategies will by themselves reduce subgroup differences to the point of creating a perfect balance.

New strategies are being evaluated, but employers must recognize that the sole use of cognitive ability may impair their ability to hire a diverse workforce. This situation surely must change because as long as the best selection methods negatively affect diversity, organizations will be tempted to avoid using them or use nonvalid procedures simply because they allow them to achieve strategic diversity goals. This may seem unlikely to those within the scientific community, but it is a very real issue in the practitioner community. For example, Ryan, McFarland, Baron, and Page (1999) surveyed 959 organizations from 20 countries and found that compared to the grand mean of all countries, the United States was less likely to use cognitive ability tests and used fewer tests in general (see also Terpstra & Rozell, 1993). Research in this area would benefit from examining combinations of strategies. For example, supplementing cognitive with relevant noncognitive predictors (or using situational judgment tests or assessment centers), ensuring the assessments have minimal reading requirements, and engendering favorable reactions might *jointly* reduce subgroup differences. We know almost nothing about combinations of strategies, even though organizations may have the opportunity to implement them.

Personality. Research on personality in selection contexts continues to be active. Much of this research is summarized in books by Barrick and Ryan (2003) and Schneider and Smith (2004). There have been advancements in understanding the mediators (Barrick, Stewart, & Piotrowski, 2002) and moderators (Barrick, Parks, & Mount, 2005) of personality-performance relationships. Research has reconsidered traits less broad than those from the Five Factor Model (FFM). For example, a recent meta-analysis showed traits "narrower" than conscientiousness could provide incremental validity over global conscientiousness (Dudley, Orvis, Lebiecki, & Cortina, 2006). There has also been research examining how personality contributes to team performance (e.g., Stewart, Fulmer, & Barrick, 2005).

Offsetting these advancements are nagging questions to some of the most basic issues. For example, the now-classic meta-analysis by Barrick and Mount (1991) found personality traits (as measured on the FFM) demonstrated criterion-related validity for various criteria. There are few who can argue with that statement because the validities were not zero. However, the argument comes down to whether the magnitudes of the validities are of practical benefit, or alternatively, why the validities are so "low." The uncorrected validities have not changed much since Guion and Gottier (1965) and earlier reviews, which concluded there was not much support for personality validity (see Schmitt, 2004). An entire special issue at *Human Performance* (2005) considered this topic. Many advocates for personality testing tend to emphasize the corrected validities estimated from meta-analysis and the validity of "compound" traits (e.g., service orientation), whereas critics tend to emphasize the uncorrected validities and the homogenous traits. This concern is not restricted to academics;

applied experience suggests many practitioners and human resource (HR) managers remain skeptical of personality testing because these validities *appear* so small.

A closely related topic concerns applicant faking, response distortion, and impression management. The issue is whether applicants, who may be motivated to present the best possible impression, misrepresent their responses to such an extent that validity is compromised. This topic dominated research in the late 1990s, but there is still no professional consensus about whether faking limits the practical usefulness of personality in selection contexts. However, there is convergence around some key issues: Compared with incumbent settings, in applicant settings the mean scores are higher, the validity is about .07 lower, and the factor structures are highly similar (Hough, 1998; see Schneider & Smith, 2004). It is worth noting that the .07 validity decrement noted by Hough (1998) is frequently cited as a “small” reduction, but Ployhart et al. (2006) noted that .07 is approximately half the size of the typical uncorrected validity for the FFM constructs. Overall, it does not appear faking renders personality tests useless in selection contexts, but faking may reduce the usefulness of personality tests and possibly decrease the ability to distinguish between applicants because of inflated scores. Several approaches have been researched to help reduce faking, including the use of social-desirability scales, explicit warnings against faking, or use of response latencies to catch lying. Each has its own limitations and potential benefits (see Ployhart et al., 2006). A notable measurement approach to reduce faking may come from research on conditional reasoning by James (1998), but this work has yet to see widespread application.

It is frustrating that debates about personality validity and faking continue, and frankly, one wonders whether they are distracting the field from other important topics. For example, has any of the personality research during the past decade produced any noticeable changes in practice? Staffing consultants and civil service organizations appear more likely to offer personality tests than a decade before, but has any of this research resulted in changes in how personality testing is conducted in private industry? The Ryan et al. (1999) study described earlier found the United States is less likely to use personality tests relative to other countries. Has there been any evidence that implementation of personality testing has improved organizational or business unit effectiveness? This would be a more definitive means to settle the debate over personality validities. Do nonstaffing experts “believe in” personality testing? Applied experience suggests they often do not, so personality validity and faking debates become less important if there is not much enthusiasm to use them in the first place. For example, if organizational decision makers look at the typical self-report personality test and discount it because they think it can be faked, it doesn’t matter much what our literature says about faking because they will probably discount that as well!

