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# Recruitment and selection

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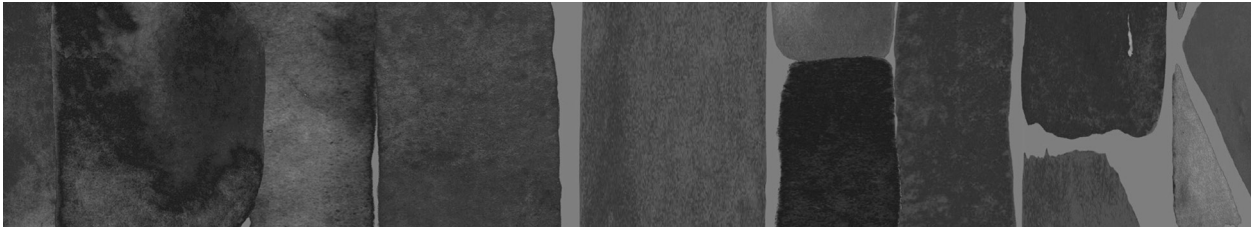
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PART II

# Fundamentals of Human Resource Management





# Recruitment and Selection

Filip Lievens and Derek Chapman

## INTRODUCTION

Few people would question that recruitment and selection are key strategic domains in HRM. At the same time, recruitment and selection also have an image problem. First, recruitment and selection are often viewed as ‘old’ ingrained HRM domains. It seems like the traditional recruitment and selection procedures have been around for decades, which is at odds with the ever-changing internal and external environment of organizations. Hence, practitioners often wonder whether there are any new research-based ways for recruiting and selecting personnel. Another image problem for recruitment and selection is that a false dichotomy is often created between so-called macro HR (examining HR systems more broadly) and micro HR (examining individual differences). It is further sometimes argued that organizations should value macro approaches and write off micro approaches as not being relevant to the business world. We posit that these image

problems and debates only serve to distract and fracture the field and hide the fact that excellent HR research and practice need to take both macro and micro issues into consideration. For example, creating an effective recruiting strategy (some would describe this as a macro process) requires considerable understanding of the decision-making processes of potential applicants (viewed as micro processes). The same can be said with respect to designing effective selection systems etc.

The challenge for many researchers then has been to demonstrate how scientifically derived recruiting and selection practices add value to organizations. Unfortunately, when the quality and impact of recruitment and selection procedures for business outcomes are investigated, they are often described in rather simplistic terms. For example, in large-scale HR surveys (e.g., Becker & Huselid, 1998; Huselid, 1995; Wright & Gardner, Moynihan, & Allen, 2005; Wright, Gardner, Moynihan, Park, Gerhart, &

Delery, 2001) ‘sound’ selection practice is often equated with whether or not formal tests were administered or whether or not structured interviews were used. Similarly, effective recruitment is associated with the number of qualified applicants for positions most frequently hired by the firm. Although such questions tackle important aspects of recruitment and selection, we also feel that such descriptions do not capture the sophisticated level that recruitment and selection research and practice have attained in recent years. This oversimplification in large-scale HR surveys is understandable due to the difficulty of getting usable survey data across a diverse set of companies. However, the goal of demonstrating the utility of recruiting and selection systems may be undermined by this practice and risks setting the field back if the results are interpreted out of context.

In light of these issues, the aim of this chapter is to highlight new key research themes in recruitment and selection. The general theme of this chapter is: ‘*Which new research developments in recruitment and selection have occurred that advance recruitment and selection practice?*’ Given the huge volume of work published we do not aim to be exhaustive. Instead, we aim to cover broad themes and trends that in our opinion have changed the field.

## OVERVIEW OF KEY RESEARCH THEMES IN PERSONNEL RECRUITMENT

In this section, we review some recent developments in the field of recruiting. For excellent and comprehensive reviews of earlier recruiting research, we recommend several prior reviews (Barber, 1998; Breaugh & Starke, 2000; Chapman & Mayers, 2015; Lievens & Slaughter, 2016). Tight labor markets in North America have helped fuel interest in recruiting research and considerable progress has been made in the recruiting field

over the past several years. As noted above, we especially focus on research that has practical implications for organizations.

### *The Impact of Technology on Recruiting*

Organizations have had to adjust to the new reality of online recruiting. The rapidly emerging field of E-recruiting is defined as:

the use of communication technologies such as websites and social media to find and attract potential job applicants, to keep them interested in the organization during the selection processes, and to influence their job choice decisions. (Chapman & Goddolei, 2017, p. 213)

One of the primary advantages of E-recruiting is the potential to reach a large number of potential applicants at low cost (Gueutal et al., 2005; Stone et al., 2005). E-recruiting provides the opportunity to reach applicants wherever they are through their mobile devices. For example, a recent survey found that 68% of active job seekers used their mobile phones at least once a week to search for jobs (Glassdoor, 2013). We know little, however, about how the impact of displaying recruiting messages on small mobile phones in distracting environments compares to more media-rich websites and traditional recruiting media viewed in quiet surroundings (Chapman & Goddollei, 2017). Clearly the recruiting landscape is changing rapidly and recruiting theory needs to adapt to reflect these shifts.

Despite the practical advantages afforded by E-recruiting, there remain both positive and negative consequences for organizations. For example, organizations can significantly reduce costs to advertise positions by using third-party job boards (e.g., Monster.com, Indeed) or through company websites. In addition, the inexpensive nature of online recruiting permits the conveyance of large amounts of information to potential applicants at a minimal cost relative to traditional

advertising venues. Media content can be substantially richer, including graphics, photos, interactive text, and video (Allen, Van Scotter, & Otondo, 2004). The potential also exists for the immediate tailoring of recruiting information to target the needs of prospective applicants (e.g., Dineen, Ash, & Noe, 2002; Dineen, Ling, Ash, & DelVecchio, 2007; Kraichy & Chapman, 2014). For example, after completing a needs questionnaire online, a prospective applicant could conceivably be provided with targeted information about the organization, its benefit programs, and opportunities that addresses their individual needs. Along these lines, Dineen et al. (2007) discovered that customized information about likely fit (combined with good web aesthetics) decreased viewing time and recall of low-fitting individuals, suggesting a means to avoid these individuals of being attracted to the organization. Kraichy and Chapman (2014) found that online recruiting messages focusing on eliciting affect or emotion were more effective at attracting applicants than cognitive/fact-based messages, particularly for those applicants with lower need for cognition. Clearly, customized real-time recruiting approaches are within the realm of existing technologies and have considerable potential for increasing the sophistication and effectiveness of our recruiting practices.

Despite the benefits and efficiencies of online recruiting, a potential downside is that many employers complain about the flood of unqualified applicants that can result from online advertising (Chapman & Webster, 2003; Parry & Tyson, 2008). This deluge of applicants can inflict considerable costs on the organization if the online recruiting process is not accompanied by an effective and efficient screening technology. The importance of integrating efficient screening tools and online recruitment needs to be emphasized to a greater extent in HR practice.

