Personnel Selection as a Process of Mutual Adaptation Between Applicants and Organizations

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Abstract

In the last decades, personnel selection research has mainly been developed around three main approaches: the psychometric approach, the applicant reactions approach, and the social process or interactional approach. But these approaches cannot explain some important practical issues, such as the failure of valid selection methods (e.g., structured interviews) to diffuse to recruiters. Article 1 offered to investigate the diffusion of the notion of interview structure in media that informs recruiters about job interviews. Results showed that arguments used in media to present this notion may potentially influence its diffusion to recruiters. Also, existing approaches are challenged by recent issues observed in the field, such as the increasingly competitive relationship between recruiters and applicants during selection interviews or among applicants in their production of increasingly innovative résumés. Applicants' invest more resources in their preparation for the selection and do not hesitate to fake in tests or interviews. They also invest an increasing amount of time in participating in original extracurricular activities (ECAs). Therefore new theoretical approaches are required.

Signaling theory is proposed in Article 2 as an alternative that allows capturing the interactive, adaptive, and dynamic nature of the relationships between job market actors, but also integrates the influence of macro-level factors (e.g., job market competition). A signaling approach to personnel selection involves applicants and organizations exchanging, manipulating, and decoding signals of their ability and commitment in the employment relationship. Four empirical studies then offer a preview of the potential of developing research based on a signaling approach by examining specific issues mentioned above. In Article 3, applicants' use of ECAs are described as an alternative to education to signal their qualities, because the signaling value of their degree is declining on competitive job markets. Article 4 highlights the influence of job market pressure on applicants' motives to getting involved in ECAs. Article 5 examines another potential adaptive strategy by applicants involving providing original or unique answers to traditional interview questions. Results suggest that the uniqueness of applicants' responses may benefit them. Article 6 describes organizations' and recruiters' attempts to counter-adapt to applicant faking by trying to detect and discount these behaviors. Results suggest that such attempts may not be successful.

The contribution of a signaling approach beyond those of the three existing approaches, suggestions for future research investigating long-term adaptations and counter-adaptations by market actors, and practical implications for applicants, recruiters and the diffusion of selection methods are discussed.

Keywords: Personnel selection, signaling theory, extracurricular activities, job interview, impression management.

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Introduction

Personnel selection has been a fruitful field of research in the past decades. Hundreds of studies have helped developing or improving selection systems, understanding how recruiters evaluate applicants and how applicants behave during the selection process or react to it. Most of existing personnel selection research can be classified into three main approaches: namely the *psychometric* approach representing the dominating perspective and researchers' traditional way of helping organizations to use the best selection methods; the *applicant reaction* approach focusing on the applicants' side of the relationship; and the emerging *social process* or *social interaction* approach representing a first attempt to bridge applicants' and organizations' perspectives.

The psychometric approach has been extremely successful in helping personnel selection researchers to develop psychometrically sound instruments and methods. Yet, these methods have not always been adopted by practitioners. The applicant reaction and social process approaches are more recent, but have already helped filling some important gaps in the existing research. However, all these approaches are challenged by recent issues observed in the field. For instance, observers have noted the increasingly competitive relationship between recruiters and applicants during selection interviews (Kirkwood & Ralston, 1999). Recruiters ask applicants questions. Applicants try to find out the answers recruiters are looking for, and often all end up giving the same answers. Recruiters, in return, need to change their evaluation criteria. But applicants soon adapt again. Similarly, applicants seem to be engaged in competitions with each other to produce increasingly innovative résumés (P. Brown & Hesketh, 2004), for instance by spending time in highly visible or original extracurricular activities. The three existing approaches presented above fail to explain these issues, mainly because they cannot account for the dynamic and adaptive nature of the selection process. Therefore, new models of personnel selection are required to better understand these phenomena and allow research to advance further.

In the following pages, I will first review the three existing perspectives mentioned above. I will highlight their strengths, but also their weaknesses. I will especially focus on the failure of some psychometrically-sound selection methods to diffuse in practice, which will be at the heart of the first article. I will then draw the path towards a new model that could integrate the dynamic, adaptive, and competitive dimensions of the relationships between actors of personnel selection. This will lead to a new theoretical framework, presented in a second article. Four empirical studies will then be presented and will represent a first attempt

to examine some of the existing competitive and adaptive relationships among applicants or between applicants and organizations. Finally, I will discuss the theoretical and practical contribution of these studies and the future research opportunities this new theoretical framework may offer.

1. The psychometric approach to personnel selection

1.1. The psychometric approach as the organizational perspective on selection

In the past decades, research on personnel selection has been mainly oriented towards what has been called the psychometric approach (Barrick, Shaffer, & DeGrassi, 2009; Herriot, 1993; Highhouse, 2002). Under this perspective, hundreds of studies have focused on the reliability of selection instruments, their validity as predictors of job performance, and their utility (e.g., Conway, Jako, & Goodman, 1995; Huffcutt & Arthur, 1994; Hunter & Hunter, 1984; Salgado & Moscoso, 2002; Schmidt & Hunter, 1998). Validity generalization analyses were used to show the value of these instruments across a variety of settings (Murphy, 2000). The psychometric perspective thus provides organizations with empirical evidence suggesting what selection instruments should be used to select applicants. For instance, Schmidt and Hunter (1998) suggested that general mental ability tests, work sample tests, and structured interviews were the most valid selection methods, while interests or graphology were methods organizations should avoid using.

The psychometric perspective has led to important advances in knowledge about the psychometric characteristics of selection tools, but also helped improving selection methods such as mental ability, work sample, and integrity tests (Schmidt & Hunter, 1998) or assessment centers (Gaugler, Rosenthal, Thornton, & Bentson, 1987). But the employment interview is maybe the best beneficiary of this. The interview has long been an unstructured process described as lacking validity or reliability (Campion, Palmer, & Campion, 1997). In an earlier meta-analysis, Hunter and Hunter (1984) showed low predictive validity values for interview, such as .14 for supervisor ratings or .08 for promotion. It has also been presented as being a subjective process influenced by individual characteristics of the recruiter (Graves, 1993; Graves & Karren, 1992, 1996), biases (Dipboye, 1994; Dunnette & Borman, 1979; Herriot, 1981; Marlowe, Schneider, & Nelson, 1996), and first impressions (Dougherty, Turban, & Callender, 1994; Macan & Dipboye, 1990). An illustration of the poor image of the interview was the widespread notion of snap decision making in the 1980s' (Buckley & Eder, 1988). Despite being based on very limited empirical evidence, handbooks often described the interview as process where recruiters were already making a decision on the

applicants only after a few minutes of interview. Yet, under the psychometric approach, researchers have done a tremendous job solving the above issues by developing concepts such as the structured interview (Campion et al., 1997; Campion, Pursell, & Brown, 1988; Dipboye, 1994). The psychometric proprieties of interviews have been greatly improved by developing the questions based on a job analysis, standardizing the process (e.g., asking the same questions to all applicants in the same order, limiting probing and applicant's questions, taking behavioral notes, evaluating answers on anchored rating scales) or asking better questions. The notion of better questions is related to the past behavioral interview, where applicants are asked to describe past experiences (Latham & Saari, 1984; Latham, Saari, Pursell, & Campion, 1980; Latham & Sue-Chan, 1999; S. D. Maurer, 1997), or the situational interview, where applicants are asked about hypothetical behavior in job-related situations (Janz, 1982; Motowidlo et al., 1992; Pulakos & Schmitt, 1995). As a result, recent meta-analyses stressed the potential of structured interviews as a valid predictor of job performance: .57 in Huffcutt and Arthur (1994), .44 in McDaniel et al. (1994) or .51 in Schmidt and Hunter (1998). Similarly, structuring the interview led to a substantial improvement in inter-rater reliability (Conway et al., 1995; Dipboye, 1994; Hough & Oswald, 2000). Such improvement could be explained by the constructs measured, since they are more job-related in structured interviews based on a job analysis and a standardized process than in unstructured interviews (Huffcutt, Conway, Roth, & Stone, 2001). Structured interviews also minimize in-group favoritism (Latham & Skarlicki, 1996) and other biases.

Yet, some authors have suggested that research was over-focused on the psychometric properties of selection instruments, while overlooking other practical issues (e.g., Anderson, Herriot, & Hodgkinson, 2001; Herriot, 1993). Such criticism can be illustrated by Cascio's (1991, p. vii) statement: "like it or not, the language of business is dollars, not correlation coefficients!" The psychometric approach has not completely overlooked the monetary aspects of selection. For instance, utility analyses have been developed to highlight the monetary value added by using psychometrically sound selection instruments (e.g., Schmidt & Hunter, 1998). But, again, these analyses have mainly stressed the importance of predictive validity. And communicating information about the utility of a selection method does not always lead recruiters to adopt it (Hough & Oswald, 2000). The psychometric perspective has also been criticized for ignoring the social aspects of the selection process (e.g., Anderson, Lievens, van Dam, & Ryan, 2004; Derous & De Witte, 2001; Herriot, 1993). Authors have stressed that this process is not unilateral with a recruiter making a decision on an applicant. Rather, it "involves a sequence of communications culminating in a face-to-face encounter.

Both parties are forming judgments and opinions about each other, and both can opt out at any time" (Herriot, 1993, p. 372).

This approach represented the organization's perspective on the selection process. Yet, one of its main weaknesses is the failure of academics to ensure the diffusion of some of the most valid and reliable selection instruments to practitioners. I will now describe this limitation and present an empirical study examining the case of the structured interview.

1.2. A limitation of the psychometric perspective: The non-diffusion of valid selection methods

The existing personnel selection literature contains several examples of selection methods that fail to diffuse in practice despite the empirical evidence demonstrating their high predictive validity. For instance, cognitive ability tests, work sample, and structured interviews are valid methods (Schmidt & Hunter, 1998). Yet, a large international study in 18 countries showed that, on average, organizations only occasionally used ability tests and that only one third of organizations asked fixed questions (i.e., an aspect of structured interviews) in their interviews (Ryan, McFarland, Baron, & Page, 1999). More recently, Furnham (2008) found that only a quarter to a third of European organizations he surveyed used ability tests. And König, Klehe, Berchtold, and Kleinmann (2010) found that only a minority of German-speaking Swiss organizations used ability tests (18.6%) or work samples (23.5%). Even in an industry like construction requiring manual skills that can be easily demonstrated, (highly valid) work samples were used less than (not valid) handwriting analysis (Lockyer & Scholarios, 2007). Yet, the issue of non-diffusion is probably best illustrated by the academic-practitioner gap surrounding the structured interview (Chen, Tsai, & Hu, 2008; Lievens & De Paepe, 2004; Ryan et al., 1999; Terpstra & Rozell, 1997; van der Zee, Bakker, & Bakker, 2002). Despite their good psychometric properties, structured interviews are still not widely accepted by practitioners.

Previous research based on institutional theory has suggested that factors such as costs, legal considerations or perceived diffusion in other organizations can be more important than predictive validity for organizations (Klehe, 2004; König et al., 2010). Research has also highlighted interviewer-related explanations, including the effect of interviewer training and concerns regarding the control of interviews (Lievens & De Paepe, 2004) or attitudes towards interview structure (van der Zee et al., 2002).

But past studies did not examine *how* the concept of interview structure was diffused from researchers to practitioners. Recent studies have suggested that the lack of adoption of evidence-based practices could be explained by limited or distorted diffusion through practitioner-oriented literature (Rynes, Giluk, & Brown, 2007). The very limited diffusion of some valid selection methods presented above could be explained by recruiters' biased knowledge or beliefs about such methods. For instance, Rynes, Colbert, and Brown (2002) found that only 42% of HR managers they surveyed knew cognitive abilities to be a good predictor of job performance. Maybe the diffusion of structured interviews suffers similar problems. Also, no study examined how practitioners do react to the arguments used to demonstrate the added value of selection instruments. The psychometric approach suggest that recruiters should be convinced by the accumulated evidence of the good psychometric properties of structured interviews (e.g., Huffcutt & Arthur, 1994; Schmidt & Hunter, 1998). On the other hand, some authors have argued that recruiters are not that concerned with these psychometric arguments (e.g., Herriot, 1993).

The objective of the first study (Article 1) is to investigate the diffusion of the notion of interview structure in the practitioner-oriented literature and the arguments used to describe it. This study will compare traditional psychometric arguments to managerial arguments using a more business-oriented language.

1.3. Understanding the academic-practitioner gap for structured interviews: "Behavioral" interviews diffuse, "structured" interviews do not (Article 1)

In this study, Adrian Bangerter and I examine how the structured interview, which has not been widely adopted by practitioners despite its good psychometric properties, is diffused to practitioners (i.e., recruiters). The concept of interview structure is multidimensional (Chapman & Zweig, 2005) and there is no consensus or unique definition of the structured interview. Rather two ways of structuring interviews have emerged in research: the standardization of the interview process (Campion et al., 1997; Huffcutt & Arthur, 1994) and the use of patterned behavior or situational questions (Janz, 1982; Latham et al., 1980). Both approaches lead to a higher predictive validity than traditional unstructured interviews, such as .57 for standardizing interview questions and response scoring (Huffcutt & Arthur, 1994). or between .32 and .48 for using behavioral interviews (Latham & Sue-Chan, 1999; Pulakos & Schmitt, 1995). Furthermore, the scientific concept of structured interview may change when it is diffused from the academic discourse to practice, as suggested by the theory of social representations (Moscovici, 1984). This theory explains the process by which complex scientific findings are transformed into everyday knowledge comprehensible by laypeople.

For instance, the original concept can be transformed or simplified to better fit the schemes of thought of the audience, through the process of anchoring (Wagner & Hayes, 2005). The social representations approach also suggests studying how intermediary actors, such as the media, influence the transformation of the concept over time (Bangerter, 2000). The concept of interview structure also diffuse through intermediate media, such as practitioner-oriented magazines or books, because practitioners seldom read academic journals where the original concepts are presented (Rynes et al., 2002; Rynes et al., 2007; Sanders, van Riemsdijk, & Groen, 2008). The two original concepts of interview structure presented above (i.e., "structured" and "behavioral" interviews) may thus be transformed during the diffusion to better fit practitioners' schemes of thought and concerns. We therefore examined the diffusion of these concepts in media, through a content analysis of 83 practitioner-oriented advice books for recruiters. Books were collected from five periods of time, ranging from those published before 1990s' to those published after 2006. According to the anchoring process, concepts may transform differently when it is diffused to the population. We thus suggested that differences would appear in the diffusion of these two concepts over time (i.e., "behavioral" interviews would diffuse more than "structured" interviews). We also suggested that differences in diffusion could be explained by different arguments used to describe these two concepts (i.e., psychometric arguments would be mainly used to describe "structured" interviews while managerial ones would be mainly used to describe "behavioral" interviews).

Results showed that "behavioral" interviews diffuse while "structured" interviews do not. Only a small proportion (10%) of advice books published before 1990 described "behavioral" interviews, while a majority of books (75%) published after 2000 did. On the other hand, the proportion of books describing "structured" interviews remains stable over time (33-42%). Results also showed that different arguments are used to describe these two concepts. More precisely, "structured" interviews were mainly described using technical or psychometric arguments (e.g., about validity and reliability of interviews), while "behavioral" interviews were mainly described using administrative or managerial arguments (e.g., about practical experiences or competencies).

These results suggest that facilitating the diffusion of selection best practices (e.g., structured interviews) may require academics to rethink their ways of communicating the value of these methods. Providing additional demonstrations of validity (i.e., as suggested by the psychometric approach) in academic journals or using psychometric arguments directly when communicating with recruiters may not be the best way to convince them. But highlighting the practical advantages of such systems (e.g., the relationship between

structured interviews and competency modeling), for instance through media, may be more successful. However, even if advice books are popular among practitioners (Palmer et al., 1999), it is unclear how many practitioners actually read them or if other sources of information (e.g., practitioner-oriented magazines or websites) would provide different advice than investigated here. Also, we do not know how practitioners take advice into consideration when choosing how to conduct interviews.

In the next section, I will describe two alternative approaches on personnel selection, namely the applicant reaction approach and social process models. I will highlight how they complement the traditional psychometric approach, but also their limitations.

2. Current alternative approaches on personnel selection

2.1. The applicant perspective: The applicant reaction approach

The applicant reaction perspective represents a growing research area since the 1990s (Morgeson & Ryan, 2009). It examines applicants' perceptions or preferences towards various selection procedures, how they react to the selection process, and what their expectations are before entering the process. It therefore represents a complementary view on the selection process to the psychometric approach, since it focuses on the applicant instead of the organization.

Research focusing on applicants' perceptions and preferences showed that applicants consider face validity of selection instruments and not their theoretical predictive validity (Chapman & Webster, 2006). This is an important difference, since face validity and actual predictive validity may differ (Smither, Reilly, Millsap, Pearlman, & Stoffey, 1993). Organizations may therefore use instruments that are valid, but perceived unfavorably by applicants. The applicant reaction approach also highlights applicants' preferences for selection instruments: They prefer job interviews or work samples to résumé screening, ability test, and personality inventories, and even more to honesty tests or graphology (Anderson, Salgado, & Hülsheger, 2010; Lievens, 2007). But applicants also make distinctions within a category of selection methods (Ryan & Ployhart, 2000). For instance, they prefer less-structured interviews to more structured ones (Kohn & Dipboye, 1998), and situational interviews to past behavioral interviews (Conway & Peneno, 1999). Reviews also suggest that applicants react very positively to internet-based testing (e.g., Anderson, 2003), at least partially because of the practical aspects of such medium (e.g., the possibility to do an online mental ability test at home).

In addition, the applicant reaction approach examined how applicants process the information they gathered during the selection process or how they react to the way they were treated. Research showed that applicants use their experiences with selection as signals of the quality of the organizations (Rynes, Bretz, & Gerhart, 1991). Better reactions lead to perceiving the organization as being more attractive (Smither et al., 1993). Gilliland (1993) proposed a model of applicant reactions. He suggested that applicants develop perceptions of procedural (i.e., fair treatment) and distributive (i.e., fair hiring decision) justice about selection. Procedural justice depends on the type of tests used, recruiters' behavior, or organizations' HR policy, while distributive justice depends on the hiring decision, performance expectations, or perceived discrimination. Both types of justice will influence perceived fairness of the process and the outcome, and thus reactions during the selection process or after being hired (e.g., performance, citizenship behavior). Later empirical studies confirmed that applicants attach a great importance to the transparency of the selection procedure, its perceived justice, or feedback and information they receive (Derous, Born, & De Witte, 2004). But providing applicants with feedback on their performance to explain rejection may lead to negative reactions, such as lower self-evaluation or well-being (Schinkel, Van Dierendonck, & Anderson, 2004).

Empirical studies have also shown that selection instruments and recruiters themselves have an impact on job seekers' attitudes and behaviors during and after the process (Hausknecht, Day, & Thomas, 2004; Rynes, Heneman, & Schwab, 1980). And selection instruments and recruiters can have a socialization impact upon applicants (Anderson, 2001). For instance, applicants' perceptions of job relatedness, face validity, and opportunity to perform for selection methods are strongly related to their perceived procedural justice, which, in turn, is a strong predictor of organizational attractiveness or intention to accept a job offer (Hausknecht et al., 2004). Applicants also judge a selection instrument to be relevant and fair based on their perceived performance on that instrument. But this perceived fairness is also influenced by applicants' perceptions of their performance relative to others, although perceptions of their absolute performance are more important (Schmitt, Oswald, Kim, Gillespie, & Ramsay, 2004). A selection instrument (e.g., a test) may thus be perceived to be especially unfair if the applicant believes competitors outperformed him/her. Therefore, recent developments in applicant reactions research indicate that researchers have started to take the competitive aspect of selection into account.

Under this perspective, researchers also investigated applicants' expectations towards the selection process and their impact on their post-selection reactions (Bell, Ryan, &

Wiechmann, 2004; Schreurs, Derous, Proost, Notelaers, & De Witte, 2008). These expectations will serve as a point of reference to which actual treatment during the selection process will be compared to evaluate fairness (Bell et al., 2004). Recent findings suggest that applicants' expectorations to be treated in a warm and respectful way prior to the selection process were related to perceived treatment after the process. And these perceptions predicted intentions to accept the job (Schreurs, Derous, Proost, & De Witte, 2010).

Surprisingly, we still know little about individual characteristics that influence applicant reactions to selection. For instance, cognitive ability and conscientiousness, two individual factors that are strongly related to job performance (e.g., Schmidt & Hunter, 1998), do not appear to influence perceived justice, organizational attractiveness, or intention to pursue employment (Bauer, Truxillo, Paronto, Weekley, & Campion, 2004). Viswesvaran and Ones (2004) found small to moderate effects of applicant ethnicity, cognitive ability, and personality traits on the importance associate to the characteristics of selection methods, but only a negligible effect of gender. It is also not yet clear how young graduates and experienced applicants differ in their perceptions of or reaction to the selection process.