Situational judgment tests (SJTs). SJTs are predictor methods that present applicants with work-related situations. Respondents are given several behavioral choices for addressing the situation and are then asked to indicate which options are most/least effective. Research and practical applications of SJTs have exploded in the past several years, and for good reasons. SJTs show at least moderate validity (.26; corrected $r = .34$; McDaniel, Morgeson, Finnegan, Campion, & Braverman, 2001), incremental validity over other predictors (Clevenger, Pereira, Wiechmann, Schmitt, & Harvey, 2001), and small to moderate gender/ethnic differences (Weekley, Ployhart, & Harold, 2004). They appear applicable for selection at all levels, can be used to help prepare individuals for international assignments, and are useful for training and

development. Because the questions present realistic work situations, they tend to be received favorably by applicants and HR personnel. Thus, evidence to support their criterion-related validity has accumulated. However, *what* they measure and *why* they are effective remain unclear, as do a number of operational issues such as faking, optimal scoring, scaling, and structure. There is also concern whether SJTs can be implemented cross-culturally, given the somewhat context-dependent nature of judgment. An entire book on SJTs edited by Weekley and Ployhart (2006) had leading experts discuss these issues, and numerous theoretical and practical recommendations were offered.

Assessment centers. Assessment centers present applicants with a variety of exercises (e.g., mock presentation, role-play) designed to measure multiple competencies. They are predictor methods rather than assessments of homogeneous competencies. Although they have long been known to demonstrate moderate to high levels of criterion-related validity, assessment centers have been plagued by an apparent lack of construct validity. Specifically, scores on assessment centers demonstrate “exercise” factors rather than “construct” factors. Recent research has made important strides in understanding why this occurs and showing assessment centers do, in fact, have construct validity. First, meta-analyses by Arthur, Woehr, and Maldegen (2000); Arthur, Day, McNelly, and Edens (2003); and Woehr and Arthur (2003) have summarized the validity, constructs, and exercises present in assessment centers. The average assessment center uses approximately five exercises to measure 10 competencies, with the 6 most common being interpersonal skills/social sensitivity, communication, motivation, persuasion/influence, organization/planning, and problem solving. Second, Lievens (2002) has helped identify why assessment centers demonstrate exercise factors. His research suggests that construct validity may be most determined by applicant behavior; applicants must demonstrate high *consistency* across exercises but also high *variability* across dimensions (see also Lance, Foster, Gentry, & Thoresen, 2004; Lance, Lambert, Gewin, Lievens, & Conway, 2004). It is also true that convergent validity will be enhanced when trained assessors, particularly psychologists, conduct the evaluations. Thus, even in the presence of exercise factors, assessment centers appear to have construct validity.

Work samples. Work samples present applicants with a set of tasks or exercises that are nearly identical to those performed on the job. It is believed that work samples provide one of the best ways to simultaneously achieve validity and diversity. However, a more up-to-date meta-analysis by Roth, Bobko, and McFarland (2005) found work samples show a corrected criterion-related validity of .33, certainly good but much smaller than that often-cited .54 in the classic Hunter and Hunter (1984) publication (indeed, this puts them on par with SJTs). Work samples may also show subgroup differences greater than previously thought, although more research on this topic is necessary (Ployhart et al., 2006).

Interviews. The interview continues to attract considerable research attention. Posthuma, Morgeson, and Campion (2002) published an extensive narrative review that does an excellent job of organizing the massive interviewing literature. Research has clearly found that structured interviews are more predictive than unstructured interviews or even interviews with less structure (Cortina, Goldstein, Payne, Davison, & Gilliland, 2000). A meta-analysis by Huffcutt, Conway, Roth, and Stone (2001) identified seven latent dimensions most

assessed by interviews: cognitive ability, knowledge and skills, personality, social skills (e.g., leadership), interests and preferences, fit, and physical abilities and attributes. So basically, most of the individual-differences selection researchers study! The most common dimensions assessed were social skills and personality, and structured interviews tended to measure different constructs than unstructured interviews. Interestingly, structured interviews had smaller racial subgroup differences than unstructured interviews. Panel interviews composed of diverse interviewers may help further reduce subgroup differences, although the findings are quite complex (McFarland, Ryan, Sacco, & Kriska, 2004). It is important to consider unreliability and range restriction when examining these subgroup differences. Roth, Van Iddekinge, Huffcutt, Eidson, and Bobko (2002) found that failing to consider such statistical artifacts results in underestimates of differences (this issue is relevant for all predictors). With respect to interview validity, Schmidt and Zimmerman (2004) used meta-analysis to show that it takes about four unstructured interviews to equal the reliability of one structured interview. Finally, research has found that structure can influence impression management (McFarland, Ryan, & Kriska, 2003) and that interview anxiety is a construct that can influence interview performance (McCarthy & Goffin, 2004).