Researchers have also begun to focus more specifically on what makes an effective company website for recruiting purposes (e.g., Allen, Mahto & Otondo, 2007;

Cober, Brown, & Levy, 2004; Cober, Brown, Levy, Cober, & Keeping, 2003; De Goede, Van Vianen, & Klehe, 2011; Lee, 2005). Specifically, these authors suggest that website content (e.g., cultural information), appearance (e.g., use of colors and pictures), and navigability (e.g., links to job applications and usable layout) are all important for recruiting purposes. Cober et al. (2003) found that perceptions of the website aesthetics and usability accounted for 33% of the variance in pursuit intentions and 31% of the variance in recommendation intentions. Clearly, investing resources in website aesthetics such as the use of pleasing colors, pictures of smiling employees, and easy-to-navigate functions such as direct links to application forms can have appreciable benefits for recruiting. Recruiting researchers have begun to employ new methodologies to study how applicants experience and navigate websites. For example, eye-tracking technology has revealed that applicants focus on the navigation structure and links of recruiting websites more than other aspects of the sites (Allen, Biggane, Otondo, Pitts & Scotter, 2013). Schmidt, Chapman, and Jones (2015) demonstrated the use of click-through ratios (the ratio of applicant views to actual job applications submitted) available from network servers to determine the effectiveness of real job ads. A study of Williamson, Lepak, and King (2003) provided another practically important finding. They discovered that setting up a recruiting-oriented website (instead of a screening-oriented website) was associated with significantly higher attraction by prospective applicants.

### *Applicant Quality as Recruiting Outcome*

Traditional recruiting outcomes have been categorized into four major constructs: job pursuit intentions, organizational attraction, acceptance intentions, and job choice (Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005). Breugh and Starke (2000) presented a large number of potential

organizational goals that recruiters could strive to reach from shortening recruiting processing to reducing turnover. More research is emerging on these additional outcomes. For example, although recruiters have always been concerned about the quality of applicants attracted, few researchers have focused on this area. This area has perhaps become more popular due to the concerns about online applicant quality noted in the technology section. Specifically, Carlson, Connerly, and Mecham (2002) argued that assessing the quality of the applicants attracted is a useful tool in assessing the overall utility of the recruiting/selection system. To this end, they provided a useful assessment framework. This outcome has become an important focus of recruiting research (e.g., Collins & Han, 2004; Schmidt, et al., 2015; Turban & Cable, 2003). Dineen and Noe (2009) showed one way to improve applicant quality is through real-time conveyance of fit information to applicants to discourage weak applicants. Schmidt et al. (2015), in a quasi field experiment, showed that stronger applicants were most attracted to job ads emphasizing what the employer could provide to the applicant (needs/supplies fit) versus emphasizing what the company needed from the applicant (demands/abilities fit). Chapman and Webster (2006), meanwhile, have shown that stronger applicants are most influenced by recruiting practices. Specifically, weak applicants are inclined to apply to most vacancies to maximize their chances of employment, whereas strong applicants can afford to consider the merits of each company before submitting any applications. These findings highlight the importance of considering recruiting strategy and messages for attracting the best applicants.

### ***The Renewed Importance of the Recruiter***

A longstanding debate in the recruitment field has examined the role that recruiters

play in influencing applicant decisions. Earlier work suggested that recruiters play either no role or a minor one in determining applicant decisions. However, research since 2000 has confirmed that recruiters in fact do play a significant role in applicant job choice (Chapman et al., 2005). In their meta-analytic review, Chapman et al. tested several models to account for how recruiters influence job choice. Their best-fitting model involved job and organizational characteristics as mediators of recruiter influence on attraction and job choice. In other words, recruiters appear to influence job choices by changing applicant perceptions of job and organizational characteristics. Even more importantly, this influence was most pronounced for the best candidates – those with multiple job offers (Chapman & Webster, 2006).

Ironically, there is little guidance in the selection literature regarding how to identify and select individuals well suited for recruiting. Early studies showed that applicants pay attention to and are positively influenced by recruiter behaviors such as being informative and expressing warmth (Chapman et al., 2005) but we know little about individual differences that may be associated with recruiting success. A meta-analysis demonstrated that simple demographic factors (e.g., recruiter sex or race) are not good predictors (Chapman et al., 2005). However, there are potentially many more individual differences such as personality traits and cognitive ability that may predict recruiting outcomes. We believe that more work on individual differences in recruiting success is critical.

Despite the growing role of technology in the recruiting process, most employers and applicants continue to value an opportunity for face-to-face interaction at some point in the recruitment process. Employers who implement effective technology-based screening practices find that their recruiters are freed up from the manual sorting of resumes in order to spend more ‘face time’ with qualified candidates. Interestingly, this is the opposite of

what most employers fear when they consider implementing online recruiting and screening processes. Rather than becoming cold, sterile places, employers actually have more time to interact with their top prospects to connote empathy and warmth – exactly the recruiter traits most associated with applicant attraction (Chapman et al., 2005).

### ***Organizational Image and Employer Branding***

It is clear that applicants consider the image of an organization as an important factor for evaluating employers. Chapman et al.'s (2005) meta-analysis on organizational image in recruiting found a corrected mean correlation of 0.50 between image and job pursuit intentions, 0.40 for attraction, and 0.41 for acceptance intentions.

A lot of work has emerged on how applicants form images of organizations. One simple mechanism appears to be familiarity. Applicants are generally more attracted to companies that have name or brand recognition (Cable & Graham, 2000; Cable & Turban, 2001; Cable & Yu, 2006; Collins & Stevens, 2002; Turban, 2001), although it should be acknowledged that being familiar and having initially negative views of the organization can have deleterious effects on recruiting outcomes (Brooks, Highhouse, Russell, & Mohr, 2003). Efforts then to invest in becoming more recognized within a targeted applicant population are generally likely to prove useful for organizations. For example, for organizations who recruit primarily on university campuses, sponsoring events attended by students and advertising broadly within the campus community should increase both familiarity and attraction.

Beyond brand recognition, Lievens and Highhouse (2003) suggest that in forming images of organization individuals draw symbolic associations between the organization and themselves. This anthropomorphic approach to conceptualizing organizational

image demonstrated that applicants ascribe human personality traits such as sincerity, excitement, competence, sophistication, and ruggedness to organizations (Aaker, 1997; Lievens & Highhouse, 2003). In general, people seem to be more attracted to organizations whose traits and characteristics are perceived to be similar to their own (e.g., Slaughter, Zickar, Highhouse, & Mohr, 2004).

Another approach to organizational image has focused on the issue of corporate social responsibility (CSR), also termed corporate social performance (CSP). Applicants have been shown to take note of CSR information such as an organization's environmental practices, community relations, sponsorship activities, and treatment of women and minorities (e.g., Aiman-Smith, Bauer, & Cable, 2001; Backhaus, Stone, & Heiner, 2002; Jones, Willness, & Madey, 2014; Turban & Greening, 1997). For instance, Greening and Turban (2000) found that organizational CSP appears to influence the attractiveness of a company to applicants, such that all four of the CSP dimensions were significantly related to job pursuit intentions and the probability of accepting both an interview and a job. Aiman-Smith et al. (2001) conducted a policy-capturing study and found that a company's ecological rating was the strongest predictor of organizational attraction, over and above pay and promotional opportunities. These authors and others (see Greening & Turban, 2000; Turban & Cable, 2003; Turban & Greening, 1997) suggest that attraction stems from interpreting company image information as a signal of working conditions – a proxy of 'organizational values' – and applicants develop an affective reaction to these signals which may manifest in being attracted to that organization.