Research on applicant reactions have been conducted all around the world (Anderson et al., 2010) and this area of research is prospering (Hülsheger & Anderson, 2009). But this perspective has also been criticized, for instance for not integrating traditional "hard" criteria such as validity and utility (Anderson et al., 2004) or for lacking a broader framework explaining applicant perceptions or reaction (Ryan & Ployhart, 2000). In addition, some authors argue that it has not yet convincingly been shown that applicant reactions really matter for employers (Chan & Schmitt, 2004; Ryan & Ployhart, 2000; Sackett & Lievens, 2008). In a recent meta-analysis, Anderson et al. (2010) proposed that applicant favorability towards selection instruments, as well as face validity, was strongly related to both actual predictive validity and organizational use. Hülsheger and Anderson (2009) also suggested that applicant reactions do matter, because organizations may lose potential high performers who were disappointed by the selection process, and these applicants may share negative experiences with others and thus negatively impact organizational image. Recruiters also attach importance to applicant reactions when they choose what selection methods to use (König et al., 2010). But strong empirical evidence demonstrating the impact of applicant reactions on individual (e.g., job performance) and organizational (e.g., customer satisfaction) outcomes is still lacking (Chan & Schmitt, 2004).

Moreover, the applicant reaction approach has only examined how applicants react to one specific encounter with an organizational selection process but not how their behavior

evolves over time or in the course of repeated interactions (i.e., with several jobs and organizations). For instance, applicants may enter a first selection process with only a general view of various selection methods. But these perceptions may change once applicants have experienced these methods and thus gather information that will reshape their perceptions (Chan & Schmitt, 2004). Thus, it is likely that perceptions may evolve negatively in case of unfair treatment or failure, but evolve positively in case of fair treatment and good performance. But empirical examination of such changes over time is still missing (Ryan & Ployhart, 2000). Applicant reactions research has also overlooked external factors, such as job market pressure, that may influence applicants' reactions or the relationship between reactions and selection outcomes (Chan & Schmitt, 2004). There is also little research on organizations' reactions or adaptation to applicants' reactions (e.g., examining if and how organizations adapt their selection methods to negative reactions from applicants). I now turn to the third approach, the social process models, which are the first attempts to combine both organizations' and applicants' perspectives.

2.2. Building bridges between applicants and organizations: Social process models

The third perspective involves starting to build a bridge between the two previous approaches, as some authors explicitly conceptualized personnel selection as a reciprocal *social interaction* between applicants and organizations (Anderson et al., 2001; Herriot, 1989, 1993, 2002; Herriot & Anderson, 1997). Herriot (1993) suggested the social sub-culture as an alternative to the traditional psychometric sub-culture of selection research. He argued that a social approach was required to capture the dynamic aspect of selection, including applicants' and recruiters' perceptions, expectations, behaviors, and decisions, but also how they interact and negotiate with each other. Selection thus becomes a two-way interactive process that corresponds to the first step in a potential employment relationship (Herriot, 2002). Herriot argues that, in each of the selection encounters (e.g., an application form, an interview), the characteristics of both parties become more salient and will influence the selection outcome (i.e., organization's decision to hire – or not – the applicant and applicant's decision to accept – or not – the job offer). On the organizations' side, recruiters will infer applicants' characteristics (i.e., qualities, skills, or competences) based on information gathered during the selection (e.g., tests scores, answers during interviews). And, on the applicants' side, applicants will infer organizations' characteristics (i.e., qualities or values) based on recruiters' behavior or the type of selection methods used. A social approach thus incorporates the two main actors of the selection process.

In addition, Derous and De Witte (2001) developed the *social process model on selection* (SPS model). Similarly to Herriot, they suggested to consider the selection process with a negotiation perspective taking into account the social dynamics at play between the different actors of the selection, mainly applicants, recruiters, and organizations. They argued that the SPS model imposes a shift in focus from the product and the procedure aspects of selection (i.e., the focus of the psychometric perspective) to the process aspect of selection. This process includes ideas, preferences, and expectations that recruiters and applicants will develop about each other. The final decision of the selection thus needs to be acceptable not only to the organization, but to both parties. The authors stressed the need for research that can "integrate both the negotiation and psychometric approach of personnel selection, instead of treating them as mutually exclusive approaches" (Derous & De Witte, 2001, p. 338).

The social approach to personnel selection is promising. Viewing the selection as a social process allows understanding some applicants' behaviors that were not explained by the psychometric perspective. For instance, Herriot (2002) suggested that applicants' use of influence tactics could be perceived as an attempt to demonstrate an identity which does not correspond the their selves, but is central for the recruiter. Some researchers also recently noted the need to investigate both applicants' and recruiters' perceptions and behavior in selection, for instance during interviews (e.g., Dipboye, Macan, & Shahani-Denning, 2011; Macan, 2009). Yet, the number of empirical studies using a social perspective is limited and the existing studies have mainly examined the applicants' side of the story. For instance, Derous and De Witte's (2001) theoretical model, as well as a subsequent empirical test of this model (Derous, De Witte, & Stroobants, 2003), largely focused on the applicant's side of the selection process (e.g., applicants' expectations , beliefs, or reactions). Moreover, the social models fail to integrate the long-term dynamic and adaptive dimension of recruiter-applicant interactions, such as recruiters' reactions or adaptations to applicants' behaviors or applicants' subsequent counter-adaptations.

To sum up, the three existing approaches that I described above have several strengths. Yet, they all fail to integrate the competitive, dynamic, and adaptive nature of personnel selection. For instance, in a recent review of the job interview, Dipboye et al. (2011) argued that "the research to date is limited insofar as it conveys a rather static view of what, in reality, is a highly dynamic process" (p.47-48). In the next section, I will highlight several new issues that became increasingly important in the personnel selection literature, but that fail to be fully explained by the existing three approaches described above. This will later lead me to describe a new alternative approach to personnel selection.

3. New issues in personnel selection and the need for a new model of reciprocal adaptations between applicants and organizations

Personnel selection is now facing several new phenomena that call these three approaches into question. Today's job market is oriented towards competition. Applicants are in competition with one another and need to differentiate themselves from other job seekers to get the best jobs (P. Brown & Hesketh, 2004). Applicants are also in competition with recruiters or organizations. Applicants have interests that are not perfectly aligned with organizations' (Dipboye et al., 2011; Porter, Lawler, & Hackman, 1975), since applicants want to get hired and organizations want to hire only applicants who fit the job (Palmer, Campion, & Green, 1999).

These competitive situations lead to new behaviors from applicants. They boost their résumés with numerous extracurricular activities (Morris, 2007), prepare themselves for interviews (Fletcher, 1992; Palmer et al., 1999) or personality tests (Griffith & McDaniel, 2006), try to obtains ability test questions in advance (Lievens & Burke, in press), hide their negative emotions in interviews (Sieverding, 2009), use tactics to make a good impression during interviews (Gilmore, Stevens, Harrell-Cook, & Ferris, 1999; Kristof-Brown, Barrick, & Franke, 2002; Stevens & Kristof, 1995), and fake in interviews (Levashina & Campion, 2007), personality tests (Griffith, Chmielowski, & Yoshita, 2007) or biodata inventories (Levashina, Morgeson, & Campion, 2009). All these behaviors cannot be explained only by individual characteristics of applicants, but also result from the influence of the competitive situation they are facing.

Impression management (IM) and faking are good illustrations: Applicants may use IM or faking tactics not because they are dishonest by nature (although some may be pathological liars), but because of the situational demands (Marcus, 2009). Contrary to previous models of faking which mainly focused on organization's perspective (e.g., Levashina & Campion, 2006; McFarland & Ryan, 2000), Marcus (2009) proposed a model of faking from the applicant's perspective. He highlighted that applicants' use of IM or faking tactics was influenced by their analysis of the selection situation. Such analysis includes the image they form of the ideal applicant based on the information they collect from the organization prior to and during the selection process. Also, the increasing competition may make applicants believe that "not faking may leave them at a competitive disadvantage" (Griffith & McDaniel, 2006, p. 7), and thus that an honest strategy can get them eliminated from the selection process (Morgeson et al., 2007). Surprisingly, while IM and faking

behavior is a hot topic in the literature, only little research has empirically investigated the influence of situational factors on these behaviors.

Moreover, there is an important debate among researchers regarding the impact of faking on hiring decision and to what extent it may decrease the predictive and/or construct validity of selection instruments. Some authors suggest that validity was not seriously attenuated (Barrick & Mount, 1996; Ones & Viswesvaran, 1998), while others consider faking as a serious threat (Delery & Kacmar, 1998; Gilmore et al., 1999; Marcus, 2006). Reviews generally end up asking for more research to clearly answer this question (e.g., Tett et al., 2006). Recent empirical evidence suggest that applicants' faking behaviors can, at least, influence the ranking of applicants and thus the hiring decision (Stewart, Darnold, Zimmerman, Parks, & Dustin, 2010). For instance, when applicants are hired based on their conscientiousness score and a selection ratio of 0.10 is set, about 40% of selected applicants can be considered as fakers (Peterson, Griffith, & Converse, 2009). But, to date, research failed to provide a strong theoretical rationale for explaining the relationship between faking and the psychometric properties of selection instruments.

Faking is one of the main concerns of organizations and recruiters (e.g., Arthur, Glaze, Villado, & Taylor, 2010; Stewart et al., 2010). Yet, research on how organizations react to the above behaviors from applicants is scarce. What can they do? Actually, they are, in turn, pressured to counter-adapt to applicants' behavior. For instance, Griffith and McDaniel (2006) recently suggested that "not to be outsmarted, I/O psychologists have armed themselves with more difficult formats and often warn the applicants that if they misrepresent themselves they will be detected" (p.1). Organizations and recruiters can try to reduce applicants' faking by warning them about the consequences of being deceptive, that is, being eliminated from the selection process (Dwight & Donovan, 2003). Others suggest implementing methods to detect and eliminate fakers, such as using lie scales (Ruch, 1942), bogus items (Levashina et al., 2009), eye tracking (Van Hooft & Born, 2009), computing additional statistical tests (Guo & Drasgow, 2010) or composite scores with less-fakable predictors (Peterson et al., 2009). Alternatively, they can modify their selection instruments or develop new ones. Modifying instruments could involve modifying the questions asked to applicants in interviews or the scoring system to evaluate them. If the interview becomes too transparent for applicants (i.e., they learned about the questions and scoring), they may more easily improve their performance (e.g., through IM) (Klehe, König, Richter, Kleinmann, & Melchers, 2008). Examples of new developments include competency-based interviews (Martin & Pope, 2008), situational judgment tests (Lievens, van Dam, & Anderson, 2002) or

conditional reasoning tests (James et al., 2005; LeBreton, Barksdale, Robin, & James, 2007). Organizations and recruiters can also use information that is originally not intended as selection/evaluation material to screen applicants, such as social networking content (Brandenburg, 2008; Dipboye et al., 2011; Karl, Peluchette, & Schlaegel, 2010).

But, in turn, applicants can again counter-adapt. Media such as advice websites now explain to applicants how to detect lie scales in personality tests and how avoid response patterns that are likely to be detected by organizations (Griffith & McDaniel, 2006). Applicants come to competency-based interviews with rehearsed answers they can provide to recruiters (Martin & Pope, 2008).

Therefore, the relationship between applicants and organizations or recruiters is a dynamic and adaptive one. Such adaptive behaviors cannot be explained by the traditional psychometric perspective. Applicants' preparation and tactics challenge the capacity of tests, assessment centers, or interviews to discriminate between "high-quality" and "low-quality" applicants. Today's organizations are thus not only looking for the more valid, but also for the less falsifiable instruments. The applicant reactions perspective does not provide a better explanation to these new behaviors. Today's applicants do not only react positively or negatively to selection instruments or recruiters' behavior but prepare themselves in advance to better handle them. Finally the social interaction perspective considers the interactions between applicants and organizations, but is not yet able to explain their adaptive nature. Therefore a new perspective that is able to explain and integrate these new phenomena is warranted.

This is the main objective of the remaining papers composing this dissertation. I will start by presenting a new theoretical approach to personnel selection based on signaling theory. I will then present four empirical studies investing specific examples of competitive relationships and mutual adaptations among applicants or between applicants and organizations.

4. A new framework on personnel selection based on signaling theory

4.1. Personnel selection as a signaling game (Article 2)

In this article, Adrian Bangerter, Cornelius J. König, and I develop a new theoretical approach to personnel selection based on signaling theory, a framework explaining interactions between rational actors with partly incompatible interests. Signaling theory has mainly been used in evolutionary biology to explain interactions between animals, such as

predators and preys or mating partners (Dawkins & Krebs, 1979; Zahavi & Zahavi, 1999). In such situations, actors can benefit from cooperating and thus need to discover the ability and commitment of the other party to the relationship. Yet, they also have an incentive to deceive each other to exploit the relationship for their own gain. To solve this problem, actors have to exchange *honest signals*, that is, accurate information about their true qualities. To ensure that signals are honest, they must impose a cost on the sender such as only fit actors can send it. This notion of costs has been called the *handicap principle* (Zahavi, 1975; Zahavi & Zahavi, 1999). An example of honest signals between predators and preys is Thomson's gazelle stotting behavior (Caro, 1986; Walther, 1969). Gazelles jump high in the air when they spot a predator. Stotting thus allow gazelles and predators to exchange information about what gazelles are fit and harder to catch, which helps both actors to avoid a tiring chase. Such behavior costs energy and thus represents a handicap, since only fit gazelles can bear the cost of stotting. An example of honest signals between mating partners is the peacock's extravagant tail (Petrie & Halliday, 1994; Petrie, Halliday, & Sanders, 1991). Tails constitute an honest signal of genetic fitness that peacocks send to peahens. Since it is cumbersome and costly to maintain, only fit peacocks (i.e., good mating partners) can afford to spend energy to do it.

Signals emerge from reciprocal adaptation between actors. They typically develop from observable features or behaviors originally designed for another function, but that are incidentally correlated with an unobservable quality actors are interested in (Krebs & Dawkins, 1984; Tinbergen, 1952). An example of such process is the pitch of toads' croak (i.e., the observable feature) that is a reliable signal of their body size and thus potential fighting ability (i.e., the unobservable quality) (N. B. Davies & Halliday, 1978). The pitch of toads' croak was probably initially an incidental indicator of body size, which has evolved to become an honest signal of body size for other toads (i.e., deeper croaks being more intimidating than high-pitched ones). Actors learn to detect (or *mind-read*) this observable feature, while organisms exhibiting this feature learn to produce it in a more exaggerated way or even manipulate it. Signals can then evolve through mutual adaptations and counter-adaptations by actors over time (i.e., over several generations). If their intentions are more cooperative, their behaviors will be mutually reinforcing and the signals reach a state of equilibrium. On the other hand, if their intentions are more competitive or exploitative, mutual adaptations can escalate to an arms race (Dawkins & Krebs, 1979; Vermeij, 1994). Actor A develops a superior adaptation which provides a competitive advantage over competitors. But this advantage may be short-lived, because it increases the pressure on actor B to counter-adapt, and so on. Arms races can benefit actors since they can lead to increased

individual fitness. Yet, actors may also continuously invest resources in the race to stay ahead of competitors, without obtaining significant relative benefits in the end (Frank, 2006).

Signaling theory has since been applied to disciplines such as anthropology (Cronk, 2005) or management (Connelly, Certo, Ireland, & Reutzel, 2011). It has also been used in economics, to explain how actors exchange information on a market to deal with uncertainty (Spence, 1973). Spence illustrated his theory with the job market when organizations have to decide which applicants to hire based on limited information (e.g., education). Spence demonstrated that education can be an honest signal of future productivity since it imposes a cost (i.e., the time and energy spent studying) that only good applicants can bear. Yet, surprisingly, the signaling framework has been only seldom applied to personnel selection research. Only some studies (e.g., Aguinis, Michaelis, & Jones, 2005; Cable & Judge, 1997; Highhouse, Thornbury, & Little, 2007) used some aspects of signaling theory to explain how recruiters infer unobservable qualities of applicants based on observable attributes. However, these studies overlooked some of the key principles of signaling theory, such as honest signals, the handicap principle, reciprocal adaptations or arms races. Our approach is thus the first to exploit the full potential of signaling theory to better understand interactions between applicants and organizations in personnel selection.

Using signaling theory allows examining personnel selection mechanisms as a combination of constantly evolving signaling systems between job market actors (i.e., applicants and organizations or their allies, such as recruiters). We can thus highlight three types of adaptive and competitive relationships in the job market: (a) relationships between organizations and applicants during the selection process, (b) relationships between applicants competing for similar jobs, and (c) relationships between organizations competing to attract the best applicants. In the next paragraphs, I will mainly describe the first two approaches, the third one being mainly oriented towards recruitment and not selection per se.

Actors in the job market are looking for honest signals of the other party's ability and commitment to the potential employment relationship. Yet, honest signals in personnel selection are slightly more complex than in animal behavior, since humans can intentionally choose to manipulate the signals they sent. Animals' adaptations were generally observed over generations of individuals, while adaptations and counter-adaptations by job market actors are considerably faster. The notion of honest signal therefore needed to be revised and adapted to the personnel selection domain. Consequently, we defined honest signals as signals that are either (a) *costly* in that they impose an *investment cost* on the sender that only fit individuals can bear (corresponding to the handicap principle presented above) or (b) *hard-to-*

fake because they are beyond conscious control of the sender. Costly signals include selection systems such as education, job experience, references, or extracurricular activities. They require applicants to invest important resources before being able to send the signal. For instance, an education credential requires spending years in classrooms and passing exams. Hard-to-fake signals include ability tests or work samples. These are signals that are hard to fake because only intelligent people can obtain high scores on ability tests, and only experienced and competent workers cans obtain high scores on work sample tests. In addition, both types of signals should be associated with *cheating costs*, which correspond to risks associated with sending a falsified signal instead of paying the investment costs. For instance, if applicants choose to lie about their experience on their résumés (Aamodt, 2006) or buy a fake degree (Bear & Ezell, 2005), the costs associated with such behaviors are represented by the risks of getting caught and thus eliminated from the selection process.

In their relationships with applicants, organizations are looking for honest signals of applicants' ability and commitment to the potential employment relationship. They thus select the selection instruments that they think allow them to obtain such information. Applicants are trying to discover organizations' selection criteria and send the right signals to demonstrate their qualities. Of course, applicants differ in their ability and motivation to *mind-read* organizations and discover the signals they should send. Differences in ability correspond the research on applicants' ability to identify the selection criteria (ATIC; Kleinmann et al., 2011; König, Melchers, Kleinmann, Richter, & Klehe, 2006, 2007). Differences in motivation correspond to applicants' strategies towards the job market, as illustrated by *player* and *purist* strategies (P. Brown & Hesketh, 2004). Players view the job market as a positional game they should play, and thus spend time preparing themselves and mindreading employers to maximize the chances of getting hired. Purists view it as a meritocratic race, and thus believe that their individual achievement, capabilities, efforts, and ambition will be sufficient to get them a job. But applicants can also try to cheat by mimicking honest signals while avoiding investment costs (e.g., buying a fake degree). Organizations are thus pressured to counter-adapt to applicants behaviors (e.g., use reference checks and selection systems to avoid faking) in order to keep cheating costs high and punish applicants trying to mimic honest signals.

Applicants' competition for similar jobs represents another type of adaptive relationships that can be examined through the lens of signaling theory. Applicants' chances of getting a job does not only depend on their abilities to fulfill the requirements of the job, but also on their relative ability compared to their competitors (P. Brown & Hesketh, 2004).

Applicants are thus pressured to adapt their strategies and send signals that will distinguish them from each other (Tomlinson, 2007). Such signals can include internships in prestigious companies (Bloch, 2007) or involvement in volunteering (Hustinx et al., 2010) or other original extracurricular activities (P. Brown & Hesketh, 2004).

Signaling theory allows developing new research propositions regarding the relationships between actors (i.e., between applicants and organizations or among applicants), since these relationships are seen as cycles of reciprocal adaptations and counter-adaptations. These cycles can lead to different outcomes: Some signals reach situations of equilibrium and remain stable over time. Others signals are the arena of arms races between actors (e.g., applicant faking on personality tests and organizations attempt to detect it). Finally reciprocal adaptations may lead to the decline of some signals that actors start to mistrust (e.g., recommendation letters; Nicklin & Roch, 2009) and the emergence of others (e.g., HR certifications; Aguinis et al., 2005). Therefore signaling theory links micro-level processes (i.e., individual adaptive behaviors of actors) and macro-level processes (i.e., evolution of signals). It also highlights the influence of macro-level factors (e.g., job market pressure) on micro-level behaviors (e.g., applicants' adaptation strategies), since applicants' behavior depends on what they believe their rivals will do. Signaling theory therefore helps explaining several the recent issues in personnel selection mentioned above. For instance, applicants' attempts to appear distinctive (e.g., through increasingly original extracurricular activities) can be seen as an arms race triggered by the increasingly competitive job market they are facing. Applicant use of IM or faking can be seen as a way to manipulate signals they send to organizations to match employers' expectancies but also to increase their chance of getting hired in competitive job market. And organizations' attempt to reduce or detect these behaviors can be seen as a counter-adaptive measure.

Signaling theory is therefore able to reconcile and complement the psychometric approach, the applicant reactions approach, and the social process models. The notion of honest signals is related to the psychometric approach. Honest signals of applicants' ability and commitment organizations are looking for correspond to the traditional Person-Job (P-J) and Person-Organization (P-O) fit (Kristof-Brown, 2000). Moreover, the predictive validity of selection devices (which is at the core of the psychometric approach) is a function of their costly or hard-to-fake nature, and their cheating costs. The hard-to-fake or costly nature of signals also helps explaining why recruiters sometimes overlook valid selection systems (e.g., structured interviews) but trust less valid ones (e.g., graphology). For instance, recruiters may believe that handwritten letters a difficult to fake. In addition, signaling highlights the

importance of applicant reactions, since applicant adaptations are the prime motor of the long-term evolution of signaling systems. But signaling goes a step further, as it suggests studying the effects of applicants' repeated interactions with various organizations on the job market and their selection systems, rather than only towards a particular selection device or a particular organization. Signaling also includes the interactive and interpersonal nature of the selection process that is at the center of the social interaction/process approaches. But, again, it goes beyond existing models since it stresses a long-term view of the dynamic interactions and mutual adaptations between organizations and applicants and highlights the impact of macro-level factors (e.g., job market pressure) on individual behaviors.