Summary. Research on these and other selection practices will continue. One must wonder if part of the appeal in selection methods (SJTs, assessment centers) is their generally lower racial/gender subgroup differences and greater face validity. Research on these methods tends to first demonstrate their criterion-related validity and then tries to understand their construct validity. Research may be close to solving the construct validity question for assessment centers, but it will surely dominate the study of SJTs for the next several years (Schmitt & Chan, 2006). A comment on this entire line of research is that researchers tend to limit their focus to correlations with various individual-level criteria, convergent/discriminant validity, and subgroup differences. These are obviously important issues, but practitioners also consider such factors as cost, manager acceptability, efficiency, and so on. Has this research had an effect on managers' decisions to implement these methods? Are the more valid predictors more likely to be implemented, or do job relatedness perceptions override validity concerns? Validity is important, but it is not the only factor influencing final acceptance. And validity by itself rarely convinces organizational decision makers of business unit value.

Selection Using the Internet

Nearly every major staffing firm has adapted some form of Internet-based testing, and many organizations have already migrated from paper to Web-based selection. The rush to use this delivery platform is appealing: efficiency and cost savings, ability to administer the test globally in real time, and standardized scoring and administration. The issues involving Web-based selection are quite different from Web-based recruitment, in large part because there is more legal scrutiny with selection practices. This is one area where HR managers are in desperate need of research advice, but to date there has been little forthcoming (relative to the increase in application). For example, moving from a paper format to a Web format requires one to demonstrate the equivalence of the two formats (e.g., Potosky & Bobko,

2004). Only limited research has examined this question, with some studies finding equivalence (Salgado & Moscoso, 2003) and other studies not (but with results favoring the Web-based test; Ployhart, Weekley, Holtz, & Kemp, 2003). If using Web-based testing, one must then choose between proctored versus unproctored Internet testing, and there is no clear professional consensus over whether unproctored testing is appropriate or feasible (see Tippins et al., 2006, for an sampling of opinions). There are a variety of legal issues surrounding Internet testing, but many of the same basic issues present with traditional employment testing are present with Internet testing (Naglieri et al., 2004).

Research interest in this topic is growing (e.g., see the special issue of *International Journal of Selection and Assessment*, 2003). However, many core and central issues with Web testing, including validity, subgroup differences, utility, and reactions, have not been published. This seems astonishing, and as with Internet recruiting, it represents a substantial missed opportunity for the science of staffing to have a direct positive impact on staffing practice. One suspicion is that most research in this area is driven by practice rather than theory and hence is not applicable to academically oriented journals. But organizations will continue to use Web-based testing regardless of whether anyone publishes research on this topic or not, so it seems there could be some value in publishing major descriptive studies . . . for now. Long-term understanding in this area will require strong theory to explain the uniqueness of Internet testing, one that is specific to employment testing contexts. For example, research on Internet surveys does not capture the critical evaluative component of staffing, and other research on Internet measurement simultaneously finds evidence for less and more social desirability. Solid theoretical work in this area is long overdue and would have great benefit.

Practical Recommendations and Implications for Organizational Effectiveness

Organizations wishing to best balance diversity and prediction should use selection methods such as assessment centers, work samples, or SJTs. Although they exhibit subgroup differences, research to date suggests they are smaller than those found with cognitive ability yet show comparable levels of validity and probably more favorable user reactions (note one should always ensure the smaller subgroup differences are not due to lower reliability). Use of cognitive ability tests will require the implementation of multiple strategies to reduce subgroup differences. One approach that also enhances validity is to include a battery of cognitive ability and personality predictors (as necessitated by job demands). There appear to be meaningful benefits to administering assessments over the Internet, but we know very little about the consequences of using Web-based assessment. The safest thing an organization can do (for now) is to collect the content or criterion-related validity evidence necessary to support the Web-based procedure, until a research database is developed that can inform such practices.

Despite all the attention focused on selection practices, there are still many questions that need additional research. Research-practice gaps are summarized in Table 2 and offered as a stimulus for directing future research. For example, there is a need for more creative primary studies to test questions about construct validity. It would be informative for research