At a practical level, this increased research interest in organizational image is paralleled by the approach of employer branding (Avery & McKay, 2006; Backhaus & Tikoo, 2004; Cable et al., 2000; Cable & Turban, 2003; Cable & Yu, 2006; Lievens, 2007). Employer branding or employer brand management



involves promoting, both within and outside the firm, a clear view of what makes a firm different and desirable as an employer. According to Backhaus and Tikoo (2004), employer branding is essentially a three-step process. First, a firm develops a concept of what particular value ('brand equity') it offers to prospective and current employees. The second step consists of externally marketing this value proposition to attract the targeted applicant population. To this end, early recruitment practices have been found to be particularly useful (Collins & Stevens, 2002). The third step of employer branding involves carrying the brand 'promise' made to recruits into the firm and incorporating it as part of the organizational culture. Recent evidence has shown that a strong employer brand positively affected the pride that individuals expected from organizational membership (Cable & Turban, 2003), applicant pool quantity and quality (Collins & Han, 2004), and firm performance advantages over the broad market (Fulmer, Gerhart, & Scott, 2003).

An interesting twist to the employer branding process has emerged from the growth of third-party information about companies posted online (Chapman & Goddolei, 2017). As Van Hoye & Lievens (2007) discovered, potential applicants are particularly influenced by third-party online information which they termed 'Word of Mouse.' Demand for these third-party appraisals has grown considerably over the past few years. For example, the website Glassdoor.com contains hundreds of thousands of appraisals of company attributes such as pay and working environment. This allows potential applicants access to insider information about a particular company culture and working environment that was previously unavailable. This complicates an organization's branding efforts considerably as this anonymous information provided by employees can undermine or bolster branding strategies depending on the congruence between online accounts and the branding message. Given the emerging nature of these third-party sites the validity

of the information on them is open to debate. The marketing literature illustrates the potential danger of having this information manipulated by either the employer (posting false positive information) or competitors seeking to undermine the competition by posting false negative information (Luca & Zervas, 2016).

### ***Addressing Aging Populations***

Whereas traditional recruiting research has predominantly examined attracting young employees from universities and colleges, looming demographic realities involving a major shift in the age of employees are forcing employers and researchers to learn more about attracting and retaining older workers. Information about attracting older workers has just recently begun to emerge. For example, Rau and Adams (2004) examined the growing area of 'bridge employment' whereby older workers seek out a semi-retirement opportunity. This typically involves part-time employment that can serve to supplement retirement income as well as serve to fill a variety of social and esteem needs in older workers. Emphasizing equal opportunity for older workers, flexible schedules, and pro older worker policies have been shown to interact to improve attraction of older workers (Rau & Adams, 2005). Other suggestions for appealing to older workers include flexible compensation and benefits programs, and job redesign to accommodate and appeal to older workers (Hedge, Borman, & Lammlein, 2006). Clearly, more empirical data are needed to test many of the ideas posited for attracting older workers (Rau & Adams, 2014).

### ***Attracting Temporary Workers***

One response to staffing highly volatile work demands has been to rely more heavily on temporary workers, interns, and employment agency employees. This approach represents a significant recruiting challenge as

employers often offer lower pay, few benefits, and little training to these temporary workers as compared to core employees. There has been little empirical work examining the attraction of temporary employees; however, research conducted on cooperative education programs shows that temporary employees tend to be attracted to many of the same organizational and job characteristics as full-time employees. Therefore, employers offering better pay, prestige, locations, and opportunities for advancement are likely to be more successful in attracting temporary employees. As many of these employees use internships and temporary work as a stepping stone to full-time employment, employers would benefit considerably from considering their temporary hires as a potential full-time talent pool and treat them accordingly.

### ***Applicant Reactions to Selection Procedures***

Although recruitment and selection are often viewed as separate processes, research is increasingly showing that the two processes have considerable interactive effects (McCarthy, Bauer, Truxillo, Anderson, Costa, & Ahmed, 2017). Negative reactions to selection procedures have been shown to correlate with attraction, intent to pursue, job recommendations, and intentions to accept a job offer (see meta-analysis of Hausknecht, Day, & Thomas, 2004). Applicant reactions are a complex phenomenon. For instance, many researchers have emphasized the perceptions of injustice as the primary outcome of applicant reactions (e.g., Bauer, Truxillo, Sanchez, Craig, Ferrara, & Campion, 2001; Gilliland, 1993), whereas others have called for more behavioral outcomes such as effects on attraction and job choice (e.g., Chapman & Webster, 2006; Ryan & Ployhart, 2000). What is well established is that applicants make inferences about organizations based on how they are treated during the selection

process. In turn, these inferences might influence how attracted they are to the organization. In designing selection procedures, HR managers should balance their recruiting and selection needs and pay attention to the potential effects that their selection practices can have on applicant attraction and job choice.

## **DIRECTIONS FOR FUTURE RESEARCH ON PERSONNEL RECRUITMENT**

### ***Emphasizing Proactive Approaches***

Unlike selection research, which has a rich history of exploring very practical approaches to personnel selection, recruiting research has tended to focus on more distal predictor–attraction relationships. For example, we still lack simple descriptive information on the specific recruiting tactics used by employers. As a result, there is a dearth of research examining the effectiveness of particular recruiting tactics and strategies. The growing body of research on decision processes should help recruiting researchers make informed predictions about the likely success of these specific tactics and provide potential moderators of these approaches. Likewise, incorporating and refining theories of persuasion from social psychology in the recruiting context should provide a rich source of predictions about the crafting of recruitment messages. For instance, studies incorporating the Elaboration Likelihood Model (ELM) can tell us how to craft recruitment messages that are effective for busy job fairs or for quiet deliberation of information from a webpage (e.g., Jones, Schultz & Chapman, 2006; Larsen & Phillips, 2002).

Another example of such a proactive recruiting approach might consist of organizations seeking to maximize fit perceptions in order to enhance attraction. For example, through online assessments it may be possible

to identify that an applicant has higher potential person–job fit than person–organization fit. As a result, a proactive recruiting approach would be to emphasize the benefits for person–job fit for that individual throughout the recruiting process. This might involve presenting more detailed information to that individual on job characteristics, tasks, roles, etc. The aforementioned studies of Dineen and colleagues exemplify how such a proactive and customized fit approach might be accomplished in early (web-based) recruitment stages. These studies also go beyond the notion of fit as being a natural process whereby applicants self-select into organizations.