In the next sections, I will first present a roadmap for future research based on a signaling approach. I will then examine some of the issues personnel selection is facing through the lens of signaling theory and present four empirical studies developed to investigate some of these issues.

4.2. A roadmap to signaling-based research and illustrative cases

The signaling framework presented above offer a multitude of new roads for personnel selection research. Various original studies could be developed to investigate adaptive relationships and arms races between applicants and organizations, among applicants, and among organizations. Figure 1 provides a graphical representation of these three types of relationships. It also highlights examples of honest signals and applicants' behaviors that can be understood as adaptations potentially leading to arms races. Our signaling approach thus suggests developing future research examining various issues in personnel selection. In the next sections, I will explore some of these issues through four empirical studies. More precisely, I will examine applicants' use of extracurricular activities (ECAs) on their résumés and their preparation of answers to traditional job interview questions to distinguish themselves from their competitors and impress recruiters. I will also examine an example of organizations' counter-adaptation to applicants' behavior, namely their attempt to detect applicants' use of IM and faking tactics in the job interview.

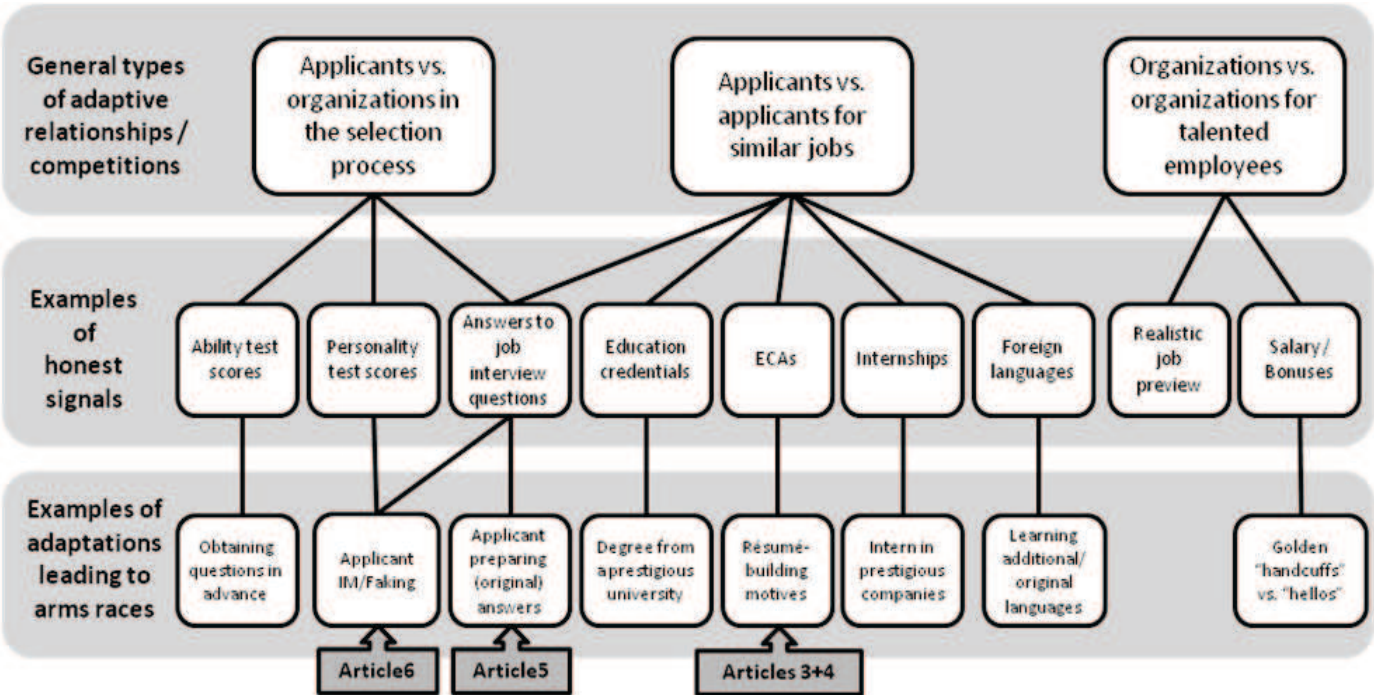

Figure 1: A roadmap to signaling-based research

4.2.1. Applicants' adaptations in their competitions with other applicants and organizations

In our signaling theory of personnel selection, several propositions were developed around the adaptive relationships among applicants on the job market. The theory suggested that when the market pressure on applicants is important (e.g., few jobs available), applicants would be pressured to send signals that distinguish themselves from other applicants to appear more attractive to employers. Today's job market is increasingly competitive, especially for young graduates (P. Brown & Hesketh, 2004; P. Brown, Lauder, & Ashton, 2011; S. Davies & Hammack, 2005). With the rise of mass higher education (Collins, 1981, 2002; Trow, 2006), the number of applicants holding a university degree (or equivalent) has increased more than the number of positions requiring such credentials. The value of education as an honest signal of applicants' ability or productivity (Spence, 1973) thus tend to decrease because an increasing number of people hold such credentials (P. Brown, 2003; P. Brown, Hesketh, & Williams, 2003). Spence (2002) highlighted that if the costs of education decrease and all applicants invest in education, then education would cease to be an honest signal. This is because organizations and recruiters cannot use this information to differentiate among applicants anymore. As illustrated by Brown and Hesketh (2004, p. 30), "if in the future everyone had a Ph.D., law degree, M.B.A., or the like, then these advanced degrees would be worth no more than a job in a fast food restaurant". Research has suggested that applicants

perceive this increasing competition and believe they need to add value and distinction to their credentials to distinguish themselves from others (Tomlinson, 2007, 2008).

Then, what is the next step for organizations and applicants? Signaling theory suggests that they need to agree on new signals. Internships in prestigious companies (Bloch, 2007), part-time jobs (Neill, Mulholland, Ross, & Leckey, 2004), foreign languages (Beamish & Calof, 1989) or simply the prestige of the education provider are possible solutions. ECAs also represent a promising alternative. Participating in ECAs is part of the life of many students during their education (Jones & Hill, 2003; Marsh, 1992; Rubin, Bommer, & Baldwin, 2002). And they later use ECAs on the job market as part of their strategies to look attractive to employers (P. Brown & Hesketh, 2004; Morris, 2007). In addition, organizations appear to value ECAs when selecting applicants (Chia, 2005; Cole, Rubin, Feild, & Giles, 2007; Hustinx et al., 2010; Nemanick & Clark, 2002). Furthermore, ECAs are costly and thus follow the handicap principle (Zahavi & Zahavi, 1999), because spending time and energy on these activities means having less time to invest in studying. Since time and energy are the most precious resource for students (Astin, 1999), only high-quality applicants can bear the cost of such activities without hurting their academic results. But very few studies have undertaken a comprehensive and systematic study of the relationship students (and later on applicants) have with ECAs. We have limited information about applicants' actual motivation to discover that ECAs could be a signal valued by organizations and to send their signal. I will examine this issue in Articles 3 and 4. Article 3 investigates how students perceive and use ECAs as part of their positioning strategy on the job market. It illustrates how students use ECAs in their résumés or during job interviews and their perceptions regarding recruiters' reactions to this information. Article 4 highlights the motivations behind students' involvement in ECAs, differences in motivation between various types of activities, and differences in motivation between activities started when job market pressure was weaker or stronger.

4.2.2. Applicants' preparation for the selection process

Participating in ECAs is only one among numerous strategies applicants may use to distinguish themselves from their competitors. Applicants can also adapt their behavior during the selection process, in order to make a good impression on recruiters and organizations. As mentioned above, they can prepare themselves for interviews (Fletcher, 1992; Palmer et al., 1999; Ralston & Kirkwood, 1999), personality tests (Griffith & McDaniel, 2006), or ability tests (Lievens & Burke, in press). Preparing for job interviews may involve using the vast advice literature available (Palmer et al., 1999). These books can offer applicants long-term

advice to help them choose the right career path and job. Alternatively, they can also provide short-term advice on how to best respond to traditional interview questions applicants may be confronted to. Advice to popular questions such as "what are your strengths and weaknesses?" or "tell me about yourself" are good illustrations (see for instance Cook, 2008; Gerstmann, 2002; Krannich & Krannich, 2008; McDonnell, 1995). Preparation can also involve coaching sessions (T. J. Maurer, Solamon, Andrews, & Troxtel, 2001; Tross & Maurer, 2008). Coaching can be designed for two purposes (T. J. Maurer, Solamon, & Lippstreu, 2008). On the one hand, it can be designed to help applicants understanding what is expected from them and provide more accurate information about their qualities. On the other hand, it can be designed to help applicants manipulate recruiters' impressions using various verbal or non-verbal IM tactics.

Applicants' use of advice books or coaching to prepare for job interviews may be the first step of an arms race with recruiters (and indirectly organizations) (Ralston & Kirkwood, 1999). For instance, applicants use this advice literature to mind-read organizations' criteria (i.e., what answers they expect to a particular interview question) and manipulate the signal they send to provide the adequate one (i.e., good answers). Recruiters are pressured to adapt and thus change their questions or their evaluation criteria (i.e., expect different answers to those traditionally provided by the media). Therefore, a way for applicants to counter-adapt may be to prepare original or unique answers to these traditional questions. As long as these answers remain unique (i.e., not all applicants learn to provide them), recruiters may value them. At the same time, providing a unique answer is also a way for applicants to differentiate themselves in their competition with other applicants for the same job. But past research did not examine recruiters' reaction to unique answers to traditional interview questions. In Article 5, an experimental study was created to examine this issue. Participants evaluated several applicants providing similar answers and one applicant providing an original, yet qualitatively equivalent, answer.

4.2.3. Organizations' adaptations to applicant' behavior

As described above, applicants use various strategies in their competition with organizations. Signaling theory suggest that organizations will be pressured to adapt to these strategies in order to keep the signal costly and thus honest. They may adapt their evaluation criteria or switch to alternative selection methods. As an illustrative example, I will examine organizations' adaptations to applicant IM and faking behaviors. Applicant use of IM or faking tactics received a large interest in the literature about job interview (Ellis, West, Ryan, & DeShon, 2002; Gilmore & Ferris, 1989; Levashina & Campion, 2006, 2007; Stevens &

Kristof, 1995) or personality tests (Goffin & Boyd, 2009; Griffith et al., 2007; McFarland & Ryan, 2000; Ones & Viswesvaran, 1998; Tett et al., 2006).

According to signaling theory, faking can lead to an arms race between applicants and organizations' representatives (i.e., recruiters). Answers to interview or personality test questions can be considered a signal of applicant's quality. Organizations expect applicants to provide truthful information. But the amount of research on faking suggests that may not always be the case. Many applicants extensively use and may benefit for using such tactics (Birkeland, Manson, Kisamore, Brannick, & Smith, 2006; Dawson, Horvath, & Raymark, 2006; Gilmore & Ferris, 1989; Levashina & Campion, 2007; Stevens & Kristof, 1995). In interviews, using honest IM tactics, such as self-promotion, may be considered as applicants' attempt to signal their social skills. A signaling approach would suggest such behaviors to be valued by organizations, which seems to be confirmed by existing empirical findings (e.g., Gilmore & Ferris, 1989; Stevens & Kristof, 1995). In contrast, the use of deceptive IM or faking may be considered as an attempt to falsify the signals (or to mimic honest signals) sent to recruiters. Applicants may exaggerate their competencies or experience when answering interview questions or inflating traits that organizations look for (e.g., conscientiousness) when filling out personality tests.

Organizations should thus be able to detect and discount such behaviors. That is, they should find ways to adapt to these falsified signals to keep cheating cost high. As described earlier, they could use structured interviews, warnings, lie scales, or bogus items. In interviews, a more intuitive solution implies that recruiters should identify and discount deceptive IM used by applicants (i.e., to catch and punish or eliminate fakers). Some authors have argued that when applicants use deceptive tactics, recruiters may be able to detect them by using cues of deception, such as speech disturbances or response latencies (Fletcher, 1990; Rosenfeld, 1997; Van Iddekinge, Raymark, & Roth, 2005; Williams, Brown, & Hesketh, 2006). Yet, the fact that applicants' use of deceptive IM in interviews increases their chances to get a job (Levashina & Campion, 2007) suggest that organizations' attempts to detect and discount such tactics may not be successful. And, to date, empirical research examining this issue has been scarce, despite numerous calls (e.g., Levashina & Campion, 2006, 2007; Macan, 2009; Posthuma, Morgeson, & Campion, 2002). The objective of the last study (Article 6) is thus to investigate recruiters' ability to counter-adapt to applicants' IM by identifying and discounting such behavior (especially deceptive ones). Applicants were asked to report IM used after a real job interview, while recruiters were asked about their

perceptions of applicants' IM use. Comparing these two perspectives led to computing measures of the accuracy of recruiters' perceptions.

I now turn to the four empirical studies representing illustrative examples of recent issues in personnel selection that can be examine through the lens of signaling theory.

5. Applicants' adaptations through extracurricular activities

5.1. Students' use of extracurricular activities for positional advantage in competitive job markets (Article 3)

In this study, Adrian Bangerter and I investigated students' use of ECAs as one strategy to appear distinctive when they will enter the job market. We thus performed a content analysis on 66 semi-structured interviews conducted with Swiss business and law students. Interviews included 12 open-ended questions related to three main topics; (a) students' involvement in ECAs, (b) perceptions of other students' (i.e., competitors) involvement in ECAs, and (c) perceptions of employers' evaluations of ECAs and the impact on their chances to get a job. Brown and Hesketh (2004) suggested that job seekers' behavior can be characterized by either a player or a purist orientation. Players use various tactics to discover employers' requirements and their competitors' strategies. They exploit this information in combination with their personal experiences (e.g., ECAs) to impress employers during the selection process. On the other hand, purists perceive that getting a job will mainly depend on their achievements, capabilities, or ambition. They do not compare their qualities to those of their competitors and are convinced that they will get the job if they are qualified for it. In our study, we applied Brown and Hesketh's (2004) typology to ECAs. Therefore, we examined differences in students' motivation to engage in ECAs, to mind-read organizations' attributions of ECAs, to use these activities as way to gain a positional advantage in their résumés or during job interviews, and to assess their competitors' use of ECAs.

Results suggest that a large majority of students were actually worried about the increasing difficulty to find a job when entering the job market. They often cited participating in ECAs as an appropriate way to distinguish themselves from others. Most students were involved in ECAs (94% were involved in at least one activity, and 62% in two or more activities), but they differed in their motivation to engage in these activities. A majority cited motivations corresponding to a purist strategy (e.g., by interest and passion, continuing something started as a child), while a minority (about 25%) cited motivations corresponding to a player strategy (e.g., résumé-building, acquiring practical experience or create business

networks). Most students had a precise idea about how recruiters may interpret ECAs. For instance, some students believed recruiters would make attribution about the skills they possess (e.g., time management abilities, teamwork) or their personality or character (e.g., individualistic). Also, most students involved in ECAs (88%) included them in their résumés, but, again, they differed in their motivation or ability to use these activities as a tool to gain positional advantage. On one hand, some *purists* included ECAs but did not promote them to impress recruiters. Others were unsure how to integrate ECAs or simply refused to mention them, because they did not want to use aspects of what they considered to be their private life. On the other hand, some *players* clearly used ECAs in their résumé to signal their qualities to organizations or even adapted their presentation of activities to better fit organizations' or jobs' requirements. Some of them even used ECA-based experiences to demonstrate their competencies during job interviews. Some students involved in associative activities appear to engage in ECAs thinking about the potential added value such activities could have on their résumés. Finally, most students were aware of their competitors' use of such activities and believed them to have more player-like motivations than themselves.

Our results suggest that overall students believed that their degree would probably not be sufficient to ensure them a job after graduation. They perceived ECAs as an appropriate solution to gain a competitive advantage over their competitors and convince organization that they possess the required qualities. Therefore, ECAs tend to be accepted by applicants as an alternative honest signal to education. Their belief that recruiters will attribute time management abilities to applicants active in ECAs is an additional demonstration of the handicap principle. ECAs will be valued by recruiters because they impose a cost (i.e., time investment) that only good individuals (i.e., those who can manage their time effectively) can bear. We also found differences in students' motivations to engage in ECAs in the first place and to later use them on the job market, consistent with previous research (e.g., P. Brown & Hesketh, 2004), as well as our signaling approach.

Yet, this study provided only a snapshot of (future) applicants' use of ECAs at a specific moment in time. Also, it suggests that applicants' use of ECAs can be an adaptation to the increasingly competitive job market, but it fails to specifically investigate the actual impact of market pressure on applicants' behavior. Therefore one limitation of this study is that our methodology did not allow us to fully capturing the dynamic and adaptive nature of this phenomenon. Furthermore, this study highlights differences in applicants' motivation, but provides only limited indication about the factors influencing this motivation. For instance, our results suggest that motivation may differ between various types of ECAs, associative

activities appearing as prone to player-oriented use of ECA. But the data (i.e., the small number of students involved in such activities) did not allow us to fully explore these differences.

We therefore conducted an additional study in order to examine more precisely differences in types of motivations behind students' involvement in ECAs, differences between various types of ECAs, and differences between students facing different levels of job market pressure.

5.2. What are the motives behind students' involvement in extracurricular activities? (Article 4)

In this study, Adrian Bangerter and I analyzed data collected from questionnaires completed by 197 Swiss law and business students. Students were asked whether or not they were involved in ECAs. Those who engaged in ECAs were asked to provide detailed information about up to 3 activities they were active in, such as type of activity, importance of different types of motives to engage in the activity, number of years in the activity, time spent per week, and leadership positions held. For each activity students were involved in, we computed an internal motives (e.g., interest or passion) and an external motives (e.g., résumé building, acquire practical experience) scores. We used the number of years in the activity as a proxy for the effect of job market pressure (i.e., the later students engaged in the activity, the closer it was to entering the job market and thus the higher the market pressure was). Furthermore, participants were also asked to evaluate what types of competencies could be acquired through participating in various types of ECAs (e.g., individual sports, team sports, associative or volunteering activities, artistic activities).

Similar to the previous study, our results showed various motivations for students' involvement in ECAs. Overall, most students mainly engaged out of internal motives, but some students also engaged in ECAs out of more external motives. External motives were more important for students active in associative or volunteering activities as compared to those involved in sports or artistic activities. Also, external motives were more important for students holding leadership positions as compared to those without such positions. Students may thus be aware that employers are actually looking for more than a list of activities, but active participation. In addition, associative or volunteering activities were also those students' perceived as a good way to help developing numerous competencies (i.e., initiative, creativity, leadership abilities, organization abilities, and interpersonal skills). Finally, we

found stronger external (i.e., résumé-building) motives for activities started closer to entering the job market.

These results further confirm that (future) applicants differ in their motivations to engage in ECAs, and that motivation may vary depending on the type of activity or the positions within these activities. These results also shed some light on the relationship between job market pressure and students' motivation to engage in ECAs. As suggested by signaling theory, stronger market pressure may lead applicants to adapt their positioning strategies, for instance by getting involved in ECAs to build their résumé. Ideally, future studies should investigate this relationship using longitudinal (i.e., measuring the long-term evolution of applicants motives and use of ECAs) or comparative (i.e., comparing applicants' motives and use of ECAs in job market differing in pressure – e.g., unemployment rate) studies. For instance, some recent studies (Handy et al., 2010; Hustinx et al., 2010) examined international differences in motives to engage in volunteering and showed that résumé-building motives were more important in countries where volunteering was valued by employers. Furthermore, our results illustrate the first step in the adaptive game between applicants and organizations (i.e., students' adaptation to an increasing market pressure). However, future studies are required to examine what happens in the next steps. For instance, how do organizations (and their allies) react to applicants' increasing use of ECAs to signal their qualities? Will we observe the democratization of ECAs in the long-run? Will students participate in more activities or more exotic activities (see Morris, 2007) over time?

To sum up, in these two studies, Adrian Bangerter and I examined various applicants' adaptation strategies in their competition with organizations and other applicants. We illustrated how ECAs may be signals of applicants' qualities that could serve as a potential alternative to education. The results of the above two studies have implications for organizations and recruiters. They suggest that recruiters should consider that some students tend to engage in ECAs to add value to their credentials and match recruiters' expectations. They also suggest evaluating differently the involvement in different types of activities or different roles within these activities. For instance, inferences recruiters can make about students' motives, personality, or values may be less accurate in some cases (i.e., when ECA involvement is extrinsically motivated).