Table 2
Key Personnel Selection Research-Practice Gaps

What We Know	What We Need to Know
Well-developed predictors (e.g., cognitive ability, interviews, personality, assessment centers) have empirical relationships with job performance.	<p>What barriers exist to organizations adopting different predictors?</p> <p>What influences decision makers' choices about using predictors?</p> <p>Why is evidence for these predictors so frequently discounted?</p> <p>How do decision makers weight validity, diversity efficiency, cost, and so on when making choices about predictors?</p>
Situational judgment tests have useful levels of validity with small to moderate subgroup differences.	<p>Can situational judgment tests (SJTs) be faked/are they faked?</p> <p>Do SJTs show cross-cultural generalizability?</p> <p>How does one best score, structure, and scale SJTs?</p> <p>Can SJTs target particular constructs?</p>
There is new evidence for the construct validity of many predictor methods (e.g., assessment centers, interviews).	<p>Can one develop predictor methods to target specific constructs?</p> <p>What are the critical elements of structure, and which are desirable?</p>
Companies and consultants have embraced Internet testing, including unproctored Internet testing.	<p>How do validity, subgroup differences, user acceptability, economic return, faking, and related factors compare between Internet assessments and traditional assessments?</p> <p>What are the key implementation issues with Web-based testing?</p> <p>For which constructs is proctoring necessary?</p> <p>What theories explain the uniqueness of Internet testing?</p>
Many job-related predictors have racial/ethnic/gender subgroup differences that interfere with organizations' diversity goals.	<p>Do employers use suboptimal procedures in this situation because it allows them to achieve diversity?</p> <p>What types of selection practices do such organizations use in this situation?</p>
There are multiple strategies that help reduce subgroup differences on selection systems, particularly those using cognitive ability.	<p>Can combinations of strategies eliminate adverse impact?</p> <p>Which combinations are most effective?</p> <p>Are particular strategies more likely to be implemented?</p>
There remain concerns about using personality tests in practice (e.g., validity, faking).	<p>What are managers' perceptions of faking and validity?</p> <p>How can validity be enhanced?</p> <p>How can faking be reduced?</p> <p>Has personality research had an effect on employment testing in private industry?</p>
Human resource managers struggle to demonstrate the business value of selection.	<p>Need more organizational-level, multifirm, and multi-level selection research using unit-level outcomes.</p> <p>Research on staffing and its relation to strategy is sorely needed.</p>

to shift from asking, "What does predictor X measure?" (usually estimated through meta-analysis) to also asking, "How can I structure predictor X to measure a particular construct?" Predictor methods can be structured in numerous ways. Meta-analysis provides an effective summary of what *has* been done, but we may often be interested in questions of what *could* be done or what *should* be done. For example, how could one develop an SJT, interview, or simulation to measure a single homogenous construct—or is it impossible?

Similarly, we know little about how these practices are actually implemented. How do managers choose between selection practices and make implementation decisions (e.g., Terpstra, Mohamed, & Rozell, 1996)? Many organizations use suboptimal staffing procedures despite a wealth of knowledge about how to maximize hiring potential. Why is this knowledge base discounted or misunderstood (e.g., Rynes et al., 2002)? Is it manager ignorance that causes effective practices to be ignored, or is it simply impossible to implement many research-prescribed best practices? Selection research tends to follow a "maximizing" frame, but private industry operates with a "satisficing" frame. Take the research on structured interviews, which suggests that more structured interviews are more valid. The problem is that including all the various aspects of structure will lead many organizations to not adopt structured interviews. It may be useful for research to not only ask, "What can I do to most maximize interview validity?" but also ask, "What *minimally* must I do to get the *most* validity?" We need to know what aspects of structure are critical and which are desirable.

Finally, is there any empirical evidence, other than claims to utility analysis or manager self-reports (e.g., Terpstra & Rozell, 1993), demonstrating these selection practices produce more effective business units and organizations? Selection researchers may be convinced of a predictor's merits based on its validity, utility, and subgroup differences, but many managers are not. It is often impossible to make a business case for a selection practice based on validity.

Multi-level Staffing: Linking Individual Staffing to Organizational Effectiveness

The reviews of recruitment and selection practices both identified a need for research showing business unit value/organizational impact. This is interesting given the most basic staffing assumption, one described in nearly every textbook written on the subject, is that recruiting and hiring better employees contributes to organizational effectiveness. If it does not, then why invest in staffing? However, there is actually little direct, empirical evidence testing this assumption (e.g., Ployhart, 2004; Saks, 2005; Taylor & Collins, 2000). Utility analysis may be helpful to estimate these effects, but they are only estimates that are limited to monetary outcomes and are frequently discounted by managers (Schneider, Smith, & Sipe, 2000). Practitioners and HR managers often have to go well beyond validity (and even utility/monetary estimates) to make a case that staffing adds strategic value to the firm.

Likewise, from a theoretical perspective, it is discouraging there is not more direct, empirical evidence linking individual differences to organizational effectiveness. There is considerable staffing research at the micro (individual) level and some staffing research at the macro (organizational) level, but each discipline rarely considers processes, constructs, and influences outside its respective level. That is, micro- and macro-level research are both pri-

marily single-level disciplines because their independent and dependent variables are contained within the same level of analysis (Ployhart, 2004). Micro (individual)-level research examines how individual differences (knowledge, skills, abilities, and other characteristics; KSAOs) contribute to individual performance but assumes (or only estimates how) individual differences contribute to organizational value. Micro research is usually conducted from the perspective of industrial/organizational (I/O) psychology. Macro (organizational or business unit)-level research examines how HR practices (e.g., staffing) contribute to organizational performance but assumes that these practices have an effect because of their influence on employee KSAOs. Note that in macro research, these unit-level KSAOs are referred to as *human capital* and rarely measured. For example, research suggests that organizations using well-developed staffing practices have better performance (Huselid, 1995), but the focus is on the practice itself and not the specific human capital affected by the practice. Macro research is usually conducted from the perspective of strategy or strategic HR management (SHRM).