### ***Demonstrating Value to Organizations***

To date, recruiting researchers have largely had to rely on logical arguments to demonstrate the value of recruiting to organizations. For example, utility analyses can demonstrate the theoretical return to the company of employing an effective recruiting system over a weak recruiting system (e.g., Boudreau & Rynes, 1985). We can also argue that effective recruiting is necessary in order to generate the types of selection ratios needed to make our selection systems more effective (Murphy, 1986). However, we believe that the time has come for recruiting researchers to capture organization-level outcomes such as firm performance, organizational training costs, and turnover expenditures to more directly demonstrate the utility of recruiting practice in organizations. Along these lines, Breaugh and Starke (2000) provided a comprehensive framework for examining the types of recruiting goals that organizations can align with their overall corporate strategies. For example, as a cost reduction strategy HR departments could design recruiting practices aimed at attracting experienced employees who need little training, thereby saving training costs. Alternatively, a company emphasizing success through teamwork

would benefit from recruiting practices that attracted individuals who are comfortable and motivated in team environments. Recruiting materials then would display photos of employees engaged in team-based tasks, advertising outlets could include publications that attract a team focused audience, and benefits and rewards should emphasize rewards for team performance. Other demonstrations of value to organizations can be seen in an exemplar paper by Highhouse, Zickar, Thorsteinson, Stierwalt, and Slaughter (1999) which showed how recruiting image information (i.e., an image audit) can be applied to real-world recruiting issues (in this case, the fast food industry). Understanding how your organization is viewed by potential employees is a first and necessary step toward determining recruiting strategy. Generating effective strategies to address these images (such as hiring popular students to work in your fast food restaurant in order to attract more students) can flow from studying these issues empirically.

### ***Disentangling Content from Method***

In order to better determine recruiting effects, researchers are urged to design multiple manipulations for various recruiting tactics. Too frequently, recruiting researchers have single manipulations of information which make it difficult to determine whether the approach to recruiting is driving any observed differences or whether the content of the single manipulation is causing the effects. For example, in designing a study examining the role of a recruiting tactic such as comparing the job opening to a competitor's offering versus a tactic involving simply providing additional information about the company, researchers should endeavor to provide several examples of each manipulation so that the content of the manipulation is not confounded with the tactic. Accordingly, we can gauge the relative effects of the recruiting

tactics independent of the job and organizational content used in the manipulation.

### ***Focusing on Job Choice***

We know a lot less about behavioral outcomes such as actual job choice than we do about attitudinal outcomes such as attraction, job pursuit intentions, and job acceptance intentions. What is clear from the few studies examining actual job choice is that our traditional recruiting predictors are much weaker in their predictions of behaviors than they are of their predictions of attitudes. We need to pay more attention to multiple outcomes, longitudinal outcomes, and behavioral outcomes if we are to provide organizations with information that will be practical.

## **OVERVIEW OF KEY RESEARCH FINDINGS IN PERSONNEL SELECTION**

In this section, we review recent themes in the personnel selection domain. Due to space constraints, we refer readers to Cook (2016), Lievens and Sackett (2017), Sackett and Lievens (2008), Ryan and Ployhart (2014), and Ployhart, Schmitt, and Tippins (2017) for excellent overviews of the state of the art of personnel selection. Note too that the section below deals mainly with developments with respect to predictor instruments (i.e., selection procedures), even though we acknowledge there have also been substantial developments in the criterion domain.

### ***Improvements in Prediction of Existing Selection Procedures***

Many studies attempted to improve the prediction of existing selection procedures. One insight deals with increasing the *contextualization* of sign-based predictors (cognitive ability tests, aptitude tests, and personality

inventories). Although contextualization has a history in aptitude tests (DeShon, Smith, Chan, & Schmitt, 1998; Hattrup, Schmitt, & Landis, 1992), more recent studies have experimented with it in personality inventories. Contextualized personality inventories use a specific frame of reference (e.g., ‘I pay attention to details at work’) instead of the traditional generic format (e.g., ‘I pay attention to details’) (Bing, Whanger, Davison, & VanHook, 2004; Hunthausen, Truxillo, Bauer, & Hammer, 2003; Lievens, De Corte, & Schollaert, 2008). The meta-analysis of Shaffer and Postlethwaite (2012) summarized this research base and showed that for four Big Five traits (Emotional Stability, Extraversion, Agreeableness, and Openness to Experience) the sizes of validity coefficients of ratings on contextualized personality inventories were at least double those of generalized inventories. Yet, some questions remain. For instance, how far does one need to go with contextualizing personality inventories? Granted, adding an at-work tag is only a start to a full contextualization of personality inventories (e.g., ‘I pay attention to details when I am planning my meetings with customers.’). In light of the fidelity–bandwidth trade-off, perhaps the answer is related to what one wants to predict. Narrow contextualized scales might be better predictors of narrow criteria, whereas more generic scales might be better predictors for a more general criterion such as job performance.

A second insight relates to the increased recognition that practitioners should carefully *specify predictor–criterion linkages* for increasing the criterion-related validity of selection procedures. As conceptualizations of job performance broaden beyond task performance to include the citizenship, counterproductivity and adaptive domains it is important for organizations to carefully identify the criterion constructs of interest and to choose potential predictors on the basis of hypothesized links to these criterion constructs. All of this fits in a general trend to move away from general

discussions of predictors as ‘valid’ to consideration of ‘valid for what?’ Although this idea has already been launched since the taxonomic work on the dimensionality of performance, which revealed that cognitive measures were the most valid predictors of task performance, whereas personality measures were the best predictors of an effort and leadership dimension and a counterproductive behavior dimension (labeled ‘maintaining personal discipline’; Campbell, McCloy, Oppler, & Sager, 1993; McHenry, Hough, Toquam, Hanson, & Ashworth, 1990), it has become an established finding (e.g., Hogan & Holland, 2003; Gonzales-Mulé, Mount, & Oh, 2014; Judge & Zapata, 2015).

A third stream of research with considerable value for selection practice is that one should be aware of potential curvilinear relationships between personality traits and *job performance dimensions* (e.g., ‘Too much of a good thing’; Le, Oh, Robbins, Ilies, Holland, & Westring, 2011) and of *interactions among predictor constructs*. For example, interactions between Conscientiousness and Agreeableness (Witt, Burke, Barrick, & Mount, 2002), Conscientiousness and Extraversion (Witt, 2002), and Conscientiousness and social skills (Witt & Ferris, 2003) have been discovered. In all of these cases, high levels of Conscientiousness coupled with either low levels of Agreeableness, low levels of Extraversion, or inadequate social skills were detrimental for performance. At a practical level, these results highlight, for example, that selecting people high in Conscientiousness but low in Agreeableness for jobs that require frequent collaboration reduces validities to zero.

Fourth, research has shown that the use of *other reports* in addition to self-reports might improve the prediction of personality traits (Connelly & Ones, 2010; Oh, Wang, & Mount, 2011). For example, Oh et al. examined the meta-analytic validity of observer ratings of personality in work contexts. They found that observer ratings had higher corrected validity (range from 0.18 to 0.32) than did self-ratings (range from 0.05 to 0.22).