6. The uniqueness effect in selection interviews (Article 5)

In this study, Adrian Bangerter, Elise Yerly, and I examined another adaptive strategy applicants could use to appear distinctive and impress recruiters: providing unique answers to

traditional questions recruiters ask during job interviews. We did not investigate applicants' actual use of such a strategy. Rather, we studied how recruiters would react when such a strategy is used. More precisely, we examined whether we could find a uniqueness effect, that is, a positive effect of providing a unique yet not qualitatively better answer on recruiters' evaluations. Adapting a previous definition of uniqueness in social interactions (Snyder & Fromkin, 1977), we define the uniqueness effect in personnel selection as *the effect of an applicant's distinctive characteristics or answers on recruiters' evaluations and decisions in the selection process*. Uniqueness is different from contrast effects (Hakel, Ohnesorge, & Dunnette, 1970; Wexley, Sanders, & Yukl, 1973; Wexley, Yukl, Kovacs, & Sanders, 1972) because its effect is independent of applicants' answer quality and their sequential positioning relative to others.

We developed an experimental study where 79 students played the role of recruiters. They first read one of two types of job description, either for a stereotypically creative position (i.e., marketing) or a stereotypically less creative one (i.e., accounting). Then they read and evaluated responses of four applicants to two traditional interview questions. These responses were built based on transcripts of mock interviews with actual job seekers. Answers to the question "tell me about yourself" were equivalent across all applicants and represented an introduction. Then answers to the question "what is your main weakness?" featured our uniqueness manipulation. Three of the applicants gave non-unique answers to this question (e.g., *I am impatient*) while the fourth one gave a unique answer (e.g., *I am a perfectionist*). We counterbalanced the type of the unique answer (i.e., impatient in half of the cases and perfectionist in the other half) and the position of the unique applicant to exclude confounds due to answer type and order effects. We therefore built 3 versions of an answer like *I am impatient* and 3 versions of an answer like *I am a perfectionist*. The design was a 2 x 2 x 2 factorial plan with uniqueness (unique vs. non-unique applicant) as a within-subjects variable, job type (stereotypically creative vs. less creative) as a between-subjects variable, and answer type (impatient vs. perfectionist) as a within-subjects control variable.

Our results showed that recruiters were influenced by the uniqueness of answers: Applicants providing unique answers to interview questions got higher evaluations than applicants providing non-unique answers. They also got a job offer more often (48.1% of the time, as compared to a 25% chance level). This effect was independent of evaluators' age, gender, or education, the type of unique answer, and job type (we found no interaction between uniqueness and job type). These results suggest that recruiters may value the uniqueness of applicants' answers (i.e., the results of their differentiation strategy). Therefore,

applicants using such a strategy may have an advantage over recruiters and organizations in their arms race, but also over applicants who do not provide unique answers in their competition for the same job. But this advantage may be short-lived and may disappear when such strategy disseminates among applicants and recruiters again change their evaluation criteria. For instance, recruiters may replace traditional questions by questions about past behavior (Motowidlo et al., 1992), which require applicants to provide well-developed answers based on past experiences. Such questions are less easy to anticipate and would reduce the opportunity for an applicant to prepare a unique answer (but applicants can also prepare answers to such questions, see Martin & Pope, 2008). Moreover, such questions may lead to more unique answers than with traditional questions, since all applicants will probably talk about very different experiences. In this situation, the uniqueness effect is likely to be limited (or even disappear).

Again, this study provides only a snapshot of a specific moment in an arms race situation. Signaling theory would suggest to develop longitudinal studies examining the long-term evolution of interviews (i.e., recruiters' questions, applicants' answers, and recruiter' evaluation of these answers). In addition, the results were obtained with a student sample evaluating paper applicants. This design is sufficient to demonstrate the uniqueness effect, but limits the external validity of our results (Arvey & Campion, 1982; Moscoso, 2000). For instance, students and experienced interviewers may differ in their way of evaluating applicants' answers (Barr & Hitt, 1986).

7. Do you see what I see? Interviewers' perceptions of applicants' impression management in selection interviews (Article 6)

I now turn to the organization's side of the competitive relationship to show how recruiters (and indirectly organizations) can adapt or counter-adapt to applicants' behaviors. In this study, Adrian Bangerter, Julia Levashina, and I examined the case of applicants' use of IM tactics during the job interview. In order to see how recruiters perceive applicants' IM and how they integrate them in the hiring decision, we developed a field study. It included high-stakes selection interviews conducted in ten Swiss recruiting agencies, with 36 professional recruiters interviewing 164 experienced applicants for actual jobs. Recruiters and applicants completed a questionnaire measuring the same honest and deceptive IM behaviors and interview outcomes immediately after their interview. Applicants provided self-reported use of IM tactics, while recruiters reported their perceptions of applicant IM. We focused on 5 types of tactics: *self-promotion* (i.e., claiming the responsibility for positive results in the past

or enhancing ones' competence), *deceptive ingratiation* (i.e., expressing insincere beliefs or values that are held by the interviewer or the organization), *image protection* (i.e., omitting or masking negative experiences), *slight image creation* (i.e., embellishing, tailoring, and fit enhancing), e*xtensive image creation* (i.e., constructing, inventing, and borrowing experiences or accomplishments).

We computed measures of the accuracy of recruiters' perceptions of applicants' IM at both the interview and recruiter level. Our results showed relatively low accuracy, suggesting that it may not be easy to identify such behavior during job interviews. Accuracy at the interviewer level was (slightly) better for the most deceptive IM (i.e., slight and extensive image creation) than for honest IM (i.e., self-promotion) and other-focused IM (i.e., deceptive ingratiation). Also, more experienced recruiters felt more competent at detecting IM than less experienced ones, but were not better at accurately perceiving IM. Moreover, perceived honest IM was positively related to interview outcome, but perceived slight image creation (a deceptive form of IM) was negatively related to interview outcome. Perceptions of other types of IM were not related to interview outcome.

Detecting and discounting applicants' deceptive IM represents a solution for organizations to keep cheating costs high. If successful, it would make faking in interviews a costly (i.e., risky) behavior for applicants, and would thus pressure them to avoid using such tactics. Our results suggest that recruiters apparently try to punish applicants they perceive as trying to send falsified signals by discounting perceived deceptive IM. But recruiters' efforts may not be sufficient, since they may not be able to accurately detect such falsification. Applicants thus appear to be one step ahead of recruiters in this arms race. These results suggest that organizations may benefit from investing in training recruiters to better identify and discount applicant deceptive IM. But a first step would involve convincing recruiters who are often overconfident in their abilities (Highhouse, 2008) that they need such training.

These results are based on a small sample of recruiters in Switzerland. Replications with a larger sample and in other countries would be necessary to ensure their generalizability. Longitudinal studies with the hiring decision measured later could also be conducted to eliminate the risk of common method variance that could influence results of cross-sectional studies (such as ours). Finally, future research could investigate other factors (e.g., interview structure) that may influence the accuracy of recruiters' perceptions. For instance, past research showed that using past behavioral questions may limit applicants' opportunity to use IM tactics (Levashina & Campion, 2007). It is also possible that using such questions (or, more generally, structured interviews) could help recruiters to better detect

deceptive IM. For instance, past behavioral questions allow recruiters to collect detailed information about specific situations applicants faced in the past, their actions, and beneficial results of these actions. Such an approach may thus help recruiters to detect inconsistencies with answers to other questions or résumé content.

I now turn to a general discussion of the advantages of a signaling approach to personnel selection, as well as the contribution of the five empirical studies presented above. I will also discuss the limitations of this new approach and the studies, suggest some direction for future research, and present its practical implications for organizations and their allies.

8. General discussion

Competition is part of today's job market reality and thus influences personnel selection. This is illustrated by the numerous arms races among applicants (e.g., the escalation of extracurricular activities in their résumés) or between applicants and organizations (e.g., applicants' increasing preparation for the selection process and use of IM or faking, and organizations' attempt to identify, control, and discount such behavior). These examples (and many others presented above) highlight the limits of existing theoretical perspectives (i.e., psychometric, applicant reaction, and social process) and call for new theoretical approaches that incorporate the dynamic and adaptive nature of the selection process.

In this dissertation, I first highlighted one of the main weaknesses of the psychometric approach: its inability to explain the non-adoption of valid selection methods. In Article 1, I illustrated this issue using the case of the structured interview, which has often been described as failing to diffuse to recruiters (e.g., Lievens & De Paepe, 2004; van der Zee et al., 2002). I showed that the way the concept of structured interviews was diffused from academics to recruiters in media (e.g., advice books) could help explaining this issue.

Then, and mainly through the second article, I presented a signaling approach to personnel selection, which provides a framework for understanding the mutual adaptations between applicants and organizations. It involves seeing applicants and organizations (and recruiters) as exchanging, manipulating, and decoding reliable signals of ability and commitment to the employment relationship. Selection methods therefore correspond to organizations' attempt to indentify honest signals sent by applicants. And applicants' preparation and faking correspond to attempts to manipulate such signals. A signaling perspective also includes the influence of macro-level factors, such as job market pressure, on applicants' and organizations' adaptations and counter-adaptations.

Moreover, I presented three studies examining applicants' adaptive strategies in their arms race with other applicants (Articles 3 and 4) and with organizations (Article 5). Consistent with a signaling perspective, these studies showed that young applicants tend to build on ECAs to develop a competitive advantage in response to the increasingly competitive job market (P. Brown & Hesketh, 2004; Tomlinson, 2007). ECAs thus appear as an emerging signal which could be an alternative to the "traditional" signal of education (Spence, 1973), a signal that tend to decline due to increasing graduation rate in many countries (P. Brown et al., 2003; S. Davies & Hammack, 2005). Applicants' strategies can also consist of preparing for the selection process and providing unique answers to traditional interview questions, which can substantially increase their chances to get the job.

In addition, I presented one study (Article 6) illustrating organizations' adaptations or counter-adaptations to applicants' behavior (e.g., IM and faking). One potential solution involves increasing cheating costs. But our results showed that recruiters' attempt to identify and discount applicants' tactics to mimic honest signals (i.e., IM and faking in job interviews) may not be effective. These results highlight the apparent advantage of applicants in their arms race with recruiters in job interviews (Ralston & Kirkwood, 1999). Another solution involves switching to alternative selection methods, such as more structured or past-behavior oriented interviews.

In the following sections, I will first discuss how a signaling perspective and the empirical findings of the five articles presented above can contribute to the advancement of personnel selection research. Then, I will highlight some general limitations and suggest some directions for future research. Finally, I will explore potential practical implications for applicants, recruiters and organizations, and the diffusion of selection methods in practice.

8.1. Contribution to personnel selection research

In this section, I will demonstrate how signaling helps reconciling the three existing approaches on personnel selection (i.e., the psychometric approach, the applicant reactions approach and the social process models). I will then present the advantages of approaching selection as a dynamic and adaptive process, for instance for rethinking current issues in research (e.g., faking). Finally, I will bring to light an additional contribution, by showing how signaling theory leads to rethink the psychometric properties of personnel selection methods.

8.1.1. Signaling as a way to reconcile and complement existing approaches

A signaling approach to personnel selection helps reconciling existing approaches on personnel selection. For instance, critics have argued that there is yet little evidence showing that applicant reactions really matter for organizations (e.g., Sackett & Lievens, 2008). But defenders of the applicant reactions approach argued that it does matter. As an example, they highlighted that disappointed applicants could negatively influence organizational image (i.e., by sharing negative experiences with others) and thus organization's ability to attract and select high performers (e.g., Hülsheger & Anderson, 2009). Our signaling framework goes a step further and suggests that applicant behaviors before (e.g., mind-reading and preparation), during (e.g., cheating and faking), and after (adaptation for the next round of selection or the next application) the selection process can fuel arms races, which could undermine the quality of signals (e.g., answers to interviews questions, tests scores) and thus the strength of these signals (i.e., predictive validity). As an example, a certain type of job interview may have a good predictive validity at time t_1. But, over time, most applicants may learn that this interview contains questions X, Y, and Z and learn what answers they should provide to make a good impression. Therefore, at time t_2 the validity of the interview may decrease since answers to questions X, Y, and Z do not allow differentiating good applicants from bad one anymore.

A signaling approach also incorporates the influence of macro-level factors (e.g., job market pressure) on micro-level processes (e.g., applicants' behavior or recruiters' decisions). Such a perspective may therefore be used to examine the impact of job market factors on applicant reaction to the selection process or decision to accept a position. For instance, research often failed to find a strong relationship between applicants' perceptions or reactions and withdrawal from the selection process (Ryan & Ployhart, 2000). Chan and Schmitt (2004) proposed that job market factors may mediate or moderate the relationship between applicant reactions and withdrawal. And Hausknecht et al. (2004) highlighted available alternatives as a moderator between applicant perceptions and outcomes (e.g., job acceptance). But job market factors have yet been overlooked in existing empirical research (Morgeson & Ryan, 2009). Signaling theory allows combining the above propositions and thus provides a theoretical rationale for examining unemployment rate as a moderator for the relationship between applicants' perceptions of the process (e.g., perceived justice) and job acceptance/withdrawal. Negative perceptions may have a stronger impact on applicant decision to accept a position when the unemployment rate is low than when it is high, because a larger number of job alternatives are available. Understanding the impact of job market pressure is important for

organizations. Applicants may have felt unfairly treated during the selection process, yet have accepted the position because of the lack of alternatives. Such applicants may engage in more counterproductive behaviors at work or may be more likely to leave their job if a new opportunity presents itself than applicants who reacted positively to the process.

8.1.2. A signaling approach to applicant reactions and faking

A signaling approach also suggests incorporating new variables on existing models of faking behaviors. McFarland and Ryan (2000) proposed a model of faking for non-cognitive measures (e.g., personality tests). They suggested that individual factors such as values or personality traits influence beliefs towards faking. These beliefs then influence applicants' intention to fake, but this relationship is moderated by situational factors (e.g., desire for the job and warning of verification). Finally, intention to fake influence actual faking behavior, but this relationship is also moderated by applicants' ability (e.g., knowledge of the construct being measured, self-monitoring) and opportunity (e.g., their true score on the measure) to fake. Levashina and Campion (2006) proposed a model of faking in job interviews. They suggested that faking depends on applicants' capacity (e.g., knowledge of the construct being measured, cognitive ability, social or oral skills), willingness (e.g., personality traits, integrity, unfair treatment, low probability of getting caught), and opportunity (e.g., interview structure or purpose) to fake. More recently, Marcus (2009) developed an alternative model focusing on applicants' skills (e.g., test knowledge, cognitive ability) and motivation (e.g., need for a job, attractiveness of the job) as predictors of faking. These three models have several similarities. They highlight many similar factors explaining faking, despite using slightly different labels (e.g., ability vs. capacity to fake). These models also mainly focus on variables that are related either to applicants themselves (e.g., self-monitoring, personality traits, cognitive ability, and integrity) or to the particular selection process they are involved in (e.g., level of interview structure, probability of getting caught or verification, attractiveness of the job). Interestingly, warning of verification (McFarland & Ryan, 2000) and probability of getting caught (Levashina & Campion, 2006) are similar concepts related to the notion of cheating costs of our signaling framework. They represent the risk applicants take by faking during the selection process.

In addition, Levashina and Campion (2006) mentioned that the act of faking may provide applicants with experience allowing them to become more skilled at faking or influencing their motivation to fake on subsequent interviews. Their model also highlights that applicants who felt unfairly treated in previous interviews may be more likely to fake as a reaction to such treatment. These two arguments suggest that faking can be considered as

adaptive behaviors of applicants, which concur with our signaling approach. More generally, signaling suggests that applicants' behavior (e.g., faking) is the result of mutual adaptations and counter-adaptations (e.g., arms races) in their competition with organizations and other applicants. Therefore, it implies that the way applicants behave during the selection process in company X is not only caused by their individual characteristics, but also to their past experience with selection (i.e., the previous steps of the process in company X or previous selection processes in companies W or Y). Thus, faking can be influenced by unfair treatment in previous selection processes or experience with faking. More generally, faking may also be influenced by unsuccessful experience with selection. Applicants who have tried to act honestly in the past, without any success, may be more likely to adapt their behavior and fake more in the future to increase their chances of getting a job. They may learn what responses are required to look like the ideal applicant (Levashina & Campion, 2006; Marcus, 2009), and send the signal that they think organizations are looking for. This can be done when applicant repeat the selection process in the same organizations (Hausknecht, 2010), but also in other organizations.

Moreover, the existing models overlook the influence of job market pressure on faking. Yet, signaling suggests that behaviors are also influenced by macro-level forces (e.g., job market pressure). Therefore, faking can also be seen as applicants' adaptation to the increasing competition for jobs (Ralston & Kirkwood, 1999). The harder applicants perceive the competition for the job to be, the more they are likely to fake. Applicants can also fake because they think their competitors are faking and their honesty may get them eliminated (Griffith & McDaniel, 2006; Morgeson et al., 2007).

A signaling approach also stresses the importance of counter-adaptations by organizations. Therefore, applicant faking behavior may influence the quality of the selection process (e.g., reduce the predictive validity of selection methods), which will pressure organizations to adapt to applicant faking. The results of the study presented in Article 6 suggest that applicants may currently be at an advantage over recruiters (and indirectly organizations) in the case of job interviews, since recruiters seem to (at least partially) fail in their attempt to detect and discount applicants faking behavior. Applicants also appear to be at an advantage for personality tests (Griffith & Peterson, 2008) and ability tests (Davey & Nering, 2002). Therefore, organizations would need to counter-adapt and invest resources in increasing cheating costs (but see the section *implications for practice* below). Yet, signaling theory suggests that job market pressure may moderate organizations counter-adaptations:

Organizations may not be especially pressured to do so since there are more qualified applicants than jobs.

The above arguments are summarized in Figure 2. It represents an updated individual-level model of applicant faking adapted from past research (Levashina & Campion, 2006; Marcus, 2009; McFarland & Ryan, 2000) and including the adaptive perspective from signaling theory and macro-level factors.

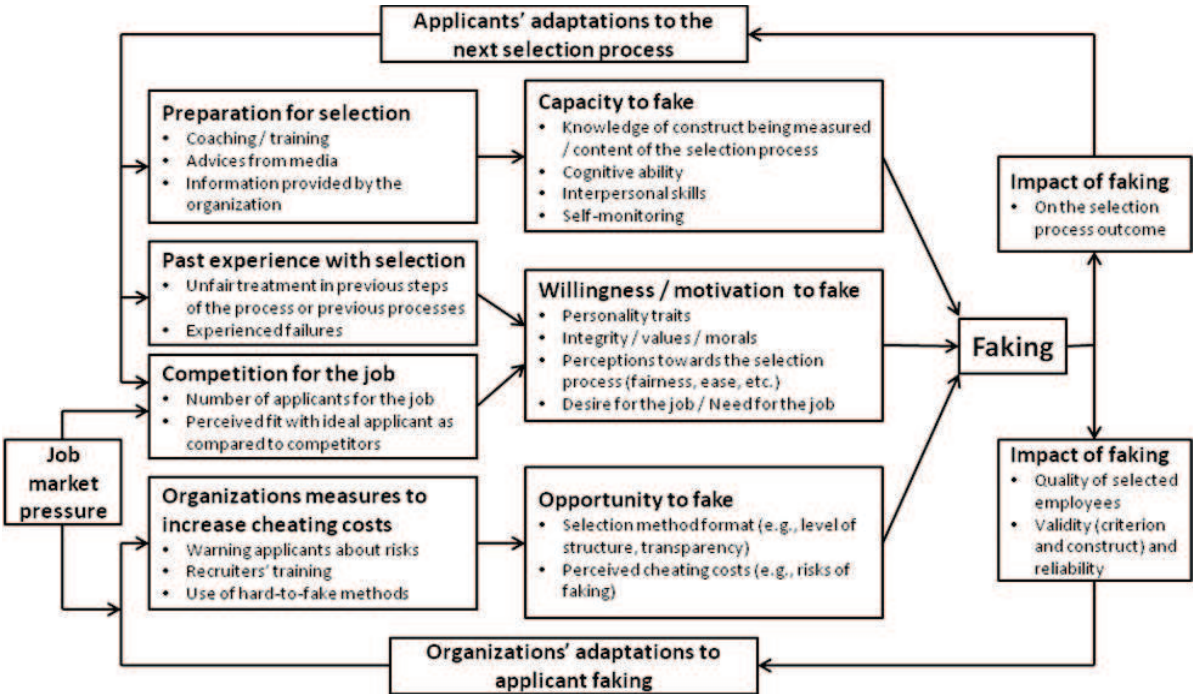

Figure 2: An updated model of faking behavior based on a signaling approach

8.1.3. Potential implications for the psychometric properties of selection methods

A signaling approach also leads to rethinking some of the concepts developed under the psychometric approach. For instance, the notion of costly signal (and especially cheating costs) calls for a revision of the concepts of validity or utility.

The concept of costly signals provides a rationale for understanding why some studies (e.g., Hermelin, Lievens, & Robertson, 2007; Roth, Bobko, & McFarland, 2005; Van Iddekinge, Roth, Raymark, & Odle-Dusseau, in press) report a decrease of the validity of some selection instruments (e.g., personality tests, integrity tests, assessment centers) over time, an issue the psychometric perspective would have difficulties explaining. Signaling describes validity as the strength of a signal at a given point in time. But (adaptive) behaviors from applicants and organizations may modify this strength. For instance, some organizations may be unable to keep cheating costs high, opening the door to cheating/faking behaviors

from applicants, and potentially reducing the construct- and criterion-related validity of their selection instruments (e.g., Donovan, Dwight, & Hurtz, 2003; Marcus, 2006). Similarly, applicants' preparation for the selection process (e.g., through coaching, training or advice books) may turn applicants into better performers in the selection process but not automatically in the job (Palmer et al., 1999). It may lead to more false positives (i.e., hiring an applicant who looks competent but is not) and potentially reducing validity.