If both micro and macro disciplines limited their implications to their respective levels, there would be no cause for concern. But both disciplines make inferences and assumptions that extend beyond their respective levels. This is known as a *cross-level fallacy* in multi-level research and occurs when researchers inappropriately generalize their within-level findings to higher or lower levels of analysis (Rousseau, 1985). To ensure these assumptions are not fallacies, staffing research needs to connect micro and macro levels (see Saks, 2005; Schneider et al., 2000; Taylor & Collins, 2000; Wright & Boswell, 2002, for similar arguments).

Staffing may be one of the last holdouts to develop such multi-level theory. Schneider et al. (2000) strongly conveyed a need for multi-level staffing research, suggesting the very relevance of staffing may be ignored because of an inability to show unit-level value. They argued multi-level theory and methods would be necessary to truly incorporate an organizational perspective into staffing. Therefore, the next section introduces basic multi-level concepts critical to multi-level staffing, followed by multi-level staffing models.

Multi-level Theory

Organizations are inherently nested and hierarchical, for example, individuals are nested within business units such as departments or stores, which are in turn nested within the firm. Multi-level theory argues that ignoring such hierarchical structures can cause misleading interpretations and generalizations of within-level research findings (with cross-level fallacies being just one example). One important implication is that observations (e.g., employees) within a unit (e.g., store, organization) are likely to share similarities on particular KSAOs. This is known as nonindependence in statistical terms, and ignoring it can influence estimation of effect sizes and significance testing (Bliese, 2000).

To connect levels, multi-level theory describes theoretical processes for both *contextual* effects and *emergent* effects. Contextual effects are “top-down” effects from higher to lower levels (e.g., changing an organization’s HR practices changes the behavior of individual employees). Emergent effects are “bottom-up” effects from lower to higher levels. Kozlowski and Klein noted, “A phenomenon is emergent when it originates in the cognition, affect,

behaviors, or other characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon” (2000: 55). For example, a department that hires applicants on the basis of their conscientiousness should become composed primarily of highly conscientious people. Note that it takes time for bottom-up effects to occur; hence time must usually be a fundamental element in multi-level research (Kozlowski & Klein, 2000).

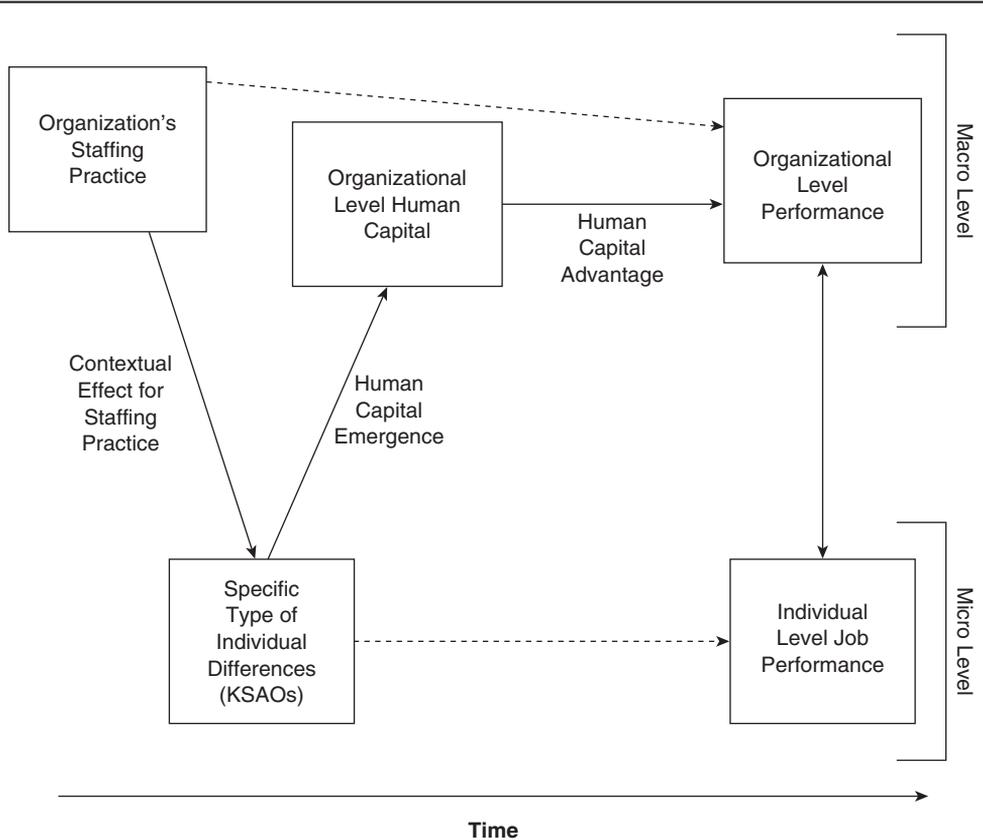
The bottom-up process of emergence is the critical theoretical mechanism that unites micro and macro staffing research because it helps understand *how* individual differences in KSAOs contribute to unit-level differences. Kozlowski and Klein (2000) and Bliese (2000) described two different types of emergence that represent ends on a continuum. On one hand, *composition models* of emergence theorize that there is such high similarity (homogeneity) among lower level observations (employees) that the within-unit scores create a distinct aggregate-level construct. An example of a composition model is when employees share such highly similar perceptions about their organization’s climate that a company-level climate variable is formed from the aggregation (mean) of employee climate perceptions. On the other hand, *compilation models* of emergence theorize that variability (heterogeneity) among lower level observations (employees) represents a unique higher level construct. An example of a compilation model is diversity, which may be represented as within-unit variability in demographic characteristics.