Moreover, observer ratings displayed incremental validity over self-ratings, although the reverse was not true.

Finally, research is informative as to what practitioners can do when applicants *fake* selection procedures such as personality inventories (and we know they do). Research shows that social desirability corrections should generally not be applied (Ellingson, Sackett, & Hough, 1999; Schmitt & Oswald, 2006). Although faking reduction approaches have been tried out, most of them (e.g., warnings, forced choice formats) had only meager effects (Dwight & Donovan, 2003; Heggstad, Morrison, Reeve, & McCloy, 2006). One promising approach consists of requiring candidates to elaborate on the ratings provided, although this strategy seems useful only when the items are verifiable (Schmitt & Kuncze, 2002; Schmitt, Oswald, Kim, Gillespie, Ramsay, & Yoo, 2003). Another useful intervention consists of using a two-step procedure. In a first stage, potential fakers are identified via a variety of computer-administered measures (e.g., a small sample of regular personality items, bogus items, and impression management scales). If a test-taker’s responses exceed a predetermined criterion, (s)he receives a warning message not to fake before receiving the full set of personality items (which also include the initial small set of items). Fan, Gao, Carroll, Lopez, Tian, and Meng (2012) showed that this procedure had a lot of promise (it lowered the scores of people flagged as fakers), although effects on criterion-related validity were not examined. Last, it was discovered that faking does not seem to be a problem when personality inventories are used for selecting candidates (i.e., a selection process with a high selection ratio; Mueller-Hanson, Heggstad, & Thornton, 2003).

### ***The Use of Technology in Personnel Selection***

In the last few decades, the face of personnel selection has changed substantially due to the

increased use of information technology (Internet) for administering, delivering, and scoring tests (Tippins, 2015). Actually, use of the Internet in selection is nowadays simply a necessity for firms to stay competitive. The efficiency and consistency of test delivery are some of the key benefits of Internet-based selection over computerized selection. Extra cost and time savings occur because neither the employer nor the applicants have to be present at the same location.

The good news is that research generally lends support to the use of the Internet as a way of delivering tests. Both between-subjects (Ployhart, Weekley, Holtz, & Kemp, 2003) and within-subjects studies (Potosky & Bobko, 2004) have provided evidence for the equivalence of Internet-based testing vis-à-vis paper-and-pencil testing. For example, Potosky and Bobko (2004) found acceptable cross-mode correlations for noncognitive tests. Timed tests, however, were an exception. For instance, cross-mode equivalence of a timed spatial reasoning test was as low as 0.44 (although there were only 30 minutes between the two administrations). As a main explanation, the loading speed inherent in Internet-based testing seems to make the test different from its paper-and-pencil counterpart (Potosky & Bobko, 2004; Richman, Kiesler, Weisband, & Drasgow, 1999).

Research with regard to transforming face-to-face interviews to video-conferencing interviews reveals a more mixed picture. Although considerable cost savings are realized from using these technologies, ratings have been shown to be affected by the media used (e.g., Chapman & Rowe, 2001; Chapman & Webster, 2001). The increased efficiency of technology-mediated interviews (e.g., video-conferencing interviews, telephone interviews, interactive voice response telephone interviews) seems also to lead to potential downsides (e.g., less favorable reactions, loss of potential applicants) as compared to face-to-face interviews, although it should be mentioned that actual job pursuit behavior was not examined (Chapman, Uggerslev, & Webster, 2003).

Whereas the previous developments have made rapid inroads, unproctored Internet testing has been more controversial. In this type of testing, a test administrator is absent during test administration (Bartram, 2008). Accordingly, unproctored Internet testing might lead to candidate authentication, cheating, and test security concerns. To date, there seems to be relative consensus that unproctored testing is best suited for low-stakes selection (Tippins et al., 2006). As a possible solution, some organizations have moved toward a two-tiered approach whereby unproctored Internet-based tests of cognitive ability and knowledge are administered for screening purposes only, followed by on-site proctored administration of a parallel test for those passing the online version. Sophisticated verification procedures are then used to examine whether the same person completed both tests, or, alternatively, only the proctored test is used for final hiring decisions. Some organizations combine this two-tiered approach with item response and item generation techniques so that candidates seldom receive the same test items. This requires considerable investments because large databases of questions must be generated and the difficulty level of each item must be determined to ensure parallel tests are generated each time. Once constructed, however, the organization can reap the benefits of unproctored testing and extend the life of the system by making fraudulent activity less damaging. When organizations use these deterrents, large-scale research shows that the amount of cheating on unproctored Internet tests of cognitive ability is often less than typically thought (Lievens & Burke, 2011; Nye, Do, Drasgow, & Fine, 2008).

### ***Personnel Selection in an International Context***

The face of personnel selection has changed not only due to rapid technological developments. The globalization of the economy has also considerably affected personnel selection

practice and research. This internationalization causes organizations to move beyond national borders, as reflected in international collaborations, joint ventures, strategic alliances, mergers, and acquisitions. One well-known HR consequence of this rapid internationalization is the need to develop selection procedures that can be validly used to predict expatriate success. Research has a long history here (going back to the Peace Corps studies). One of the problems is that the selection of people for foreign assignments has traditionally been based solely on job knowledge and technical competence (Schmitt & Chan, 1998; Sinangil & Ones, 2001). However, a meta-analysis of predictors of expatriate success (Mol, Born, Willemsen, & Van der Molen, 2005) revealed that there are many more possibilities. In this meta-analysis, four of the Big Five personality factors (Extraversion, Emotional Stability, Agreeableness, and Conscientiousness), cultural sensitivity, and local language ability were predictive of expatriate job performance. A problem with the large body of research on predictors of expatriate success is that research has mainly tried to determine a list of (inter)personal factors responsible for expatriate adjustment versus failure (e.g., Mendenhall & Oddou, 1985; Ones & Viswesvaran, 1997; Ronen 1989). Unfortunately, there is little research on designing a comprehensive selection system to predict expatriate success in overseas assignments.

Another consequence of the increasing internationalization is the need for selection systems that can be used across multiple countries while at the same time recognizing local particularities. This is not straightforward because differences across countries in selection procedure usage are substantial. This was confirmed by a 20-country study of Ryan, McFarland, Baron, and Page (1999). Apart from country differences, differences grounded in cultural values (uncertainty avoidance and power distance) also explained some of the variability in selection usage. Another large-scale study showed that

countries differed considerably in how they valued specific characteristics to be used in selection (Huo, Huang, & Napier, 2002; Von Glinow, Drost, & Teagarden, 2002). Countries such as Australia, Canada, Germany, and the United States assigned great importance to proven work experience in a similar job and technical skills for deciding whether someone should have the job. Conversely, companies in Japan, South Korea, and Taiwan placed a relatively low weight on job-related skills. In these countries, people's innate potential and teamwork skills were much more important. We need more studies to unravel factors that might explain differential use of selection practices across countries. In addition, we need to know how one can gain acceptance for specific selection procedures among HR decision-makers and candidates. Clearly, this is complicated due to tensions between corporate requirements of streamlined selection practices and local desires of customized ones.