In addition, the utility function (Cascio & Silbey, 1979; Russell, Colella, & Bobko, 1993; Schmidt & Hunter, 1998; Schmidt, Hunter, & Pearlman, 1982) has been developed to measure the dollar value of a selection method (or the gain in monetary value of using a more valid method) per hire and per year. But this formula is based on the assumption that predictive validity is not influenced by applicant faking, which may not hold when organizations are unable to keep cheating costs high (and thus faking low, but see the above paragraph). Furthermore, the influence of this (in)ability on utility is not direct but depends on the impact of faking on validity. This impact is a function of several factors such as the amount of faking applicants use or the impact of faking on applicants' ranking and thus hiring decision. The utility would thus be especially reduced if two conditions are met: (1) cheating costs are very low, meaning that organizations are unable to control, detect, or reduce applicant faking; and (2) faking has a strong impact on validity, for instance when the worst applicants (i.e., the less productive ones) are faking to a large extent and that their behavior is effective (i.e., makes them look like the best ones in the eyes of the recruiter and influence their ranking).

8.2. Limitations and directions for future research

In this section, I will highlight the limitations of the empirical studies presented above and present several suggestions for future research based on a signaling approach to personnel selection.

8.2.1. Examining applicants' adaptive behavior in the long term

One of the main contributions of a signaling approach to personnel selection is its ability to conceptualize dynamic long-term interactions between job market actors. The empirical studies presented above were cross-sectional. They thus offered a first illustration of existing competitive and adaptive relationships, but did not capture the long-term dynamics involved. A signaling approach therefore calls for more longitudinal studies to empirically

capture the evolution of honest signals, adaptations and counter-adaptations by actors, or even arms races.

For instance, future research could examine the evolution of applicants' strategies on the job market over time. One approach could involve examining the evolution of applicants' résumés content. In Articles 3 and 4, I used the example of ECAs. Results provided a first indication that young applicants may use ECAs to signal their qualities. Similar studies could involve others sections of the résumé (e.g., internships, part-time work, foreign languages), but also emerging sources of information about applicants (e.g., social networking profiles). For instance, recent research suggests that applicant try to impress employers during their internships to obtain a permanent position (Zhao & Liden, 2011). But applicants may also use past internships to signal their qualities to other organizations. Furthermore, longitudinal studies are necessary to examine how applicants' strategies evolve over time. One possibility could be to analyze the content of applicants' résumé over a long period of time to observe potential evolution of these signals. Using the example of ECAs, researchers could examine evolution in the number of activities applicants get involved in, their originality, and the importance they allocate to ECAs in their résumé. Media anecdotes suggest that applicants' ECAs become more and more exotic (Morris, 2007), but there is yet not enough empirical evidence to support this claim. They could also examine evolution in the number of foreign languages or the number of internship experiences applicants mention in their résumés. Researcher could collect résumés of senior undergraduate or graduate students for a long period of time, or obtain résumés of past applicants from organizations' records. Interestingly, such an approach is analogous to palaeontologists studying animal evolution and arms race between species using fossils (e.g., Vermeij, 1987, 1994).

Research could also investigate if the evolution of such signals is more rapid or more visible when market pressure is stronger (e.g., by comparing their evolution in countries - or regions - or for types of jobs with different unemployment rates). Other studies could examine how organizations or recruiters adapt their evaluation criteria over time. For instance, longitudinal studies could explore how the importance recruiters attach to the various sections of applicants' résumés mentioned above change over time. Again, ECAs could be a fertile area of study. Older research (Hutchinson, 1984) suggest that recruiters' allocate only minor importance to ECAs in applicants' résumé. Ten years later, Brown and Campion (1994) showed that ECAs were already more important. More recent research (Cole et al., 2007) suggest that ECAs had a central role in the hiring decision. But studies could also investigate

if recruiters attach more importance to other aspects of the résumé (e.g., internships) or information on social networking profiles over time.

In addition, future research may examine how applicants develop new adaptive strategies over time. For instance, signaling theory suggests that applicants may try to mind-read organizations' needs and gather information about organizations (e.g., their products, values, and corporate policies), as well as about the selection methods organizations may use. Past research provides evidence that applicants vary in their motivation (P. Brown & Hesketh, 2004) and ability (Kleinmann et al., 2011) to do so. But little is known about how applicants do gather such information. One possibility could involve media sources, such as advice books (Palmer et al., 1999). Research suggests that applicants' IM tactics in interviews can be influenced by guidance they receive (Fletcher, 1990) and that media could influence applicants expectations about the selection process (Bell et al., 2004). Future research could thus investigate the content of information or advice provided by media sources (e.g., advice books or websites). This would correspond to conducting a study similar to the one presented in Article 1, but with applicant-oriented media. Also, research could investigate to what extent applicants do consult such media and use such information, and the influence of such information on their adaptive strategies.

8.2.2. Examining applicant faking through the lens of signaling theory

In Article 2, we used numerous examples based on applicant faking to illustrate the signaling approach to personnel selection. Yet, the theoretical concepts of cheating costs or hard-to-fake signals need to be empirically examined. The relationships between actual applicant behavior, organizations' behavior or the psychometric properties of selection methods also need further investigation. I discuss below several new directions for research on applicant faking.

First, a signaling approach to applicant faking suggests evaluating the actual impact of macro-level factors (e.g., job market pressure) on applicants' faking behavior, while research to date has mainly focused on micro-level (i.e., individual) characteristics to explain such behavior (Marcus, 2009). For instance, future research could compare actual faking behavior or intent to fake in countries or regions with different unemployment rate. Alternatively, research could compare occupations or types of jobs with different levels of competition between applicants (e.g., business or law vs. engineering or nursing students in Switzerland). Signaling theory would predict more faking (or intent to fake) in more competitive markets.

Second, signaling calls for studies examining how applicants adapt their behavior (i.e., faking) over time. The applicant reaction approach suggests that applicants will react to unfair treatment (e.g., Hausknecht et al., 2004) and models of faking behavior suggest that unfair treatment could explain faking (e.g., Levashina & Campion, 2006). In addition, Griffith and McDaniel (2006) proposed that consequences of faking are minimal for applicants. If they get caught, they may not get the job. But their deception will not influence later applications for other jobs. Hausknecht (2010) found that applicants who failed a personality test a first time did improve their scores when they retested a couple of months later. Also applicants' perceptions of a selection method (e.g., a test) may change after a poor performance on this method (Chan & Schmitt, 2004). Therefore, future research could study how applicants' faking behavior evolves from one job application to another. Figure 2 presented above suggest several variables and relationships that could be tested. For instance, it could be that faking increases as applicants get more unfair treatment, more rejections from companies, or simply more experience with the difficulty to get a job in a competitive market. Researchers could conduct field studies following a sample of young graduates and measuring the evolution of their behavior (e.g., preparation for the selection process and use of faking in the various steps of the process) from one job application to another. Alternatively, experimental studies could manipulate the fairness of applicants' treatment in one selection encounter (e.g., an interview) and compare difference in faking behavior on a subsequent encounter (e.g., another interview or a personality test). Yet individuals may react differently to rejection or unfair treatment and thus adapt their faking behavior differently. Therefore, future research could examine individual factors that may moderate applicant faking as an adaptive response to unfair treatment or rejection. For instance, some applicants may simply not be able to fake more (Levashina & Campion, 2006; McFarland & Ryan, 2000), because of lower cognitive ability (Levashina et al., 2009) or lower ability to identify the selection criteria (König et al., 2006, 2007).

Third, signaling highlights the importance of organizations' ability to keep cheating costs high. Research need to examine the effectiveness of organizations' actions in this direction and ways to improve these actions. The study presented in Article 6 was a first attempt to examine one type of action. But it had some limitations in its design (i.e., cross-sectional and not longitudinal) or its sample (i.e., only 36 Swiss interviewers). Further studies are thus required to better understand this issue. For instance, researchers should conduct more field studies to examine the effectiveness of measures such as warning applicants that faking will be punished (Dwight & Donovan, 2003) or statistical tests to detect fakers (Guo & Drasgow, 2010). Also, researchers could study the impact of training interventions to help

recruiters identify and discount faking effectively in interviews. Past research suggest that recruiters who received training were more able to identify honest IM tactics in general (Howard & Ferris, 1996). But no research examined the impact of training on the detection of deceptive IM (or faking). In addition, longitudinal studies could investigate the long-term effect of organizations' actions to keep cheating costs high. For instance, the positive effects of such actions may be short-lived, since applicants would be pressured to develop more sophisticated faking strategies to re-gain an advantage.

Finally, the relationship between predictive validity, faking, and honest signals also deserves further investigation. Signaling theory describes predictive validity as the empirical strength of a signal at a given point in time, and suggests that it depends on its costly nature. Future studies could thus investigate the relationship between signaling costs (particularly cheating costs) and the predictive validity of selection instruments. As an example, recent research suggests that the predictive validity of integrity tests has decreased over time (Van Iddekinge et al., in press). At the same time, research has showed that applicants can easily fake integrity tests (McFarland & Ryan, 2000). Maybe the decrease in validity can be explained by organizations' inability to keep the cheating costs associated with integrity test high. Researchers could thus compare the predictive validity of the same selection instrument (e.g., a structured interview, an AC, an integrity test or a personality test) in organizations that differ in terms of their investments to maintain cheating costs high (e.g., in warning applicants than cheaters will be punished).

8.2.3. Examining information diffusion on the job market

A signaling perspective highlights the adaptations and counter-adaptations by job market actors. Actors' behaviors are driven by their own experience, but also by information they receive about the selection process. A corollary of a signaling approach thus involves examining how information diffuses on the job market and the importance of media. For instance, Article 1 highlighted the influence of media in the diffusion of two concepts related to job interviews (i.e., "structured" and "behavioral" interviews) to recruiters. Results suggested that the non-adoption of structured interviews may (partly) be explained by the way such approach is presented in the media. Future research may investigate how other aspects of personnel selection are depicted in recruiter-oriented media. Research could examine potential differences in the way widely adopted practices (e.g., résumé screening) and less-widely adopted practices (e.g., ability tests) are presented in media. Future research may also focus on the information available to applicants about the selection via mass media (e.g., books,

magazines, and websites) and how this information influences their behaviors (e.g., anxiety or expectations towards the selection process, preparation, faking).

8.3. Implications for practice

In this section, I will highlight the practical implications of the research presented in this dissertation. First, I will illustrate the implications of the results of Article 1 for the diffusion of selection best practices. Then I will underline the implications of using a signaling approach to personnel selection and the results of the four empirical studies presented above for applicants, recruiters and organizations.

8.3.1. Implications for the diffusion of selection best-practices

Results of Article 1 encourage researchers to use alternative communication approaches to ensure the diffusion of empirically-supported best practices of personnel selection to organizations and their allies. Our analyses of advice books highlighted that psychometric arguments (e.g., about validity) were mainly used to present the concept of structured interviewing. This corresponds to the approach personnel selection researchers have traditionally used to communicate their findings. Yet, the limited diffusion of structured interviews observed in various surveys (e.g., Lievens & De Paepe, 2004; Ryan et al., 1999) suggests that such arguments may not help convincing recruiters to adopt such practices. On the other hand, managerial arguments (e.g., about competency) were mainly used to present the concept of behavioral interviewing. These arguments are closer to recruiters' business language (Latham, 2007). And surveys examining the use of behavioral interviews reported more optimistic results (e.g., Nancherla, 2008). Therefore, researchers should adapt the language and arguments they use in their future attempts to communicate with recruiters and organizations. Using managerial arguments may be a solution to help convincing recruiters to adopt valid and reliable selection methods (e.g., structured interviews, cognitive ability tests).

8.3.2. Implications for the relationships between applicants and organizations: Increasing cheating costs

The notion of adaptations and counter-adaptations leading to potential arms races has implications for the future of applicant-organization relationships. For instance, applicants' behavior such as the increasing use of ECAs to demonstrate their qualities (see Articles 3 and 4), preparation of rehearsed answers to interview questions (see Article 5), or faking in interviews or personality tests (see Articles 2 and 6) could be seen as normal adaptation to the competitive nature of the selection process. The signaling approach and the results of these

studies inform organizations and recruiters about the increasing importance of job market competition in applicants' behavior (as compared to individual characteristics). But such arms races may end up not benefiting any of the actors (Dawkins & Krebs, 1979; Frank, 2006). Applicants and organizations may invest important resources (i.e., time and money) developing counter-adaptations instead of reaching an equilibrium that may benefit both of them. A first practical solution to limit arms races involves organizations increasing cheating costs.

Organizations could try to increase cheating costs and thus make faking behavior ineffective. Such attempts with personality tests may not yet be completely effective (Griffith & McDaniel, 2006; Tett et al., 2006). And results from Article 6 suggest that it may not be the case in interviews either. Recruiters' ability to identify and discount IM or faking tactics could be improved (even for more experienced recruiters). Developing training programs could be a first step in that direction. Using hard-to-fake selection methods (e.g., work samples or cognitive ability tests) may be another possibility. But organizations and recruiters should first understand that applicants can fake, do fake, that faking influences hiring decisions, and that they may not be able to eliminate or control faking (Tett et al., 2006). This involves convincing recruiters who are often over-confident in their ability to make valid judgment based on intuition or experience (Highhouse, 2008) to reconsider their methods. But increasing cheating costs is only a short-term solution, since organizations' advantage may trigger more elaborate faking strategies from applicants, and even using hard-to-fake methods does not completely eliminate chances of faking.

8.3.3. Implications for the relationships between applicants and organizations: Reintroducing trust in personnel selection

A long term solution to solve (or at least reduce) the issue of faking involves trying to reintroduce the notion of trust in the personnel selection process. Empirical evidence from articles presented in this dissertation, as well as in previous research (P. Brown & Hesketh, 2004; Palmer et al., 1999; Ralston & Kirkwood, 1999), suggest that applicant-organization relationships are oriented towards competition and mistrust. This atmosphere may trigger or enhance arms races. A solution may thus involve changing this atmosphere and reintroduce trust. Applicants themselves could participate in this enterprise, by engaging in more honest behaviors during the selection process. Yet, an individual applicants may perceive such behavior as being risky, since it may put the him/her at a competitive disadvantage relative to others who may fake (Griffith & McDaniel, 2006). Reintroducing trust would thus require a collective movement, which could be initiated by teachers and professors who often inform

students about strategies to apply on a selection process. Authors of advice books, magazines, and websites informing applicants about the selection process may also participate in this movement by promoting a process that is collaborative and based on reciprocal trust.

Organizations could also lead the way by proving realistic job previews (Wanous, 1989), advertizing the fairness of their selection process (Bell et al., 2004), or using methods (e.g., interviews) that provide applicants the opportunity to demonstrate their qualities (Kirkwood & Ralston, 1999). Consultants and authors of applicant- or practitioner-oriented literature could also avoid using competition-like rhetoric, such as the *war for talent* (Michaels, Handfield-Jones, & Axelrod, 2001), that contribute to creating mistrust. But developing relationships based on trust may require going beyond what organizations can achieve individually. It may involve building reputation systems that would represent honest signals of applicants' (or also organizations') trustworthiness. Griffith and McDaniel (2006, p. 7) provided a rationale for such system when saying: "the consequences for getting caught [while faking] are minimal. Perhaps they [applicants] will not get the job, but their name will not appear on a national registry of known deceivers and application fakers. They will simply move to the next available job a complete another measure". Such registries already exist for organizations in the form of reputation systems. Ranking of best employers (e.g., *Fortune's 100 Best Companies to Work For*) or information shared by applicants on social networks or blogs are good illustrations. Organizations' unethical or dishonest behavior can easily be shared by unsatisfied applicants or employees and may have long-term impact of employer image (Hülsheger & Anderson, 2009). Ranking or employer reputation may also be used by applicants to decide where to apply (Cable & Turban, 2003). But such system does not exist for applicants' reputation. Background checks offer some information to organizations about applicants' past (e.g., about criminal records or credit score; Isaacson, Griffith, Kung, Lawrence, & Wilson, 2008), but not about faking behavior in past selection processes. Recruiters' increasing use of social networking websites to gather personal information on applicants based on their profiles (Brandenburg, 2008) may reflect an attempt to learn more about applicants' reputation. For instance, recruiters seem to screen out applicants who posted *faux pas* (e.g., alcohol or drug abuse, criminal behaviors, information inconsistent with the résumé) on their profiles (Careerbuilder.com, 2009; Karl et al., 2010). Ideally, creating such a reputation system about applicants would ensure faking on one job application to have negative consequences for subsequent applications. It would thus be a way to make cheating extremely costly for applicants and would reinforce truthful behavior. But, of course, employment legislations (and corporate values or policies) may limit organizations' opportunity to do so.

An alternative (and maybe idealistic) solution could involve outsourcing applicant screening to specialists, such as large (or a cooperation of smaller) assessment organizations. They would be in charge of conducting standardized résumé evaluation, ability and personality tests, or structured interviews for all applicants for a specific occupation on a specific regional job market. But they would also perform background checks, reference checks and the like to ensure that cheating costs are high. These assessment organizations would then create an anonymous database of potential employees with scores on standardized KSAOs (knowledge, skills, abilities, and other characteristics) measures based on the screening process. And organizations could then access this database and offer invitations to final interviews (or jobs) to applicants that fit their requirements. Applicants could evaluate the offers they will receive and select the one(s) they consider to be the most appropriate for them (e.g., based on the employer's reputation and the financial/practical aspects of the job offer). Such a solution would imply creating a market based on reputation and honest signals within the job market. Overall this approach would insure that trustful information and thus honest signals are exchanged between applicants and organizations under the surveillance of the assessment specialists. It would somehow correspond to the approach used by matchmaking websites, where potential partners are matched based on a fit between personal information (e.g., interests, values, personality, etc.) they provide (not saying that such practices are scientifically valid, which still need to be demonstrated, but see Houran, Lange, Rentfrow, & Bruckner, 2004).

The concept of a market within the existing job market would have several advantages. Outsourcing the screening/selection process to assessment specialists would ensure using up-to-date (i.e., valid and reliable) selection methods. In addition, economies of scales could allow assessment specialist to screen a large pool of applicants and use a large number of selection methods or a more comprehensive combination of methods (e.g., in a well-designed assessment center). Organizations alone often cannot conduct such a large process, because of limited resources (i.e., money, time, trained professionals). Such an approach may thus be cost-effective (especially with the possibilities offered by developments in information technology) for organizations and could improve the overall quality of hiring decisions. It would also benefit applicants, who would only invest time and energy in one large selection process instead of sending dozens of résumés, answering the same questions in several interviews or completing similar tests numerous times. But it is unclear how organizations would react to such centralized and standardized solution, especially since it would reduce their control over the selection process. It may be more appropriate for smaller organizations that do not have the resources (or HR expertise) to invest in increasing cheating

costs themselves. But it may not fit larger or multinational organizations. Also, it is not clear how applicants would react to such a solution, since it would limit their opportunity to demonstrate how they would fit a specific organization.

8.3.4. Implications for applicants' strategies on the job market

A signaling approach highlights the competitive relationships applicants are involved in on the job market and the strategies they may use to position themselves. Positioning strategies are illustrated by the use of ECAs, as presented in Articles 3 and 4. Since recruiters value participation in ECAs (Chia, 2005; Cole et al., 2007; Nemanick & Clark, 2002), such a strategy may be efficient for applicants. Also, results from Article 5 suggest that being original or unique during the selection process may pay off. Therefore, applicants should forget about preparing answers based on advice provided in books or website that are thus available to all applicants. They should be aware of such advice, but then prepare original answers that will make them appear unique and thus give them a competitive advantage over other applicants. Yet, uniqueness should not detriment answer quality; otherwise applicants run the risk of appearing "weird".

In addition, results from Article 6 suggest that using deceptive IM tactics (i.e., faking) in interviews may not be an effective strategy to get a job (at least not universally). Contrary to previous studies in the US (e.g., Levashina & Campion, 2007), Swiss applicants did not benefit (nor get punished) for actually using such tactics. But they benefited from using honest self-promotion. Therefore, applicants for jobs in Swiss companies should be able to "sell themselves", even if such behavior may be more effective in North America than Switzerland (Schmid Mast, Frauendorfer, & Popovic, 2011). But they should avoid being deceptive.

9. Conclusion

Existing perspectives on personnel selection (i.e., psychometric, applicant reactions, social process models) have contributed (and continue to contribute) to the improvement of the selection process and methods to evaluate applicants. Yet, they have limitations. For instance, the traditional psychometric approach fails to explain why some valid selection methods do not diffuse to recruiters. The first study of this dissertation showed that arguments media use to inform recruiters about job interviews may potentially influence the diffusion of the notion of interview structure. In addition, existing perspectives are challenged by several recent issues on the job market, such as applicants' faking or preparation.

A signaling approach to personnel selection offers researchers a new perspective for examining the relationships between job market actors (applicants and organizations or recruiters). It goes beyond existing theoretical perspectives, since it allows capturing the interactive, adaptive, and dynamic nature of these relationships, but also integrates macro-level factors such as job market pressure. In addition to presenting this new approach, this dissertation included four empirical studies offering a foretaste of the potential of applying it to current personnel selection issues. These studies suggest that applicants use ECAs to signal their qualities as an alternative to education, because the signaling value of their degree is declining on competitive job markets. The job market pressure also leads applicants to getting involved in ECAs more for résumé-building reasons. Another adaptive strategy involves providing unique answers to traditional interview questions, which do benefit the "unique" applicant. Organizations also counter-adapt to applicants' strategies, for instance by trying to detect and discount deceptive behaviors (i.e., faking). But, our results suggest that such attempts may not be completely successful. A signaling approach may thus benefit both academics and practitioners, and also opens up unexplored lines of research for personnel selection, especially longitudinal studies investigating long-term adaptations and counter-adaptations by market actors.