Thus, the concept of emergence helps articulate the creation of a higher level construct from a lower level construct. This, in turn, helps one understand how measures of individual-level KSAOs should be aggregated, theoretically and empirically, to create a unit-level construct. Because they are based on similarity or homogeneity, composition models are often operationalized as the mean of all within-unit observations. Empirical justification for aggregation comes from intraclass correlations or agreement indices. Compilation models are usually based on the within-unit standard deviation. Because a compilation model is based on variability and can only exist at the unit level, there is no associated test necessary for “aggregation.” Both forms of emergence may exist simultaneously to represent the level (composition) and strength (compilation) of a unit-level phenomenon.

Multi-Level Staffing Models

Multi-level staffing models are based on the integration of traditional micro-level staffing research with macro-level strategy and SHRM research. Multi-level theory is used to fuse these disciplines and explicate how individual differences contribute to the formation of unit differences. Schneider et al. (2000) described the basics for such a model, and subsequent work by Ployhart and Schneider examined the practical (Ployhart & Schneider, 2002), theoretical (Ployhart, 2004), and methodological (Ployhart & Schneider, 2005) concepts necessary to build a multi-level staffing model linking micro and macro perspectives. Together, this research articulates how individual differences create organizational differences, how staffing practices might influence this process, and ultimately how practitioners can show the organizational value of staffing. This review summarizes the common arguments across these publications.

Figure 1
Basic Components of Multi-Level Staffing Models



Note: Dashed lines indicate the subset of relationships examined by traditional single-level micro and macro research. KSAOs = knowledge, skills, abilities, and other characteristics.

Figure 1 illustrates the basic constructs and processes in multi-level staffing. Notice that there are two levels in Figure 1, the micro (individual) level and the macro (organizational) level (these levels are only illustrative, and multiple intermediate levels are possible). All of the arrows in Figure 1 are considered in multi-level staffing models, but as a point of comparison, the dashed arrows denote the relationships examined in traditional staffing research. As noted earlier, Figure 1 illustrates that these dashed arrows are each within a single level (micro *or* macro). The solid arrows in Figure 1 thus highlight the unique aspects of multi-level modeling.

First, because time is a fundamental part of multi-level modeling, Figure 1 is drawn so that the starting time begins with the implementation of a staffing practice. The staffing practice represents a contextual (top-down) effect on the firm's individual KSAOs because all potential employees within a relevant job will be recruited and assessed using the same staffing system.

Second, through use of a particular selection system, individual KSAOs will become similar within the job/organization over time and contribute to the emergence of macro-level human capital (recall that in strategy and SHRM research, *human capital* is the term used to describe the competencies of the firm's or business unit's workforce). This is based on the attraction-selection-attrition (ASA) model (Schneider, 1987), which suggests organizations will develop homogeneity in KSAOs that are similar to, selected by, and retained within the organization. However, multi-level theory can help better articulate homogeneity and connect it to the literature on macro staffing/SHRM. Specifically, multi-level staffing models argue that what the ASA model calls homogeneity is actually human capital as described in the macro literature, and the process through which homogeneity occurs is *human capital emergence*. Thus, human capital emergence represents the multi-level processes through which individual-level KSAOs become organizational or business unit-level human capital.

Third, organizational-level human capital contributes to the organization's performance, such that firms with higher quality human capital will outperform those with lesser quality human capital. This is known as *human capital advantage* in the macro literature (e.g., Boxall, 1996). Of course, there is another means through which individual-level KSAOs may contribute to macro-level performance, and this is through better individual performance that collectively improves the effectiveness of the firm.

Thus, through the processes of human capital emergence and human capital advantage, hiring more competent employees through the use of valid selection systems should contribute to better organizational performance. These points represent some important areas of departure between multi-level staffing models and traditional staffing models. First, multi-level staffing models allow researchers to hypothesize and test the assumptions in both micro and macro staffing disciplines. Micro research assumes better individual-level selection results in better organizational-level performance; macro research assumes HR practices influence organizational performance because the practices influence human capital. Multi-level staffing models allow researchers to test both assumptions through developing models of human capital emergence and human capital advantage. Second, multi-level staffing models allow researchers to develop cross-level models of human capital. By developing theories of emergence, researchers can more carefully articulate the structure and function of specific types of human capital (e.g., composition or compilation models). Finally, multi-level staffing models take a different approach to demonstrating the economic utility of staffing than traditional forms of utility analysis. Specifically, multi-level staffing predicts that human capital is a key determinant of organizational performance (i.e., human capital advantage), whereas many utility models would estimate this relationship via the aggregate sum of individual's performance contributions (rightmost vertical arrow in Figure 1). Furthermore, unlike utility analysis, formula-based estimates are not necessary with multi-level staffing because human capital advantage represents the correlation between human capital and organizational performance.