A final pressing issue for organizations that use selection procedures in other cultures deals with knowing whether a specific selection procedure is transportable to another culture and whether the criterion-related validity of the selection procedure is generalizable. So far, there is empirical evidence for validity generalization for cognitive ability tests (Salgado, Anderson, Moscoso, Bertua, & De Fruyt, 2003; Salgado, Anderson, Moscoso, Bertua, De Fruyt, & Rolland, 2003) and personality inventories (Salgado, 1997) as the criterion-related validity of these two predictors generalized across countries. Research dealing with the criterion-related validity of other selection procedures in an international context is scarce. One exception is a study of Ployhart, Sacco, Nishii, and Rogg (2004) who examined whether the criterion-related validity of various predictors (measures of team skills, work ethic, commitment, customer focus, and cognitive ability) differed across 10 countries. They found that criterion-related validity was largely constant across countries and unaffected by culture.

Unfortunately, no studies have examined conditions that predict when the criterion-related validity of selection procedures will generalize across countries. Along these lines, Lievens (2008) highlighted among others the importance of matching predictor and criteria in an international context. The importance of predictor–criterion matching can be illustrated with assessment center exercises. The dimensions and exercises that are typically used in assessment centers in North America and Europe might be less relevant in other countries. Perhaps, in a high power distance culture, candidates are extremely uncomfortable engaging in role-plays. This does not imply that such exercises will be invalid in these cultures. The question is: Are these exercises indeed relevant for the criterion domain that one tries to predict in these cultures? Empirical research supports this logic. Lievens, Harris, Van Keer, and Bisqueret (2003) examined whether two assessment center exercises were valid predictors of European executives' training performance in Japan. They found that a group discussion exercise was a powerful predictor of future performance as rated by Japanese supervisors later on. The presentation exercise, however, was not a valid predictor. According to Lievens et al. (2003), one explanation is that the group discussion exercise reflected the Japanese team-based decision-making culture.

Another hypothesis put forth by Lievens (2008) is that the predictor constructs (especially cognitive ability) will often be very similar across cultures, but that the behavioral content and measurement of these predictors will vary across cultures. For example, Schmit, Kihm, and Robie (2000) developed a global personality inventory with input from a panel of 70 experts around the world. Although all experts wrote items in their own language for the constructs as defined in their own language, construct validity studies provided support for the same underlying structure of the global personality inventory across countries. This might also mean that ratings

in nonpersonality situations such as assessment centers or interviews might be prone to cultural sensitivity because there is ample evidence that the behavioral expressions and interpretations for common constructs measured might differ from one culture to another. Future research should test these hypotheses about possible moderators of the cross-cultural generalizability of the validity of selection procedures.

### ***Going Beyond Validity: Effects of Selection on Firm Performance***

Prior selection research usually took a micro-analytical perspective and typically examined the effectiveness of a selection procedure for predicting individual performance. To demonstrate the impact of selection on organizational performance, more recent research has taken a macro-analytical approach (Ployhart, 2006; Schneider, Smith, & Sipe, 2000). In particular, these studies went beyond simply correlating brief reports of HR managers' use of selection procedures with firm performance (e.g., Huselid, 1995; Terpstra & Rozell, 1993) and adopted a truly multilevel perspective to demonstrate that performance at the individual level also translated into differences at other levels (and especially at the organizational level). The general logic underlying most of this research is that human capital emerges out of an interaction of HRM practices (e.g., training, selection) and people's knowledge, skills, abilities, and other characteristics (Ployhart & Moliterno, 2011). One example of this stream of research is the study of Ployhart, Weekley, and Baughman (2006). They showed that individual-, job-, and organization-level mean personality were positively associated with job performance and job satisfaction, whereas job- and organization-level variances were often negatively associated with performance and satisfaction. These results highlight the importance of personality homogeneity at different levels



(cf. Attraction–Selection–Attrition framework). Similarly, Oh, Kim, and Van Iddekinge (2015) showed across a large set of firms that personality-based human capital (i.e., organization-level emergence of personality) had effects on key organization-level outcomes such as managerial job satisfaction, labor productivity, and financial performance. The interaction between organization-level mean personality traits (e.g., emotional stability) and smaller organization-level variance in these traits had also beneficial effects on key organizational outcomes. As a last example of this stream of research, Kim and Ployhart (2014) demonstrated how staffing and training influence firm performance under different economic conditions. They demonstrated that training was more beneficial for pre-recession profitability, whereas staffing was more beneficial for post-recession recovery.

### ***Personnel Selection and the Dark Side***

In the last few years, the assessment of dark-side traits has increased in importance in both practice and research for several reasons (Berry, Sackett, & Wiemann, 2007). One is the frequency of counterproductive behavior at all organizational levels. Another reason is that organizations are looking for ways to screen people on maladaptive traits early in the selection process. This might be especially important for security personnel, law enforcement agents, employees in nuclear power plants, etc.

Research has advanced in specifying the construct space related to maladaptive traits. Maladaptive traits are then referred to as subclinical versions of three main traits: narcissism, machiavellism, and psychopathy (aka ‘the dark triad’; O’Boyle, Forsyth, Banks, & McDaniel, 2012; Spain, Harms, & LeBreton, 2014; Wille, De Fruyt, & De Clercq, 2013; Wu & LeBreton, 2011). Apart from these conceptual issues, a key question is how these dark traits can best be measured in a selection procedure. Due to its increased importance, the assessment of dark-side

traits has diversified. Whereas traditionally overt and covert/personality-based integrity tests were employed (see meta-analysis of Van Iddekinge, Roth, Raymark, & Odle-Dusseau, 2012), conditional reasoning tests (James, McIntyre, Glisson, Green, Patton, & LeBreton, 2005) represent now also viable alternatives. Conditional reasoning tests are based on the notion that people use various justification mechanisms to explain their behavior, and that people with varying dispositional tendencies will employ differing justification mechanisms. The basic paradigm is to present what appear to be logical reasoning problems, in which respondents are asked to select the response that follows most logically from an initial statement. In fact, the alternatives reflect various justification mechanisms. James et al. present validity evidence for a conditional reasoning measure of aggression. Other research found that a conditional reasoning test of aggression could not be faked, provided that the real purpose of the test is not disclosed (LeBreton, Barksdale, Robin, & James, 2007).

So far, a problem is that conditional reasoning tests have been developed for a limited set of traits (especially aggressiveness). Therefore, the measurement of dark traits still represents a challenge for both researchers and practitioners. Apart from integrity tests and conditional reasoning tests, researchers have also started examining the viability of measuring implicit motives (Lang, Zettler, Ewen, & Hulsheger, 2012) and using implicit association tests (Uhlmann, Leavitt, Menges, Koopman, Howe, & Johnson, 2012).