References

Aamodt, M. G. (2006). *Industrial/organizational psychology: An applied approach*. Belmont, CA: Wadsworth.

Aguinis, H., Michaelis, S. E., & Jones, N. M. (2005). Demand for certified human resources professionals in internet-based job announcements. *International Journal of Selection and Assessment, 13*, 160-171.

Anderson, N. (2001). Towards a theory of socialization impact: Selection as pre-entry socialization. *International Journal of Selection and Assessment, 9*, 84-91.

Anderson, N. (2003). Applicant and recruiter reactions to new technology in selection: A critical review and agenda for future research. *International Journal of Selection and Assessment, 11*, 121-136.

Anderson, N., Herriot, P., & Hodgkinson, G. P. (2001). The practitioner-researcher divide in industrial, work and organizational (IWO) psychology: Where are we now, and where do we go from there? *Journal of Occupational and Organizational Psychology, 74*, 391-411.

Anderson, N., Lievens, F., van Dam, K., & Ryan, A. M. (2004). Future perspectives on employee selection: Key directions for future Research and practice. *Applied Psychology: An International Review, 53*, 487-501.

Anderson, N., Salgado, J. F., & Hülsheger, U. R. (2010). Applicant reactions in selection: Comprehensive meta-analysis into reaction generalization versus situational specificity. *International Journal of Selection and Assessment, 18*, 291-304.

Arthur, W., Glaze, R. M., Villado, A. J., & Taylor, J. E. (2010). The magnitude and extent of cheating and response distortion effects on unproctored internet-based tests of cognitive ability and personality. *International Journal of Selection and Assessment, 18*, 1-16.

Arvey, R. D., & Campion, J. E. (1982). The employment interview: A summary and review of recent research. *Personnel Psychology, 35*, 281-322.

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journla of College Student Development, 40*, 518-529.

Bangerter, A. (2000). Transformation between scientific and social representations of conception: The method of serial reproduction. *British Journal of Social Psychology, 39*, 521-535.

Barr, S. H., & Hitt, M. A. (1986). A comparison of selection decision models in manager versus student samples. *Personnel Psychology, 39*, 599-617.

Barrick, M. R., & Mount, M. K. (1996). Effects of impression management and self-deception on the predictive validity of personality constructs. *Journal of Applied Psychology, 81*, 261-272.

Barrick, M. R., Shaffer, J. A., & DeGrassi, S. W. (2009). What you see may not be what you get: Relationships among self-presentation tactics and ratings of interview and job performance. *Journal of Applied Psychology, 94*, 1394-1411.

Bauer, T. N., Truxillo, D. M., Paronto, M. E., Weekley, J. A., & Campion, M. A. (2004). Applicant reactions to different selection technology: Face to face, interactive voice response, and computer assisted telephone screening interviews. *International Journal of Selection and Assessment, 12*, 135-148.

Beamish, P. W., & Calof, J. L. (1989). International business education: A corporate view. *Journal of International Business Studies*, 553-564.

Bear, J., & Ezell, A. (2005). *Degree mills: The billion dollar industry that has sold over a million fake diplomas*. Amherst, NY: Prometheus.

Bell, B. S., Ryan, A. M., & Wiechmann, D. (2004). Justice expectations and applicant perceptions. *International Journal of Selection and Assessment, 12*, 24-38.

Birkeland, S. A., Manson, T. M., Kisamore, J. L., Brannick, M. T., & Smith, M. A. (2006). A meta-analytic investigation of job applicant faking on personality measures. *International Journal of Selection and Assessment, 14*, 317-335.

Bloch, R. (2007). „Natürlich möchte man es auch gern im Lebenslauf stehen haben …“ – Bedeutungen des Praktikums für Studierende ["Naturally people want to have that in the résumés too..." - The meaning of internships for students]. *Beiträge zur Hochschulforschung, 4*, 82-106.

Brandenburg, C. (2008). The newest way to screen job applicants: A social networker’s nightmare. *Federal Communication Law Journal, 60*, 597-626.

Brown, B. K., & Campion, M. A. (1994). Biodata phenomenology: Recruiters' perceptions and use of biographical information and résumé screening. *Journal of Applied Psychology, 79*, 897-908.

Brown, P. (2003). The opportunity trap: Education and employment in a global economy. *European Educational Research Journal, 2*, 141-179.

Brown, P., & Hesketh, A. (2004). *The mismanagement of talent: Employability and jobs in the knowledge economy*. Oxford, UK: Oxford University Press.

Brown, P., Hesketh, A., & Williams, S. (2003). Employability in a knowledge-driven economy. *Journal of Education and Work, 16*, 107-126.

Brown, P., Lauder, H., & Ashton, D. (2011). *The global auction*. Oxford, UK: Oxford University Press.

Buckley, M. R., & Eder, R. W. (1988). B.M. Springbett and the nNotion of the "snap decision" in the interview. *Journal of Management, 14*, 59-67.

Cable, D. M., & Judge, T. A. (1997). Interviewers' perceptions of person-organization fit and organizational selection decisions. *Journal of Applied Psychology, 82*, 546-561.

Cable, D. M., & Turban, D. B. (2003). The Value of Organizational Reputation in the Recruitment Context. A Brand Equity Perspective. *Journal of Applied Social Psychology, 33*, 2244-2266.

Campion, M. A., Palmer, D. K., & Campion, J. E. (1997). A review of structure in the selection interview. *Personnel Psychology, 50*, 655-702.

Campion, M. A., Pursell, E. D., & Brown, B. K. (1988). Structured interviewing: Raising the psychometric properties of the employment interview. *Personnel Psychology, 41*, 25-42.

Careerbuilder.com. (2009). Nearly half of employers use social networking sites to screen job candidates. *CareerBuilder.com Survey Finds*. Retrieved August 19, 2011 from http://thehiringsite.careerbuilder.com/2009/08/20/nearly-half-of-employers-use-social-networking-sites-to-screen-job-candidates/

Caro, T. M. (1986). The functions of stotting in Thomson's gazelles: Some tests of the predictions. *Animal Behaviour, 34*, 663-684.

Cascio, W. F. (1991). *Costing human resources: The financial impact of behavior in organizations*. Boston, MA: PWS-Kent.

Cascio, W. F., & Silbey, V. (1979). Utility of the assessment center as a selection device. *Journal of Applied Psychology, 64*, 107.

Chan, D., & Schmitt, N. (2004). An agenda for future research on applicant reactions to selection procedures: A construct oriented approach. *International Journal of Selection and Assessment, 12*, 9-23.

Chapman, D. S., & Webster, J. (2006). Toward an integrated model of applicant reactions and job choice. *International Journal of Human Resource Management, 17*, 1032-1057.

Chapman, D. S., & Zweig, D. I. (2005). Developing a nomological network for interview structure: Antecedents and consequences of the structured selection interview. *Personnel Psychology, 58*, 673-702.

Chen, Y. C., Tsai, W. C., & Hu, C. Y. (2008). The influences of interviewer-related and situational factors on interviewer reactions to high structured job interviews. *International Journal of Human Resource Management, 19*, 1056-1071.

Chia, Y. M. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education, 14*, 75 - 93.

Cole, M. S., Rubin, R. S., Feild, H. S., & Giles, W. F. (2007). Recruiters' perceptions and use of applicant résumé information: Screening the recent graduate. *Applied Psychology: An International Review, 56*, 319-343.

Collins, R. (1981). Crises and declines in credentialing Systems. In R. Collins (Ed.), *Sociology Since Midcentury* (pp. 191-215). New York: Academic Press.

Collins, R. (2002). Credential inflation and the future of universities. In S. G. Brint (Ed.), *The future of the city of intellect: The changing American university* (pp. 23-46). Stanford, CA: Stanford University Press.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*, 39-67.

Conway, J. M., Jako, R. A., & Goodman, D. F. (1995). Meta-analysis of interrater and internal consistency reliability of selection interviews. *Journal of Applied Psychology, 80*, 565-579.

Conway, J. M., & Peneno, G. M. (1999). Comparing structured interview question types: Construct validity and applicant reaction. *Journal of Business and Psychology, 13*, 485-506.

Cook, K. (2008). *65 interview questions: Conquer your fear and answer the toughest job interview questions*. Southfield, MI: Equity Press.

Cronk, L. (2005). The application of animal signaling theory to human phenomena: Some thoughts and clarifications. *Social Science Information, 44*, 603-620.

Davey, T., & Nering, M. (2002). Controlling item exposure and maintaining item security. In C. N. Mills, M. T. Potenza, J. J. Fremer & W. C. Ward (Eds.), *Computer-based testing: Building the foundation for future assessments* (pp. 165-191). Mahwah, NJ: Lawrence Erlbaum.

Davies, N. B., & Halliday, T. (1978). Optimal mate selection in the toad Bufo Bufo. *Nature, 269*, 56-58.

Davies, S., & Hammack, F. M. (2005). The channeling of student competition in higher education: Comparing Canada and the U.S. *The Journal of Higher Education, 76*, 89-106.

Dawkins, R., & Krebs, J. R. (1979). Arms races between and within species. *Proceedings of the Royal Society of London, B 205*, 489-511.

Dawson, C., Horvath, M., & Raymark, P. H. (2006). *Impression management and dimensional structured interview performance.* Paper presented at the 21st annual meeting of the Society for Industrial and Organizational Psychology, Dallas, TX.

Delery, J. E., & Kacmar, K. M. (1998). The influence of applicant and interviewer characteristics on the use of impression management. *Journal of Applied Social Psychology, 28*, 1649-1669.

Derous, E., Born, M. P., & De Witte, K. (2004). How applicants want and expect to be treated: Applicants' selection treatment beliefs and the development of the Social Process Questionnaire on Selection. *International Journal of Selection and Assessment, 12*, 99-119.

Derous, E., & De Witte, K. (2001). Looking at selection from a social process perspective: Towards a social process model on personnel selection. *European Journal of Work and Organizational Psychology, 10*, 319-342.

Derous, E., De Witte, K., & Stroobants, R. (2003). Testing the social process model on selection through expert analysis. *Journal of Occupational and Organizational Psychology, 76*, 179-199.

Dipboye, R. L. (1994). Structured and unstructured selection interviews: Beyond the job-fit model. *Research in Personnel and Human Resources Management, 12*, 79-123.

Dipboye, R. L., Macan, T., & Shahani-Denning, C. (2011). The selection interview from the interviewer and applicants perspective: Can't have one without the other. In N. Schmitt (Ed.), *The Oxford handbook of personnel selection and assessment*. New York: Oxford University Press.

Donovan, J. J., Dwight, S. A., & Hurtz, G. M. (2003). An assessment of the prevalence, severity, and verifiability of entry-level applicant faking using the randomized response technique. *Human Performance, 16*, 81-106.

Dougherty, T. W., Turban, D. B., & Callender, J. C. (1994). Confirming first impressions in the employment interview: A field study of interviewer behavior. *Journal of Applied Psychology, 79*, 659–665.

Dunnette, M. D., & Borman, W. C. (1979). Personnel selection and classification systems. *Annual Review of Psychology, 30*, 477-525.

Dwight, S. A., & Donovan, J. J. (2003). Do warnings not to fake reduce faking? *Human Performance, 16*, 1-23.

Ellis, A. P. J., West, B. J., Ryan, A. M., & DeShon, R. P. (2002). The use of impression management tactics in structured interviews: A function of question type? *Journal of Applied Psychology, 87*, 1200-1208.

Fletcher, C. (1990). The relationships between candidate personality, self-presentation strategies, and interviewer assessments in selection interviews: An empirical study. *Human Relations, 43*, 739-749.

Fletcher, C. (1992). Ethical issues in the selection interview. *Journal of Business Ethics, 11*, 361-367.

Frank, R. H. (2006). *Microeconomics and behavior*. New York: McGraw-Hill.

Furnham, A. (2008). HR professionals' beliefs about, and knowledge of, assessment techniques and psychometric tests. *International Journal of Selection and Assessment, 16*, 300-305.

Gaugler, B. B., Rosenthal, D. B., Thornton, G. C. I., & Bentson, C. (1987). Meta-analysis of assessment center validity. *Journal of Applied Psychology, 72*, 493-511.

Gerstmann, P. (2002). *Trick job interview questions and answers: How to handle interviews and get the job you want*. London: Peter Gerstmann Associates.

Gilliland, S. W. (1993). The perceived fairness of selection systems: An organizational justice perspective. *Academy of Management Review, 18*, 694-734.

Gilmore, D. C., & Ferris, G. R. (1989). The effects of applicant impression management tactics on interviewer judgments. *Journal of Management, 15*, 557-564.

Gilmore, D. C., Stevens, C. K., Harrell-Cook, G., & Ferris, G. R. (1999). Impression management tactics. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 321-336). Thousand Oaks, CA: Sage.

Goffin, R. D., & Boyd, A. C. (2009). Faking and personality assessment in personnel selection: Advancing models of faking. *Canadian Psychology/Psychologie canadienne, 50*, 151-160.

Graves, L. M. (1993). Sources of individual differences in interviewer effectiveness: A model and implications for future research. *Journal of Organizational Behavior, 14*, 349-370.

Graves, L. M., & Karren, R. J. (1992). Interviewer decision process and effectiveness: An experimental policy-capturing investigation. *Personnel Psychology, 45*, 313-340.

Graves, L. M., & Karren, R. J. (1996). The employee selection interview: A fresh look at an old problem. *Human Resources Management, 35*, 163-180.

Griffith, R. L., Chmielowski, T., & Yoshita, Y. (2007). Do applicants fake? An examination of the frequency of applicant faking behaviour. *Personnel Review, 36*, 341-355.

Griffith, R. L., & McDaniel, M. (2006). The nature of deception and applicant faking behavior. In R. L. Griffith & M. H. Peterson (Eds.), *A closer examination of applicant faking behavior* (pp. 1-19). Greenwich, NC: Information Age Publishing.

Griffith, R. L., & Peterson, M. H. (2008). The failure of social desirability measures to capture applicant faking behavior. *Industrial and Organizational Psychology, 1*, 308-311.

Guo, J., & Drasgow, F. (2010). Identifying cheating on unproctored internet tests: The Z-test and the likelihood ratio test. *International Journal of Selection and Assessment, 18*, 351-364.

Hakel, M. D., Ohnesorge, J. P., & Dunnette, M. D. (1970). Interviewer evaluations of job applicants' resumes as a function of the qualifications of the immediately preceding applicants: An examination of contrast effects. *Journal of Applied Psychology, 54*, 27-30.

Handy, F., Cnaan, R. A., Hustinx, L., Kang, C., Brudney, J. L., Haski-Leventhal, D., et al. (2010). A cross-cultural examination of student volunteering: Is it all about résumé building? *Nonprofit and Voluntary Sector Quarterly, 39*, 498-523.

Hausknecht, J. P. (2010). Candidate persistence and personality test practice effects: Implications for staffing system management. *Personnel Psychology, 63*, 299-324.

Hausknecht, J. P., Day, D. V., & Thomas, S. C. (2004). Applicant reactions to selection procedures: An updated model and meta-analysis. *Personnel Psychology, 57*, 639-683.

Hermelin, E., Lievens, F., & Robertson, I. T. (2007). The validity of assessment centres for the prediction of supervisory performance ratings: A meta-analysis. *International Journal of Selection and Assessment, 15*, 405-411.

Herriot, P. (1981). Towards an attributional theory of the selection interview. *Journal of Occupational Psychology, 54*, 165-173.

Herriot, P. (1989). Selection as a social process. In M. Smith & I. T. Robertson (Eds.), *Advances in selection and assessment* (pp. 171-188). Chichester, UK: Wiley.

Herriot, P. (1993). A paradigm bursting at the seams. *Journal of Organizational Behavior, 14*, 371-375.

Herriot, P. (2002). Selection and self: Selection as a social process. *European Journal of Work and Organizational Psychology, 11*, 385 - 402.

Herriot, P., & Anderson, N. (1997). Selecting for change: How will personnel and selection psychology survive. In N. Anderson & P. Herriot (Eds.), *International Handbook of Selection and Assessment* (pp. 1-38). West Sussex, UK: Wiley.

Highhouse, S. (2002). Assessing the candidate as a whole: A historical and critical analysis of individual psychological assessment for personnel decision making. *Personnel Psychology, 55*, 363-396.

Highhouse, S. (2008). Stubborn reliance on intuition and subjectivity in employee selection. *Industrial and Organizational Psychology, 1*, 333-342.

Highhouse, S., Thornbury, E. E., & Little, I. S. (2007). Social-identity functions of attraction to organizations. *Organizational Behavior and Human Decision Processes, 103*, 134-146.

Hough, L. M., & Oswald, F. L. (2000). Personnel selection: Looking toward the future-remembering the past. *Annual Review of Psychology, 51*, 631-664.

Houran, J., Lange, R., Rentfrow, P. J., & Bruckner, K. H. (2004). Do online matchmaking tests work? An assessment of preliminary evidence for a publicized 'predictive model of marital success.'. *North American Journal of Psychology, 6*, 507-526.

Howard, J. L., & Ferris, G. R. (1996). The employment interview context: Social and situational influences on interviewer decisions. *Journal of Applied Social Psychology, 26*, 112-136.

Huffcutt, A. I., & Arthur, W. J. (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. *Journal of Applied Psychology, 79*, 184-190.

Huffcutt, A. I., Conway, J. M., Roth, P. L., & Stone, N. J. (2001). Identification and meta-analytic assessment of psychological constructs measured in employment interviews. *Journal of Applied Psychology, 86*, 897-913.

Hülsheger, U. R., & Anderson, N. (2009). Applicant perspectives in selection: Going beyond preference reactions. *International Journal of Selection and Assessment, 17*, 335-345.

Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin, 96*, 72-98.

Hustinx, L., Handy, F., Cnaan, R. A., Brudney, J. L., Pessi, A. B., & Yamauchi, N. (2010). Social and cultural origins of motivations to volunteer. *International Sociology, 25*, 349-382.

Hutchinson, K. L. (1984). Personnel administrators' preferences for résumé content: A survey and review of empirically based conclusions. *Journal of Business Communication, 21*, 5-14.

Isaacson, J. A., Griffith, R. L., Kung, M.-C., Lawrence, A., & Wilson, K.-A. (2008). *Liar, liar: Examining background checks and applicants who fail them*. Paper presented at the 23rd Annual Conference for the Society for Industrial and Organizational Psychology, San Francisco, CA.

James, L. R., McIntyre, M. D., Glisson, C. A., Green, P. D., Patton, T. W., LeBreton, J. M., et al. (2005). A conditional reasoning measure for aggression. *Organizational Research Methods, 8*, 69-99.

Janz, T. (1982). Initial comparisons of patterned behavior description interviews versus unstructured interviews. *Journal of Applied Psychology, 67*, 577-580.

Jones, S. R., & Hill, K. E. (2003). Understanding patterns of commitment: Student motivation for community service involvement. *The Journal of Higher Education, 74*, 516-539.

Karl, K., Peluchette, J., & Schlaegel, C. (2010). Who's posting Facebook faux pas? A cross-cultural examination of personality differences. *International Journal of Selection and Assessment, 18*, 174-186.

Kirkwood, W. G., & Ralston, S. M. (1999). Inviting meaningful applicant performances in employment interviews. *Journal of Business Communication, 36*, 55-76.

Klehe, U.-C. (2004). Choosing how to choose: Institutional pressures affecting the adoption of personnel selection procedures. *International Journal of Selection and Assessment, 12*, 327-342.

Klehe, U.-C., König, C. J., Richter, G. M., Kleinmann, M., & Melchers, K. G. (2008). Transparency in structured interviews: Consequences for construct and criterion-related validity. *Human Performance, 21*, 107-137.

Kleinmann, M., Ingold, P. V., Lievens, F., Jansen, A., Melchers, K. G., & König, C. J. (2011). A different look at why selection procedures work: The role of candidates' ability to identify criteria. *Organizational Psychology Review, 1*, 128-146.

Kohn, L. S., & Dipboye, R. L. (1998). The effects of interview structure on recruiting outcomes. *Journal of Applied Social Psychology, 28*, 821-843.

König, C. J., Klehe, U.-C., Berchtold, M., & Kleinmann, M. (2010). Reasons for being selective when choosing personnel selection procedures. *International Journal of Selection and Assessment, 18*, 17-27.

König, C. J., Melchers, K. G., Kleinmann, M., Richter, G. M., & Klehe, U. C. (2006). The relationship between the ability to identify evaluation criteria and integrity test scores. *Psychology Science, 48*, 369-377.

König, C. J., Melchers, K. G., Kleinmann, M., Richter, G. M., & Klehe, U. C. (2007). Candidates' ability to identify criteria in nontransparent selection procedures: Evidence from an assessment center and a structured interview. *International Journal of Selection and Assessment, 15*, 283-292.

Krannich, R., & Krannich, C. (2008). *You should hire me! Interview secrets to get the job you love*. Manassa, VA: Impact Publications.