Empirical Support

Empirical support for aggregate-level human capital as a means to differentiate units has been found in several studies (Jordan, Herriot, & Chalmers, 1991; Schaubroeck, Ganster, &

Jones, 1998; Schneider, Smith, Taylor, & Fleenor, 1998). In each study, occupations and/or organizations could be distinguished from each other in terms of the average personality characteristics of people within each unit (interestingly, these findings are similar to research on organizational trait inferences noted earlier; Slaughter et al., 2004). Support for a multi-level model of human capital emergence was provided by Ployhart, Weekley, and Baughman (2006), who found human capital emergence (operationalized via personality) was hierarchical such that emergence was stronger at lower than higher levels. They also found evidence for both composition and compilation forms of human capital emergence. In general, unit mean human capital related positively, and unit variance related negatively, to satisfaction and performance. There were also some Mean \times Variance interactions, such that variability in human capital moderated the relationship between mean levels of human capital and outcomes.

The idea that human capital can exist in different forms, with different consequences, is well articulated by Lepak and Snell (1999, 2003). The premise is that the uniqueness and strategic value of human capital and knowledge influence the types of HR practices used to manage different employee groups. Four types of employment, with corresponding HR configurations, were identified: knowledge based (commitment-based HR practices), job based (productivity-based HR practices), contract (compliance-based HR practices), and partnerships/alliances (collaborative-based HR practices). Lepak and Snell (2002) found general support for this conceptualization using a sample of 148 firms. Thus, not only is human capital emergence an important concept, but different forms of human capital emergence will have different strategic value to the firm. This, in turn, requires different types of staffing practices, for example, selecting for longer term potential with knowledge-based employment while selecting for immediate job fit/performance with job-based employment.

Practical Recommendations and Implications for Organizational Effectiveness

Multi-level staffing models do not negate the importance of single-level recruitment and selection research. Rather, they seek to extend this work by articulating the linkages between individual differences and organizational/business unit differences. This is essentially the "value challenge" facing staffing managers and practitioners. In this sense, the model offers a way to demonstrate the value of staffing by examining the relationships between individual differences/human capital with individual outcomes/unit-level outcomes. This is nearly the same methodology used in job attitude/customer satisfaction linkage research. Although at the unit level there is likely a need for control variables (e.g., size), and there is an obvious need for multiple units, most large organizations (and consultants) have ready access to these data (see Ployhart & Schneider, 2005). Ployhart and Schneider (2002, 2005) offered some tools for conducting and interpreting such a study, and Schmitt (2002) posed several practical questions to be considered (e.g., How does job analysis change?). Staffing practices should help an organization achieve its strategic goals and vision (nearly always expressed in unit-level terms), and the model offers a way to demonstrate that effect.

Multi-level staffing also offers the opportunity to advance staffing theory. Ployhart (2004) described 15 implications of the model that demand future research, and Table 3 summarizes these and additional ones. For example, are the best KSAO predictors of individual performance

Table 3
Key Multilevel Staffing Research-Practice Gaps

What We Know	What We Need to Know
Human capital emergence is hierarchical; demonstrates composition and compilation manifestations.	<p>What is the structure and function for different types of human capital emergence?</p> <p>How do different types of human capital relate to criteria across levels?</p> <p>Are validities found at the individual level similar in magnitude to validities found at the organizational or business unit level?</p>
Human capital emergence has individual-level consequences.	<p>Does human capital emergence have unit-level consequences?</p> <p>Does human capital compilation moderate the effects of human capital composition?</p>
Organizations are staffed with different types of employees with different strategic value and uniqueness.	<p>Are there different types of human capital necessary for different types of employment groups, and how do these combine to influence organizational effectiveness?</p> <p>Is human capital an inimitable or nonsubstitutable resource?</p>
Human resource managers struggle to determine how to demonstrate the business value of staffing.	<p>Do differences in staffing practices translate into sustained competitive advantage?</p> <p>Do findings from individual-level validity studies translate into better performing units?</p> <p>How do utility estimates compare to multi-level staffing estimates?</p> <p>Are managers more persuaded by multi-level staffing findings than utility?</p>

also the best human capital predictors of business unit performance? Or, are certain manifestations of individual differences only predictive at higher levels (e.g., agreeableness does not show much validity at the individual level in technical jobs but in the aggregate may be predictive of business unit-level processes such as communication and social capital). Given that modern work continues to shift toward team-based and knowledge-based structures, these collective processes become important determinants of performance. Similarly, consider that meta-analyses indicate cognitive ability tests are one of the most predictive selection methods available for most jobs—do business units or entire firms staffed with more cognitively able people outperform those who do not? The study by Terpstra and Rozell (1993) is often cited to support such a claim, but their study only asked HR managers if they used ability testing and only asked them to self-report firm performance. How much of a validity difference must be found at the individual level to translate into business unit differences? Framing the debate around personality testing from this perspective might be a more compelling way to show the importance of personality.