### **DIRECTIONS FOR FUTURE RESEARCH ON PERSONNEL SELECTION**

#### ***Toward a Modular Approach to Personnel Selection Procedures***

In the past, selection procedures were seen as monolithic entities. There is now increased recognition to make a clear distinction

between predictor constructs (content) and predictor measures (methods). Content refers to the constructs and variables (e.g., conscientiousness, cognitive ability, finger dexterity, field dependence–independence, reaction time, visual attention) that are being measured. Methods refers to the techniques or procedures (e.g., paper-and-pencil tests, interviews, assessment centers, work samples, self-reports, peer reports) that are used to measure the specified content (Arthur & Villado, 2008). For example, a specific construct such as Extraversion might be measured via various methods such as interview questions, self-report items, or situational judgment test items.

Although there exist various taxonomies related to predictor constructs (e.g., Big Five), less is known about the key underlying factors of predictor methods. Therefore, Lievens and Sackett (2017) developed a framework of seven predictor method factors (aka the ‘Super Seven’): stimulus format, response format, stimulus presentation consistency contextualization, information source, response evaluation consistency, and instructions. They then argued in favor of a modular approach to personnel selection that breaks down a selection procedure into smaller components (namely these seven ‘building blocks’). Or in other words, a selection procedure is then no longer a monolithic entity but an assemblage of these loosely coupled and relatively independent building blocks.

Such a modular approach has various conceptual and practical merits. First, it leads to greater insight into the workings of each of the separate components because the isolated impact of these components is examined on key selection outcomes. For example, when one focuses on a holistic selection procedure such as an assessment center, it is difficult to determine why it leads to valid predictions of future performance. It might be because the assessors are well trained, the exercises are contextualized, or because the response format is not closed-ended. Conversely, if one examines the effect of one component such as response format (while keeping all the

others factors constant), one might determine whether an open-ended (as compared to a closed-ended) response format leads to better predictions. Second, a modular approach creates more integration and cross-fertilization across different selection procedures because these components cut across various selection procedures. Returning to the example below, suppose one finds that open-ended response formats lead to better predictions and thus higher validity; such an insight might inform a variety of selection procedures such as assessment centers, work samples, interviews, etc. As a key practical benefit, a modular perspective permits developing a myriad of new selection procedures by ‘mixing and matching’ different building blocks. That is, one might design a new ‘hybrid’ selection procedure by changing one or more building blocks of an existing selection procedure or by flexibly recombining them. For example, one might invest in higher levels of response-scoring consistency or more contextualization when designing an interview. Such changes might be made to improve reliability, validity, applicant perceptions, and/or reduce costs and subgroup differences. This ability to adjust building blocks leads to increased agility in (re)designing selection procedures, which serves as catalyst for innovation and change.

### ***Social Media and Personnel Selection: New Talent Signals?***

Social media such as Facebook, LinkedIn, and Twitter now play a predominant role in modern life. Social media can be defined as Internet-based operations based upon Web 2.0 that allow users to generate and exchange their own content (Kaplan & Haenlein, 2010; McFarland & Ployhart, 2015). There has been growing interest among companies to screen and evaluate individuals’ social media profile and messages (if given permission by the individuals involved) as a novel and additional source of information for recruiters to make decisions about whether or not to hire

a person. This practice of using social media in selection (aka ‘cybervetting’) has the potential to revolutionize the field of employee selection (Chamorro-Premuzic, Winsborough, Sherman, & Hogan, 2016; Landers & Schmidt, 2016; McFarland & Ployhart, 2015; Roth, Bobko, Van Iddekinge, & Thatcher, 2016). For instance, Roth et al. posited: ‘We believe this is a somewhat rare moment in the human resources literature when a new class of selection methods arrives on the scene’ (2016, p. 269).

What are the opportunities in using people’s social media information in selection? One potential benefit is that the information that people voluntarily provide about themselves on social media is often extensive (Park et al., 2015; Yarkoni, 2010). Importantly, research further shows that social media users present not only just idealized versions of themselves but also their true selves (i.e., the ‘least common denominator self,’ Back et al., 2010; but see also Marder, Joinson, Shankar, & Thirlaway, 2016) because social media are ‘masspersonal’ in that people’s social media messages are targeted toward multiple audiences and relational contexts (e.g., friends, family, employers; Carr, 2016). Accordingly, it has been argued that it is more difficult to engage in targeted impression management than in traditional selection procedures. Finally, from a utility point of view, screening information about people’s characteristics from social media is regarded to be relatively low cost as compared to other more traditional selection methods.

Despite these opportunities, the use of social media in employee selection also involves important risks and challenges (Davison, Bing, Kluemper, & Roth, 2016; Roth et al., 2016). A first challenge deals with the lack of standardization because the content (the kind of information people self-disclose on social media) might differ across applicants. Social media might thus provide abundant information for some people but little information for others. This lack of standardization complicates the task for recruiters

to provide reliable ratings across people (Kluemper, Rosen, & Mossholder, 2012; Lievens & Van Iddekinge, 2015). A second challenge is that the information about people on social media might often be job-irrelevant and that people might not represent themselves honestly on social media, thereby raising doubt whether reliance on people’s social media content enables valid predictions to be made about work-related criteria. As a third key challenge, personal information (e.g., ethnicity, religion, political affiliation, disability status) can often be found on social media that current legislation does not allow companies to use for making hiring decisions (Roth et al., 2016; Van Iddekinge, Lanivich, Roth, & Junco, 2016). Once recruiters are exposed to such information it may be difficult for them to ignore it, thereby reducing fairness. In addition, screening social media pages might be seen as a privacy violation (Davison, Maraist, & Bing, 2011; Stoughton, Thompson, & Meade, 2015). These reliability, validity, and fairness challenges are further complicated by the fact that scientific research on the use of social media in employee selection is virtually nonexistent (for an exception, see Van Iddekinge et al., 2016).

Taken together, the use of social media in employee selection creates tremendous opportunities, while at the same time posing huge challenges, as summarized by the following quote from Landers and Schmidt:

In the selection context, people provide a great deal of information about themselves via their online behaviors within such software, and these online behaviors can be observed, captured, and acted upon by employers. What remains unclear for both researchers and practitioners is what that information truly represents. (2016, p. 5)

Thus, there is a pressing need to tackle these challenges in a theory-driven, interdisciplinary, and evidence-based way. At a practical level, future research is needed to provide evidence-based recommendations to make these new talent signals less weak and ‘noisy’

(i.e., more reliable and valid; Lievens & Van Iddekinge, 2015). As one such recommendation, organizations should at least determine beforehand which signals are indicators of well-known individual differences such as cognitive ability, knowledge, interests, personality, or motivation (Roth et al., 2016). Another recommendation might be to use a combination of judgment-based (e.g., use of thoroughly trained recruiters; Kluemper et al., 2012; Van Iddekinge et al., 2016) and mechanically based (e.g., machine-learning approaches such as computational linguistics; Kosinski, Stillwell, & Graepel, 2013; Park et al., 2015; Youyou, Kosinski, & Stillwell, 2015) approaches for scraping job-relevant social media information.