Krebs, J. R., & Dawkins, R. (1984). Animal signals: Mind-reading and manipulation. In J. R. Krebs & N. B. Davies (Eds.), *Behavioural ecology: An evolutionary approach* (pp. 380-402). Sunderland, MA: Sinauer.

Kristof-Brown, A. L. (2000). Perceived applicant fit: Distinguishing between recruiters' perceptions of person-job and person-organization fit. *Personnel Psychology, 53*, 643-671.

Kristof-Brown, A. L., Barrick, M. R., & Franke, M. (2002). Applicant impression management: Dispositional influences and consequences for recruiter perceptions of fit and similarity. *Journal of Management, 28*, 27-46.

Latham, G. P. (2007). A speculative perspective on the transfer of behavioral science findings to the workplace. "The times they are a-changin'". *Academy of Management Journal, 50*, 1027-1032.

Latham, G. P., & Saari, L. M. (1984). Do people do what they say? Further studies on the situational interview. *Journal of Applied Psychology, 69*, 569-573.

Latham, G. P., Saari, L. M., Pursell, E. D., & Campion, M. A. (1980). The situational interview. *Journal of Applied Psychology, 64*, 422-427.

Latham, G. P., & Skarlicki, D. P. (1996). The effectiveness of situational, patterned behaviour, and conventional structured interview in minimising in-group favouritism of Canadian francophone managers. *Applied Psychology: An International Review, 45*, 177-184.

Latham, G. P., & Sue-Chan, C. (1999). A meta-analysis of the situational interview: An enumerative review of reasons for its validity. *Canadian Psychology, 40*, 56-67.

LeBreton, J. M., Barksdale, C. D., Robin, J., & James, L. R. (2007). Measurement issues associated with Conditional Reasoning Tests: Indirect measurement and test faking. *Journal of Applied Psychology, 92*, 1-16.

Levashina, J., & Campion, M. A. (2006). A model of faking likelihood in the employment interview. *International Journal of Selection and Assessment, 14*, 299-316.

Levashina, J., & Campion, M. A. (2007). Measuring faking in the employment interview: Development and validation of an interview faking behavior scale. *Journal of Applied Psychology, 92*, 1638-1656.

Levashina, J., Morgeson, F. P., & Campion, M. A. (2009). They don't do It often, but they do it well: Exploring the relationship between applicant mental abilities and faking. *International Journal of Selection and Assessment, 17*, 271-281.

Lievens, F. (2007). Research on selection in an international context: Current status and future directions. In M. M. Harris (Ed.), *Handbook of Research in International Human Resource Management*. New York: Lawrence Erlbaum's Organizations and Management Series.

Lievens, F., & Burke, E. (in press). Dealing with the threats inherent in unproctored Internet testing of cognitive ability: Results from a large scale operational test program. *Journal of Occupational and Organizational Psychology*.

Lievens, F., & De Paepe, A. (2004). An empirical investigation of interviewer-related factors that discourage the use of high structure interviews. *Journal of Organizational Behavior, 25*, 29-46.

Lievens, F., van Dam, K., & Anderson, N. (2002). Recent trends and challenges in personnel selection. *Personnel Review, 31*, 580-601.

Lockyer, C., & Scholarios, D. (2007). The "rain dance" of selection in construction: rationality as ritual and the logic of informality. *Personnel Review, 36*, 528-548.

Macan, T. H. (2009). The employment interview: A review of current studies and directions for future research. *Human Resource Management Review, 19*, 203-218.

Macan, T. H., & Dipboye, R. L. (1990). The relationship of interviewer's preinterview impressions to selection and recruitment outcomes. *Personnel Psychology, 43*, 745-768.

Marcus, B. (2006). Relationships between faking, validity, and decision criteria in personnel selection. *Psychology Science, 48*, 226-246.

Marcus, B. (2009). 'Faking' from the applicant's perspective: A theory of self-presentation in personnel selection settings. *International Journal of Selection and Assessemt, 17*, 417-430.

Marlowe, C. M., Schneider, S. L., & Nelson, C. E. (1996). Gender and attractiveness biases in hiring decisions: Are more experienced managers less biased? *Journal of Applied Psychology, 81*, 11-21.

Marsh, H. W. (1992). Extracurricular activities: beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*, 553-562.

Martin, P. D., & Pope, J. (2008). Competency-based interviewing: Has it gone too far? *Industrial and Commercial Training, 40*, 81-86.

Maurer, S. D. (1997). The potential of the situational interview: Existing research and unresolved issues. *Human Resource Management Review, 7*, 185-201.

Maurer, T. J., Solamon, J. M., Andrews, K. D., & Troxtel, D. D. (2001). Interviewee coaching, preparation strategies, and response strategies in relation to performance in situational employment interviews: An extension of Maurer, Solamon, and Troxtel (1998). *Journal of Applied Psychology, 86*, 709-717.

Maurer, T. J., Solamon, J. M., & Lippstreu, M. (2008). How does coaching interviewees affect the validity of a structured interview? *Journal of Organizational Behavior, 29*, 355-371.

McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology, 79*, 599-616.

McDonnell, S. (1995). *You're hired! Secrets to successful job interviews*. New York: MacMillan.

McFarland, L. A., & Ryan, A. M. (2000). Variance in faking across noncognitive measures. *Journal of Applied Psychology, 85*, 812-821.

Michaels, E., Handfield-Jones, H., & Axelrod, B. (2001). *The war for talent*. Boston, MA: Harvard Business School Press.

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K. R., & Schmitt, N. (2007). Reconsidering the use of personality tests in personnel selection contexts. *Personnel Psychology, 60*, 683-729.

Morgeson, F. P., & Ryan, A. M. (2009). Reacting to applicant perspectives research: What's next? *International Journal of Selection and Assessment, 17*, 431-437.

Morris, S. (2007, October 18th). A stand-out CV: So much to do, so little time, *The Independent*.

Moscoso, S. (2000). Selection Interview: A Review of Validity Evidence, Adverse Impact and Applicant Reactions. *International Journal of Selection and Assessment, 8*, 237-247.

Moscovici, S. (1984). The phenomenon of social representations. In R. M. Farr & S. Moscovici (Eds.), *Social Representations* (pp. 3-69). Cambridge, UK: Cambrige University Press.

Motowidlo, S., J., Carter, G. W., Dunnette, M. D., Tippins, N., Warner, S., Burnett, J. R., et al. (1992). Studies of the structured behavioral interview. *Journal of Applied Psychology, 77*, 571-587.

Murphy, K. R. (2000). Impact of assessments of validity generalization and situational specificity on the science and practice of personnel selection. *International Journal of Selection and Assessment, 8*, 194-206.

Nancherla, A. (2008). Anticipated growth in behavioral interviewing. *T+D, 62,* 20.

Neill, N., Mulholland, G., Ross, V., & Leckey, J. (2004). The influence of part-time work on student placement. *Journal of Further and Higher Education, 28*, 123 - 137.

Nemanick, R. C. J., & Clark, E. M. (2002). The differential effects of extracurricular activities on attributions in résumé evaluation. *International Journal of Selection and Assessment, 10*, 206-217.

Nicklin, J. M., & Roch, S. G. (2009). Letters of recommendation: Controversy and consensus from expert perspectives. *International Journal of Selection and Assessment, 17*, 76-91.

Ones, D. S., & Viswesvaran, C. (1998). The effects of social desirability and faking on personality and integrity assessment for personnel selection. *Human Performance, 11*, 245-269.

Palmer, D. K., Campion, M. A., & Green, P. C. (1999). Interviewing training for both applicant and interviewer. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 337-351). Thousand Oaks, CA: Sage.

Peterson, M. H., Griffith, R. L., & Converse, P. D. (2009). Examining the role of applicant faking in hiring decisions: Percentage of fakers hired and hiring discrepancies in single-and multiple-predictor selection. *Journal of Business and Psychology, 24*, 373-386.

Petrie, M., & Halliday, T. (1994). Experimental and natural changes in the peacock's (Pavo cristatus) train can affect mating success. *Behavioral Ecology and Sociobiology, 35*, 213-217.

Petrie, M., Halliday, T., & Sanders, C. (1991). Peahens prefer peacocks with elaborate trains. *Animal Behaviour, 41*, 323-331.

Porter, L. W., Lawler, E. E., & Hackman, J. R. (1975). *Behavior in organizations*. New York: McGraw-Hill.

Posthuma, R. A., Morgeson, F. P., & Campion, M. A. (2002). Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time. *Personnel Psychology, 55*, 1-81.

Pulakos, E. D., & Schmitt, N. (1995). Experience-based and situational interview questions: Studies of validity. *Personnel Psychology, 48*, 289-308.

Ralston, S. M., & Kirkwood, W. G. (1999). The trouble with applicant impression management. *Journal of Business and Technical Communication, 13*, 190-207.

Rosenfeld, P. (1997). Impression management, fairness, and the employment interview. *Journal of Business Ethics, 16*, 801-808.

Roth, P. L., Bobko, P., & McFarland, L. A. (2005). A meta-analysis of work sample test validity: Updating and integrating some classic literature. *Personnel Psychology, 58*, 1009-1037.

Rubin, R. S., Bommer, W. H., & Baldwin, T. T. (2002). Using extracurricular activities as an indicator of interpersonal skills: Prudent evaluation or recruiting malpractice? *Human Resource Management, 41*, 441-454.

Ruch, F. L. (1942). A technique for detecting attempts to fake performance on a self-inventory type of personality test. In Q. McNemar & M. A. Merrill (Eds.), *Studies in personality* (pp. 229-234). New York: McGraw-Hill.

Russell, C. J., Colella, A., & Bobko, P. (1993). Expanding the context of utility: The strategic impact of personnel selection. *Personnel Psychology, 46*, 781-801.

Ryan, A. M., McFarland, L., Baron, H., & Page, R. (1999). An international look at selection practices: Nation and culture as explanations for variability in practice. *Personnel Psychology, 52*, 359-391.

Ryan, A. M., & Ployhart, R. E. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future. *Journal of Management, 26*, 565-606.

Rynes, S. L., Bretz, R. D. J., & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. *Personnel Psychology, 44*, 487-521.

Rynes, S. L., Colbert, A. E., & Brown, K. G. (2002). HR Professionals' beliefs about effective human resource practices: correspondence between research and practice. *Human Resource Management, 41*, 149-174.

Rynes, S. L., Giluk, T. L., & Brown, K. G. (2007). The very separate worlds of academic and practitioner periodicals in human resource management: Implications for evidence-based management. *Academy of Management Journal, 50*, 987-1008.

Rynes, S. L., Heneman, H. G. I., & Schwab, D. P. (1980). Individual reactions to organizational recruiting: A review. *Personnel Psychology, 33*, 529-542.

Sackett, P. R., & Lievens, F. (2008). Personnel selection. *Annual Review of Psychology, 59*, 419-450.

Salgado, J. F., & Moscoso, S. (2002). Comprehensive meta-analysis of the construct validity of the employment interview. *European Journal of Work and Organizational Psychology, 11*, 299 - 324.

Sanders, K., van Riemsdijk, M., & Groen, B. (2008). The gap between research and practice: a replication study on the HR professionals' beliefs about effective human resource practices. *International Journal of Human Resource Management, 19*, 1976-1988.

Schinkel, S., Van Dierendonck, D., & Anderson, N. (2004). The impact of selection encounters on applicants: An experimental study into feedback effects after a negative selection decision. *International Journal of Selection and Assessment, 12*, 197-205.

Schmid Mast, M., Frauendorfer, D., & Popovic, L. (2011). Cultural differences in recruiters' perception and evaluation of self-promoting and modest applicants in job interviews. *Journal of Personnel Psychology, 10*, 70-77.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124*, 262-274.

Schmidt, F. L., Hunter, J. E., & Pearlman, K. (1982). Assessing the economic impact of personnel programs on workforce productivity. *Personnel Psychology, 35*, 333-347.

Schmitt, N., Oswald, F. L., Kim, B. H., Gillespie, M. A., & Ramsay, L. J. (2004). The impact of justice and self serving bias explanations of the perceived fairness of different types of selection tests. *International Journal of Selection and Assessment, 12*, 160-171.

Schreurs, B., Derous, E., Proost, K., & De Witte, K. (2010). The relation between selection expectations, perceptions and organizational attraction: A test of competing models. *International Journal of Selection and Assessment, 18*, 447-452.

Schreurs, B., Derous, E., Proost, K., Notelaers, G., & De Witte, K. (2008). Applicant selection expectations: Validating a multidimensional measure in the military. *International Journal of Selection and Assessment, 16*, 170-176.

Sieverding, M. (2009). 'Be cool!': Emotional costs of hiding feelings in a job interview. *International Journal of Selection and Assessment, 17*, 391-401.

Smither, J. W., Reilly, R. R., Millsap, R. E., Pearlman, K., & Stoffey, R. W. (1993). Applicant reactions to selection procedures. *Personnel Psychology, 46*, 49-76.

Snyder, C. R., & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology, 86*, 518-527.

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics, 87*, 355-373.

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review, 92*, 434-459.

Stevens, C. K., & Kristof, A. L. (1995). Making the right impression: A field study of applicant impression management during job interviews. *Journal of Applied Psychology, 80*, 587-606.

Stewart, G. L., Darnold, T. C., Zimmerman, R. D., Parks, L., & Dustin, S. L. (2010). Exploring how response distortion of personality measures affects individuals. *Personality and Individual Differences, 49*, 622-628.

Terpstra, D. E., & Rozell, E. J. (1997). Why some potentially effective staffing practices are seldom used. *Public Personnel Management, 26*.

Tett, R. P., Anderson, M. G., Ho, C.-L., Yang, T. S., Huang, L., & Hanvongse, A. (2006). Seven nested questions about faking on personality tests: An overview and interactionist model of item-level response distortion. In R. L. Griffith & M. H. Peterson (Eds.), *A closer examination of applicant faking behavior* (pp. 43-83). Greenwich, CT: Information Age Publishing.

Tinbergen, N. (1952). Derived activities: their causation, biological significance, origin and emancipation during evolution. *Quarterly Review of Biology, 27*, 1-32.

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work, 20*, 285-304.

Tomlinson, M. (2008). Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education 29*, 49-61.

Tross, S. A., & Maurer, T. J. (2008). The effect of coaching interviewees on subsequent interview performance in structured experience-based interviews. *Journal of Occupational and Organizational Psychology, 81*, 589-605.

Trow, M. (2006). Reflections on the transition from elite to mass to universal access: Forms and phases of higher education in modern societies since WWII. In J. J. F. Forest & P. G. Altbach (Eds.), *International Handbook of Higher Education* (Vol. 18, pp. 243-280): Springer Netherlands.

van der Zee, K. I., Bakker, A. B., & Bakker, P. (2002). Why are structured interviews so rarely used in personnel selection? *Journal of Applied Psychology, 87*, 176-184.

Van Hooft, E. A. J., & Born, M. P. (2009, April). *Faking on personality tests: Is eye-tracking useful in detecting faking?* Paper presented at the 24th annual conference of the Society for Industrial and Organizational Psychology, New Orleans, LA.

Van Iddekinge, C. H., Raymark, P. H., & Roth, P. L. (2005). Assessing personality with a structured employment interview: Construct-related validity and susceptibility to response inflation. *Journal of Applied Psychology, 90*, 536-552.

Van Iddekinge, C. H., Roth, P. L., Raymark, P. H., & Odle-Dusseau, H. N. (in press). The criterion-related validity of integrity tests: An updated meta-analysis. *Journal of Applied Psychology*.

Vermeij, G. J. (1987). *Evolution and escalation: An ecological history of life*. Princeton, NJ: Princeton University Press.

Vermeij, G. J. (1994). The evolutionary interaction among species: Selection, escalation, and coevolution. *Annual Review of Ecology and Systematics, 25*, 219-236.

Viswesvaran, C., & Ones, D. S. (2004). Importance of perceived personnel selection system fairness determinants: Relations with demographic, personality, and job characteristics. *International Journal of Selection and Assessment, 12*, 172-186.

Wagner, W., & Hayes, N. (2005). *Everyday discourse and common-sense: The theory of social representations*. Basingstoke, UK: Palgrave-Macmillan Publishers.

Walther, F. R. (1969). Flight behaviour and avoidance of predators in Thomson's gazelle (Gazella Thomsoni Guenther 1884). *Behaviour, 34*, 184-221.

Wanous, J. P. (1989). Installing a Realistic Job Preview: Ten Tough Choices. *Personnel Psychology, 42*, 117-134.

Wexley, K. N., Sanders, R. E., & Yukl, G. A. (1973). Training interviewers to eliminate contrast effects in employment interviews. *Journal of Applied Psychology, 57*, 233-236.

Wexley, K. N., Yukl, G. A., Kovacs, S. Z., & Sanders, R. E. (1972). Importance of contrast effect in employment interviews. *Journal of Applied Psychology, 56*, 45-48.

Williams, D., Brown, P., & Hesketh, A. (2006). *How to get the best graduate job: Insider strategies for success in the graduate job market*. Harlow, UK: Pearson Prentice Hall Business.

Zahavi, A. (1975). Mate selection: A selection for a handicap. *Journal of Theoretical Biology, 53*, 205-214.

Zahavi, A., & Zahavi, A. (1999). *The handicap principle: A missing piece of Darwin's puzzle*. Oxford, UK: Oxford University Press.

Zhao, H., & Liden, R. C. (2011). Internship: A recruitment and selection perspective. *Journal of Applied Psychology, 96*, 221-229.

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Appendix I

Roulin, N., & Bangerter, A. (resubmitted). Understanding the academic-practitioner gap for structured interviews: "Behavioral" interviews diffuse, "structured" interviews do not. *International Journal of Selection and Assessment*.

Understanding the Academic-Practitioner Gap for Structured Interviews: "Behavioral" Interviews Diffuse, "Structured" Interviews Do Not

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Abstract

Recent studies about the academic-practitioner gap suggest that the non-adoption of evidenced-based practices can be explained by their diffusion through practitioner-oriented literature. This study extends these findings by investigating the case of the structured interview, which has not been widely adopted by practitioners despite its good psychometric properties. Using a social representations approach, we investigate how the academic concepts of "structured" and "behavioral" interviewing are diffused to practitioners in advice books. Results show that "behavioral" interviews diffuse while "structured" interviews do not, and that different arguments are used to describe these concepts. Facilitating the diffusion of structured interview practices requires academics to rethink their ways of communicating with practitioners through media.

Keywords: Structured interview, advice literature, academic-practitioner gap, social representations.

Understanding the Academic-Practitioner Gap for Structured Interviews: "Behavioral" Interviews Diffuse, "Structured" Interviews Do Not

For decades, personnel selection researchers have advocated increasing the validity and reliability of interviews by increasing their structure. Yet structured interview techniques are often described as being infrequently adopted by practitioners (Lievens & De Paepe, 2004; Ryan, McFarland, Baron, & Page, 1999; Terpstra & Rozell, 1993; van der Zee, Bakker, & Bakker, 2002). Numerous studies have examined individual and organizational factors explaining this non-adoption (e.g. Dipboye, 1994; Klehe, 2004; Lievens & De Paepe, 2004; van der Zee et al., 2002). In this paper, we argue that the lack of adoption of structured interviews can also be explained by media sources practitioners use when they seek information about how to conduct interviews. Practitioners are not directly influenced by research findings, because they seldom read scientific journals (Rynes, Colbert, & Brown, 2002; Sanders, van Riemsdijk, & Groen, 2008). Rather, they prefer reading practitioner-oriented magazines (Rynes et al., 2002) or advice books (Palmer, Campion, & Green, 1999) and thus may be more likely to adopt practices accessible to them from popular literature (Subramony, 2006). Therefore, how structured interview techniques are described in this popular literature can clarify an important but unstudied link in the academic-practitioner gap in personnel selection. We therefore investigate how the concept of structured interviewing is described in advice books over time. In what follows, we first describe the different worlds of the science and practice of selection interviewing before describing approaches that theorize how structured interviews may diffuse from academics to practitioners. Using a social representations approach, we then investigate to what extent and how the concept of structured interviewing is diffused in advice books.

Structured Interviewing: Science and Practice

The concept of interview structure is multidimensional (Chapman & Zweig, 2005) and there is no unique definition of the structured interview. Two main ways of structuring interviews have been explored by research: the standardization of the interview process

(Campion, Palmer, & Campion, 1997; Huffcutt & Arthur, 1994) and the use of patterned behavior or situational questions (Janz, 1982; Latham, Saari, Pursell, & Campion, 1980). Some authors consider the use of such questions as being only one aspect of interview structure (e.g., Campion et al., 1997; Chapman & Zweig, 2005), while others consider them as specific interview types (e.g., Latham & Skarlicki, 1996; Motowidlo et al., 1992). Still others (Barclay, 1999) use the terms interchangeably. Structured interviews as a general interview form thus involve following a standardized procedure, such as basing questions on job analyses, asking the same questions to all applicants, rating answers on anchored scales, and asking better questions (Campion, Campion, & Hudson, 1994; Campion et al., 1997; Campion, Pursell, & Brown, 1988; Huffcutt & Arthur, 1994). Behavioral interviews focus on asking applicants to describe how they would behave in hypothetical job situations (Latham & Saari, 1984; Latham et al., 1980; Latham & Sue-Chan, 1999; Maurer, 1997) or how they actually behaved in the past (Janz, 1982; Motowidlo et al., 1992). Both standardization and the use of behavioral questions increase psychometric properties beyond those of traditional unstructured interviews. For instance, standardizing interview questions and response scoring can increase predictive validity scores to .57 (Huffcutt & Arthur, 1994). Similarly, behavioral interviews show validity coefficients between .32 and .48 (Latham & Sue-Chan, 1999; Pulakos & Schmitt, 1995).