Multi-level staffing also has implications for SHRM. For example, most conceptualizations of the resource-based view (RBV) of the firm argue that valuable, rare, inimitable, and nonsubstitutable resources offer sustained competitive advantage (see Jackson, Hitt, & DeNisi, 2003). From this perspective, staffing (particularly for lower level positions) is usually not considered strategic because the individual differences are common in the labor pool (they are generic), and competing organizations can and often do imitate a competitor's staffing practices. However, Wright and colleagues (Barney & Wright, 1998; Wright, McMahan, & Williams, 1994) have argued an organization's ability to attract and retain *top talent* can produce competitive advantage. Furthermore, what is valuable, rare, inimitable, and possibly nonsubstitutable (i.e., competitive advantage) is *human capital*, the *aggregate* individual differences linked to unit effectiveness. From this perspective, even "low-level" jobs and generic competencies could be strategic because it is difficult for competitors to develop such aggregate-level human capital. SHRM researchers should also start measuring human capital directly (through emergence) instead of relying on proxies (e.g., quality of educational institution).

Neglected Questions That Shouldn't Be

Although it may be unusual to conclude a review with questions that have been almost completely neglected by researchers, doing so is consistent with this review's focus on research-practice gaps and emphasis on organizational effectiveness. Shown below are entirely different questions that have important practical implications (and are challenging practical issues) but do not fit well into existing staffing frameworks or research.

First, why do managers so often fail to believe in our technology and science? Despite decades of research, numerous attempts to show the utility of staffing, and meta-analyses summarizing data on what now must be millions of people, why is so much of this evidence discounted? Are the research findings too vague to be of immediate practical application after the complexities of the real world are considered? What factors influence adoption of HR (staffing) technology and findings? If organizational decision makers are perhaps the ultimate consumers of our science, how is it that we have little understanding of what our customers want, need, or are willing to use? Theory and research must be conducted to understand this issue (see Terpstra et al., 1996).

Second, how does staffing contribute to reinforcing/changing/articulating organizational culture, climate, values, personality, and vision? When a decision is made to invest in staffing, changes to organizational culture, climate, and values are inevitable (particularly when moving to a different system). Staffing is likely to push a strategic focus lower in the organization. This is an important benefit from top management's perspective, but there is little research on using staffing as a tool for organizational change.

Third, what are the consequences of outsourcing staffing? The outsourcing of HR is a major concern, but this has existed within staffing for some time. In Lepak and Snell's (1999) model, such arrangements are hypothesized to offer low strategic value. Do they? Are firms that outsource staffing less effective than those that do it in-house; is their human capital of lesser quality?

Fourth, we know very little about the implementation, use, and effectiveness of staffing practices *across* (not within) cultures (Ryan et al., 1999, is a notable exception). Furthermore, there is little in terms of theory to help guide such research. Yet competition and technology have made the world flat for even the smallest organizations. This is another missed opportunity.

Finally, are findings based on civil service organizations generalizable to private sector organizations? There seem to exist two worlds in staffing; one is the civil sector where the usual staffing methods (job analysis) are applied almost without question. The other is the private sector world where competition and pace of change substantially challenge the best practices of staffing, if any formal staffing is even practiced at all.

Staffing at the Dawn of the 21st Century

Staffing sits in a curious position at the dawn of the 21st century: Economic, societal, and cultural changes make organizational success and survival dependent on staffing, but many organizational decision makers and even organizational scholars fail to recognize staffing's value. Managers often plea for tools to attract and hire better people. Oftentimes, we can give managers these tools if they would only believe in them. But the research literature sometimes has difficulty providing answers that show business value, or the answer is so onerous that it will never be implemented. Staffing should reign supremely strategic in the war for talent and sustained competitive advantage, but it is incumbent on staffing researchers and practitioners to show the organizational value of their science and practice (a concern of HR more generally). Research on traditional recruitment and selection practices is important and should continue, but this by itself seems unlikely to increase strategic value. Multi-level staffing research and models were offered as one mechanism for conveying business unit value. Every single organization in the world uses some form of staffing procedure, but there is no guarantee they use them optimally or even appropriately. This is unfortunate but is likely to continue unless research-practice gaps are closed to show the business unit strategic value of staffing.

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Biographical Note

Robert E. Ployhart is an associate professor in the Management Department at the Moore School of Business, University of South Carolina. He received his PhD from Michigan State University. His primary research interests include staffing (recruitment and personnel selection), multi-level and longitudinal modeling, and advanced statistical methods.