### ***Gamification and Personnel Selection***

One of the attractive points of Situational Judgment Tests (SJTs) is that they present a series of realistic situations to applicants. However, SJTs are typically static and linear. Therefore, more realistic stimulus formats (e.g., 2D animated, video-based, 3D animated, avatar-based), branched/nonlinear formats, and webcam response formats have been developed (Fetzer & Tuzinski, 2013; Kanning, Grewe, Hollenberg, & Hadouch, 2006; Lievens, De Corte, & Westerveld, 2015). Similarly, gaming principles in selection ‘aka serious games’) have been adopted to lead to even higher realism and an even more engaging experience for applicants (and especially for millennials). Werbach and Hunter (2012) referred to gamification as the process in which features of games are ‘embedded into activities that are not themselves games’ (p. 27). To bring order in the diversity of game features, Bedwell, Pavlas, Heyne, Lazzara, and Salas (2012) developed a taxonomy of nine elements of gamification: action language (how the player communicates with the system), assessment (feedback given to the player), conflict/challenge (the

difficulty, problems, and uncertainty presented), control (degree of interaction and agency the player has), environment (presentation of physical surroundings), game fiction (fantasy and mystery in the story and world), human interaction (human-to-human contact), immersion (player’s perception of immediacy and salience), and rules/goals (clear rules to attain goals).

Due to their interactive and nonlinear nature, gamified assessments challenge conventional approaches for scoring and for subsequently examining the reliability and validity of the scores obtained (e.g., construct-related and criterion-related validity). A comparison with traditional selection approaches is also not straightforward. One useful starting point for future research might be to establish evidence-based or theory-based links between the game’s features (see the list above), candidate actions, and the job-related constructs that are the focus of the selection procedures. We also need to examine how people’s performance in games is related to established constructs such as cognitive ability. For example, Unsworth, Redick, McMillan, Hambrick, Kane, and Engle (2015) found little evidence that playing video games leads to enhanced cognitive abilities. Clearly, gamification will take prime place on the agenda of researchers and practitioners in the years to come.

### ***Big Data Analytics in Personnel Selection***

When Deep Blue II beat chess grandmaster Garry Kasparov in 1997, the writing was on the wall. Since then, the computational power of PCs has exponentially increased, vast amounts of digitally collected data have become available, and the software packages for analyzing those data have become evermore sophisticated. This has culminated in the ‘Big Data’ movement, which is regarded as one of the biggest trends of the last few years (Shah, Cappella, & Neuman, 2015).

Big Data include a combination of four dimensions: volume, velocity, variety, and veracity. Clearly, capitalizing on those dimensions opens a window of opportunity for personnel selection. In one of the prior sections, for instance, we have already referred to the use of Big Data for examining and demonstrating the effects of hiring and selection practices on organization-level performance indicators. In addition, the Big Data movement can also be fruitfully applied for improving existing selection procedures. One example that we discussed above consists of the use of machine learning for scraping job-related information from people's social media pages. Other examples are the use of text analytics for scoring accomplishment records (e.g., Campion, Campion, Campion, & Reider, 2016) or the reliance on social sensing for extracting nonverbal information from interviews or assessment center exercises (Schmidt Mast, Gatica-Perez, Frauendorfer, Nguyen, & Choudhury, 2015). In the next few years, we expect applications and investigations of the use of various forms of Big Data analytics in personnel selection to exponentially increase, allowing researchers and practitioners to address novel questions and/or find new answers to old questions.

## CONCLUSION

At the start, we mentioned that personnel selection is typically viewed as an 'old' and 'narrow' domain in HRM. In addition, it is often viewed in rather simplistic dichotomous terms. One of the aims of our review was to illustrate the various exciting developments that have taken place in this field in recent years. As demonstrated, many of these developments have substantial value for HR practitioners working in organizations. However, this is only side of the equation. An equally vital issue is to implement these developments in organizations. One challenge is to overcome the stubborn overconfidence

personnel selection decision-makers have in their own judgment (Kausel, Culbertson, & Madrid, 2017). Another related stumbling block is the lack of awareness of these new trends. For example, it was telling that a survey among HR professionals revealed that two of the greatest misconceptions among these professionals dealt with personnel selection, namely the relative validity of general mental ability tests as compared to personality inventories (Rynes, Colbert, & Brown, 2002).

Therefore, future research is needed to uncover factors that encourage/impede organizations' use of selection procedures. For example, Wilk and Cappelli (2003) showed that (apart from broader legal, economic, and political factors) the type of work practices of organizations was one of the factors that might encourage/impede organizations' use of selection procedures. Specifically, organizations seem to use different types of selection methods contingent upon the nature of the work being done (skill requirements), training, and pay level.

In a similar vein, we need to find out ways to sell selection practices to practitioners and to overcome potential resistance (Muchinsky, 2004). Probably, the provision of information about the psychometric quality and legal defensibility of selection procedures to decision-makers in organizations is insufficient. An alternative might consist of linking the adoption of sound selection practices not only to validity criteria but also to organization-level measures and Big Data analytics (annual profits, sales, or turnover; see the section 'Going Beyond the Validity of Selection Procedures'). Another way might be to use more vivid information (case studies) to persuade decision-makers. However, even this way of communicating selection interventions to practitioners might fail. Along these lines, Johns (1993) posits that we have typically placed too much emphasis on selection practices as *rational technical* interventions and therefore often fail to have an impact in organizations (e.g., attempts to

‘sell’ utility information or structured interviews). Conversely, practitioners in organizations perceive the introduction of new selection procedures as *organizational* interventions that are subject to the same pressures (power games etc.) as other organizational innovations. Although Johns’ article dates from 1993, we still have largely neglected to implement its underlying recommendations.

One possible approach to improving the use of scientifically validated recruiting and selection procedures is through the increasing professionalization of the field of HR. As more organizations insist on hiring HR personnel with professional training and credentials, the greater the likelihood that research-based practices will be valued and adopted in organizations. For example, Chapman and Zweig (2005) and Lievens and De Paepe (2004) found that trained interviewers were much more likely to practice structured interviews than their untrained counterparts. We are also hopeful that ongoing learning through professional development requirements for maintaining professional credentials will further infuse and update practice in the field. Likewise, it is necessary for researchers and instructors to engage the professional community to ensure that the research we are conducting is both relevant and timely.

## EPILOGUE

The central question of this chapter was: ‘Which have been key themes in recruitment and selection in the last years?’ Our review highlighted many common areas of interest between recruitment and selection. Examples include the increased use of technology, social media, and gamification. Due to these developments it also becomes apparent that the distinctions between recruitment and selection have become more blurred and that both domains have become part of the daily life of people (Ployhart et al., 2017). Whereas

in the past people applied for a job and physically went to a consultancy firm or company to take tests and interviews, these activities are now often interwoven into daily (online) activities.

Another common thread running through our review is that we still have difficulty in putting across our message that recruitment and selection matter to the organization. In both recruitment and selection, we need to find ways of demonstrating the value of recruiting and selecting to organizations. In recruitment, this might be done by developing frameworks for assessing the quantity and quality of the applicant pool. In selection, a macro-oriented (multilevel) approach should be given full attention for showing the effects of selection procedures on individual, group, and organizational outcomes.

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