There is a well-documented contrast between the merits of structured interviews and their adoption in personnel selection practice. Traditionally, surveys have not found structured interviews to be in widespread use. For instance, Terpstra and Rozell (1993) found that only 29% of organizations used structured interviews. Lievens and De Paepe (2004) showed that only 20% of practitioners determined all main and follow-up questions in advance. Ryan et al. (1999) measured the proportion of organizations asking fixed interview questions in 20 countries and found results ranging from 10.3% (in Italy) to 59.1% (in Australia). However, despite this general pattern, some studies report much higher adoption rates. For instance, 62% of British organizations reportedly use structured interviews (Barclay, 1999) and 85.7%

of Canadian organizations use them "always" or "most of the time" (Simola, Taggar, & Smith, 2007). A recent survey with 2,500 US human resource (HR) executives found that 81% of them already used behavioral interviews or planned to use them in a near future (Nancherla, 2008). And an older Swiss survey (Thom & Zaugg, 1996) found that 85% of a sample of HR professionals used structured interviews.

It is unclear to what the discrepancies between these figures are due (for example, there does not seem to be a uniformly increasing trend over time). One possible explanation may be linked to the lack of consensus in the academic literature on structured interviews that was documented above. Academics are in the business of conceptual precision, and even if they do not agree on what constitutes an object of study, they are liable to define what they mean when using a particular label. However, practitioners (the respondents in the surveys reviewed above) are less likely to explicitly articulate labels like "structure" (Shrivastava & Mitroff, 1984). The polysemy and lack of consensus around the concept of structure may lead survey respondents to have very different concepts of what is a structured interview and thus to divergent results about the adoption rates of structured interviews, especially if the dimensions of the concept are not made explicit (Lievens & De Paepe, 2004). Implicit in such an explanation of the conflicting adoption rates above is the idea that the concept of structured interviews may change when it is diffused from academic discourse to practice. In the following section, we describe the theory of social representations, a framework from social psychology that describes how concepts change in content when diffusing from science to the general public. We then use this framework to derive hypotheses about the diffusion of the concept of structured interviews from personnel selection research to practitioners.

Diffusion of the Structured Interview: A Social Representations Approach

The theory of social representations (Moscovici, 1984; Wagner & Hayes, 2005) seeks to describe the social processes by which scientific knowledge is transformed into everyday knowledge used by laypersons. In modern societies, scientific findings and technological innovations are omnipresent in the public sphere, being repeatedly diffused in the media or

introduced into everyday routines. These ideas and technologies are often abstract, unfamiliar and complex in nature and thus threatening to laypersons, who tend to assimilate them to pre-existing schemes, a process called *anchoring* (Wagner & Hayes, 2005). For example, a seminal study showed that media depictions of psychoanalysis compared it to the Catholic rite of confession (Moscovici, 1961). Another showed that folk theories of madness assimilate it to organic illness (Jodelet, 1991). Work on social representations of biotechnology shows that genes are described as being something that is "injected" into genetically modified food (Wagner, Kronberger, & Seifert, 2002). The end result of anchoring processes typically is an increased "fit" between the novel concept and pre-existing lay schemes of thought.

The social representations approach advocates studying the progressive transformation of content that occurs when a scientific concept diffuses in popular culture. The mass media is a prominent vector of these diffusion processes; indeed, it is through repeated media depictions that the meaning of a concept changes over time. Social representations researchers thus conduct longitudinal studies of mass media coverage of a concept, or experimental studies featuring repeated transmission of information along a chain of individuals (Bangerter, 2000; E. G. T. Green & Clémence, 2008). These studies reveal that anchoring involves selective retention, suppression or amplification of certain aspects of a concept. In a study of the Mozart Effect (i.e., the now-debunked finding that listening to classical music increases intelligence), Bangerter and Heath (2004) found that media depictions of what constituted the Mozart Effect evolved over several years. The original scientific results were selectively distorted, such that limitations on the original findings (e.g., the short-term nature of the effect) were dropped, whereas other aspects were amplified or even invented. Over time, the social representation of the Mozart Effect came to fit more and more with laypersons' concerns about the enhancement of children's intelligence, thus illustrating how transformation of content often increases the fit between the original concept and lay concerns.

Social representations theory can be applied to understand the diffusion and adoption of structured interviews. Interview structure is a complex and multidimensional concept. A study of recruiters' social representations found that structure was assimilated to the notion of "having a list of questions" (Bangerter, Krings, Petetin, & Blatti, 2008). Moreover, the labels "structured" and "unstructured" exhibited both positive and negative connotations, thereby influencing responses to questions about recruiters' practices. More generally, however, social representations theory offers a novel perspective on understanding the diffusion of structured interviews in at least three ways. First, it suggests the importance of a long-term, dynamic perspective on *processes* of diffusion and adoption as a complement to cross-sectional surveys on *outcomes* such as those reviewed above. Second, it suggests focusing on the intermediary actors (e.g., journalists and the mass media) that translate scientific findings into social representations. Third, it suggests focusing on the transformation of content over time, in other words analyzing which aspects of a concept get diffused and which aspects do not. We now use these guidelines to describe the rationale of our study on the diffusion of structured interviews in the advice literature for recruiters.

Studying the Process of Structured Interview Diffusion Across the Academic-Practitioner Gap

Recently, Rynes and colleagues (2007) suggested that practitioners do not adopt evidence-based practices because they do not read research literature and are thus not exposed to academic findings. They prefer to read intermediate literature, such as practitioner-oriented periodicals or books, to get information about management-related evidence. Yet such literature does not focus on academic findings. For instance, three important research findings received little coverage in popular US (Rynes et al., 2007) and British (Guest, 2007) periodicals. Coverage was also sometimes inconsistent with research findings. Rynes et al. concluded that there is "a very significant failure of academic research to transfer to important practitioner sources of information" (2007, p. 999). This finding is important, not least because it complements survey studies by focusing on intermediate literature. But it has some

limitations. First, structured interviewing was not investigated. Second, the finding reflects an outcome but does not inform us about the processes leading to that outcome. Third, and consequently, it is not clear how inconsistencies with research findings have emerged. In this article, we extend Rynes et al.'s study to the case of structured interviews and to the study of another kind of intermediate literature, advice books (or how-to books). Such books are popular among practitioners, despite being often criticized by academics (Freeman, 1985). In personnel selection, they are used by recruiters as a complement to training provided by consultants (Palmer et al., 1999). We adopt a social representations perspective as described above, analyzing trends in the presence of structured interviews in advice books about selection interviews over the long term (two decades), in order to investigate processes of diffusion rather than outcomes, and thus explaining how possible inconsistencies between research and practice may emerge. Below we describe three sets of hypotheses pertaining to these processes.

Social representations research suggests that, through the process of anchoring, the content of structured interviews as represented in media coverage will be transformed so as to better fit practitioners' schemes of thought and concerns. This offers a rationale for predicting systematic differences in how content emerges and survives in the advice literature over time. More specifically, we suggest a difference in how the concepts of "structured" and "behavioral" interviews will diffuse over time. We use these two labels in quotation marks to refer to two distinct interview forms in the advice literature. As described above, the difference between these two labels in the scientific literature is tenuous – behavioral interviews are often viewed as a subcategory of structured interviews. However, the way these concepts are described in the advice literature may deviate from the original scientific concepts. Many previous studies have documented negative perceptions of structured interviews on the part of recruiters (Chen, Tsai, & Hu, 2008; Dipboye, 1994). Recruiters consider unstructured interviews to have more value, to be more accepted by their organization, and to allow more control over the selection process (van der Zee et al., 2002).

They also believe structured interviews reduce discretion, complicate interview preparation, and reduce rapport with applicants (Chapman & Zweig, 2005; Harris & Eder, 1999; Lievens & De Paepe, 2004). Such attitudes may partly be due to the way the label "structure" is connotated (Bangerter et al., 2008). As such, interview forms labeled as "behavioral" may not inherit the bad reputation of structured interviews. Moreover, some data suggests that employers consistently report high adoption rates when responding to the label "behavioral" (Nancherla, 2008). For these reasons, we surmise that differences in labeling may have important consequences for the diffusion of structured interview content in the advice literature, and therefore suggest the following hypotheses:

Hypothesis 1a: Mentions of "structured" interviews in the advice literature will not increase over time

Hypothesis 1b: Mentions of "behavioral" interviews in the advice literature will increase over time.

A social representations approach also suggests that the content of a concept may get transformed during the course of diffusion, becoming more and more assimilated to pre-existing schemes of thought. Therefore, if, as hypothesized above, structured interviews and behavioral interviews indeed diffuse differently, it may be because they are described according to different features in the advice literature. In describing structured interviews, academic psychologists tend to emphasize their psychometric advantages (e.g., job analysis, reliability and validity). However, such arguments are often lost on practitioners who tend to evaluate personnel innovations according to a different frame of reference and using different terminology (Cascio, 1991; Johns, 1993; Shrivastava & Mitroff, 1984; Terpstra & Rozell, 1997). Practitioners often are indifferent to research support for an innovation, being more interested in whether it fits their managerial style (Simola et al., 2007) and its administrative implications (Johns, 1993). Practitioner interests correspond to a managerial approach that uses business terms. For instance, competency modeling often replaces job analysis (Simola et al., 2007), and validity and reliability are not important to practitioners (Herriot, 1993;

Terpstra & Rozell, 1997), who prefer to talk about applicants' practical job experience (Singer & Bruhns, 1991) or links to organizational strategy (Latham, 2007). One reason why, as hypothesized above, "behavioral" interviews may diffuse more than "structured" interviews is that they are described according to features that are more attractive to practitioners. We therefore surmise that different features will be used to describe "structured" and "behavioral" interviews in the advice literature, proposing the following hypotheses:

Hypothesis 2a: "Structured" interviews will be described using more technical (psychometric) arguments than administrative (managerial) arguments

Hypothesis 2b: "Behavioral" interviews will be described using more administrative (managerial) arguments than technical (psychometric) arguments

Finally, a social representations approach focuses attention on the intermediary actors that transmit scientific content in the mass media. These actors delve into expert knowledge with the intention of diffusing it to laypersons. They thus play a key role in the potential transformation of content, because (1) they may themselves have different understandings of expert concepts than the experts they cite, and (2) they are designing their message to fit their audience's knowledge (Clark & Murphy, 1982). This suggests that the authors of advice books for structured interviews may describe them differently from how academics would, depending on their background. Authors of advice books have very different backgrounds. Some are academics, but others may be consultants, HR professionals, or even journalists. These backgrounds may influence their knowledge about interviewing and thus what techniques they advise to use and how they describe these techniques. Authors with an academic background (e.g., university-based researchers, or at least authors with a PhD) are more likely to be familiar with research findings than authors without such a background (Cascio, 2007; Cohen, 2007). Therefore, because structured and behavioral interviews are research-based innovations, we expect authors with an academic background to mention both the labels "structured" and "behavioral" interviews more frequently than authors without such a background.

Hypothesis 3a: Books with academic authors will describe "structured" interviews more often than books with no academic authors

Hypothesis 3b: Books with academic authors will describe "behavioral" interviews more often than books with no academic authors

Method

Sample

To constitute a representative sample of job interview advice books, we first searched for such literature on Amazon.com under "interviewing", leading to more than 1,200 hits. We removed books unrelated to selection interviews, books offering advice for specific jobs (e.g., flight attendants, Java programmers), multiple references to the same book or re-editions (keeping only the earliest version available), and books offering advice for applicants. To study potential long-term trends, we selected books from 5 periods; those published in 1990 or before, between 1991 and 1995, between 1995 and 2000, between 2001 and 2005, and in 2006 or after. We randomly ordered 100 advice books from these different periods of time. Due to unforeseeable constraints on the availability of these books, our final sample contains 83 books, representing 23, 12, 20, 12, and 16 books for these five periods, respectively. Of these books, 68 were published in the US, 13 in the UK, and 2 in Canada.

Coding

We analyzed the content of the books to evaluate how structured interviews and behavioral interviews were presented across time. The unit of analysis is the book itself. Because advice books often contain a large amount of information (e.g., several hundred pages) we first looked at the table of contents and the index to identify sections and chapters including potentially useful data. We generally focused on the sections about how interviews are organized, the types of interview techniques that can be used or the questions that can be asked. For all variables coded, we double-coded all 83 books and assessed interrater agreement by computing Cohen's Kappa statistic. Interrater agreement was generally acceptable to perfect (Kappa statistics are reported below for each variable).

To test Hypotheses 1a and 1b, we coded whether or not terms related to "structured" or "behavioral" interviewing was mentioned. For "structured" interviews we coded whether the term was mentioned in the book or not (Kappa = .83). The coding for "behavioral" interviews was done in two steps because we discovered that some books presented behavioral questions (e.g. *tell me about a time when you had to deal with an angry client*) but did not describe them as behavioral questions and did not mention "behavioral" interviews as a specific technique. We take this as interesting circumstantial evidence that behavioral questions have been in circulation before the advent of structured interviewing (and probably without their users' awareness of their potential psychometric merits). We thus decided to code the two cases independently to capture these different phenomena. Thus, we first coded "behavioral" interviewing as present when the book described "behavioral" interviewing as a specific technique and absent otherwise (including synonyms of "behavioral" , such as "behavior-based", "competency-based", or "situational"; Kappa = .73). If "behavioral" interviewing was not mentioned as a technique, we further checked for the presence or absence of behavioral questions (Kappa = .65).

To test hypotheses 2a and 2b, we coded the presence (1) or absence (0) of each of three keywords representing technical/psychometric arguments and three keywords representing administrative/managerial arguments in descriptions of "structured" and "behavioral" interviews. *Validity*, *reliability*, and *job analysis* were the technical keywords. They represent indicators of psychometric vocabulary (e.g., Herriot, 1993). *Competency*, *strategy*, and *practical job experience* were the administrative keywords. They represent indicators of managerial concerns relative to selection (Latham, 2007; Lievens & Sanchez, 2007; Simola et al., 2007). We added up the score for each set of keywords together to create a technical and an administrative score (ranging from 0 to 3) for each book presenting "structured" interviews and each book presenting "behavioral" interviews. (Kappas for each keyword range from .68 to 1). We computed Cronbach's alpha using the upper bound of the phi coefficient, a method suggested when using dichotomous items (Sun et al., 2007), and

obtained good levels of reliability (α = .88 for the technical score and α = .91 for the administrative score). To test hypotheses 3a and 3b, we coded whether or not one of the authors was indicated as holding a PhD as judged from the cover or author biographical notes. (Kappa = .83).

Results

Because advice books were published in different countries, we first compared the presence of "structured" and "behavioral" interviews in books from North America (70 books) and the UK (13 books). "Behavioral" interview were discussed in 46% of books from both regions, $\chi 2(1, N = 83) = .01$, $p = .98$, and behavioral questions were discussed in 19% of North American books and 15% of UK books, $\chi 2(1, N = 83) = .08$, $p = .78$. But books published in the UK (62%) mentioned "structured" interviews more often than North American ones (33%), $\chi 2(1, N = 83) = 3.85$, $p = .05$.

We used logistic regression to analyze the evolution of the presence of "structured" interviews, "behavioral" interviews, and behavioral questions across time. The three types of interviews/questions were entered as dependent variables in three different regression analyses, with the five categories of years of publication as a continuous independent variable and country where the book was published as a control variable. Results showed no effect of publication date and country on the presence of "structured" interviews and behavioral questions. But we found an effect of publication date on the presence of "behavioral" interviews, while country had no effect (Figure 1). Over time, "structured" interviews are infrequently mentioned, with a stable proportion of 33 to 42 percent of advice books describing them, supporting Hypothesis 1a. The proportion of books describing "behavioral" interviews increased over time from less than 10 percent before 1990 to more than 75 percent after 2000, $B = .869$, $SE = .202$, Wald $\chi^2(1, N = 83) = 18.484$, $p < .001$, supporting Hypothesis 1b[1].

[1] The space dedicated to describing ″structured″ and ″behavioral″ interviews in advice books was often limited. On average, the 31 books that described “structured” interviews did so only on 2.6 pages (SD = 2.9, Max = 10).

Visual inspection of Figure 1 suggests that before 2000, a number of books described "behavioral" interviews as a specific interview technique while others only offered examples of behavioral questions. After 2000 the proportion of books only offering examples of behavioral questions declined while the proportion describing "behavioral" interviews continued to increase. This may suggest that erstwhile mentions of behavioral questions became subsumed under the label of "behavioral" interviewing as this technique became more widely diffused.

[Figure 1 here]

We used paired-sample *t*-tests to test Hypotheses 2a and 2b regarding the use of technical and administrative arguments to describe "structured" and "behavioral" interviews. Results showed that technical/psychometric arguments ($M = .967$, $SD = 1.079$) were more frequent than administrative/managerial ones ($M = .387$, $SD = .715$) when describing "structured" interviews, $t(30) = 3.153$, $p < .01$. Administrative arguments ($M = 1.184$, $SD = .982$) were more frequent than technical ones ($M = .421$, $SD = .683$) when describing "behavioral" interviews, $t(37) = 4.476$, $p < .001$. These results support Hypotheses 2a and 2b. Conversely, we also used *t*-tests to compare the use of technical arguments to describe the two concepts and found that they were used significantly more often to describe "structured" than "behavioral" interviews, $t(67) = 2.556$, $p < .05$. We also tested the use of administrative arguments to describe the two concepts and found that they were significantly more used to describe "behavioral" than "structured" interviews, $t(67) = 3.824$, $p < .001$.

Finally, books for which at least one author held a PhD described "structured" interviews more often than those that did not have any PhD holders as authors, providing support for Hypothesis 3a. Of the 37 books with authors holding a PhD, 21 (57%) mentioned "structured" interviews, compared with only 10 of the 46 books without a PhD holder as author (22%), $\chi^2(1, N = 83) = 7.059$, $p < .001$. No significant difference was observed for

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Similarly, the 38 books that described “behavioral” interviews did so only on 3.6 pages on average ($SD = 4.3$, $Max = 22$).

"behavioral" interviews, mentioned by 46% of books irrespective of whether authors included a PhD holder or not. Hypothesis 3b was therefore rejected. Interestingly, when describing "structured" interviews, technical arguments were used more often in books with PhD holders as authors ($M = 1.238$, $SD = 1.091$) than books without them ($M = .400$, $SD = .843$), $t(29) = 2.137$, $p < .05$. There was no significant difference between these two categories regarding administrative arguments used to describe "behavioral" interviews ($M = 1.471$, $SD = .943$ and $M = .952$, $SD = .973$ respectively, $t(36) = 1.654$, $p = .107$).

Discussion

In this study, we used the theory of social representations to better understand how structured interview techniques are diffused in popular media. We investigated mentions of "structured" and "behavioral" interviewing in popular media over time, the arguments used to describe them, and the types of authors who describe them. This study extends Rynes et al.'s (2007) findings to structured interview techniques, with another medium (practitioner-oriented advice books instead of magazines), and with data from a longer period of time (two decades).

Through the process of anchoring (Wagner & Hayes, 2005), social representations theory suggests that scientific concepts are diffused in popular culture through mass media, and that different aspects of a concept may get selected out or amplified during this process (Wagner & Hayes, 2005). The multidimensional concept of interview structure (Chapman & Zweig, 2005), with its features regarding standardization and the use of behavioral questions (Campion et al., 1997), may diffuse to practitioners through interview advice books (Palmer et al., 1999). Survey results suggest that "structured" interviewing may be negatively connotated by practitioners (e.g., Bangerter et al., 2008; Chen et al., 2008; Lievens & De Paepe, 2004) while "behavioral" interviewing apparently receive more support from them (Nancherla, 2008). Also, lack of familiarity or awareness may explain why staffing practices do not diffuse (Terpstra & Rozell, 1997). We found differences in the coverage of "structured" and "behavioral" interviewing in the advice literature, showing that "behavioral" interviews

diffuse while "structured" interviews do not. On the one hand, "structured" interviewing is not a widely diffused concept in the practitioner-oriented advice literature. In the five periods of time assessed in this study, it was never present in more than 42% of advice books. Yet, we note that "structured" interviews seem to diffuse more in the UK than in North America. On the other hand, "behavioral" interviewing has increasingly diffused in the English-language advice literature, independently of the country of publication. After 2000 more than three quarters of books describe this concept, suggesting that it is well-known in the industry. We also found that mentions of behavioral questions that did not refer to "behavioral" interviewing as a technique seemed to decrease after 2000, possibly because they became subsumed under "behavioral" interviewing.

Another example of anchoring we found was that different arguments were used to describe the concepts of "structured" and "behavioral" interviews. Books tend to use technical or psychometric arguments to describe "structured" interviews. For instance, Bell (1992, p. 75) explains that the "examination of psychometric properties for hiring entry-level production employees reveals high interrater reliability and predictive validity, as well as evidence for test fairness and utility. In other words, structured interviewing works." Similarly, P. C. Green (2007, p. 27) explains that "some level of structure is essential for reliable measurement of a candidate’s skills and valid prediction of performance". Such arguments represent the traditional academic way to communicate the benefits of structured interviewing: Practitioners should adopt such techniques because of the overwhelming evidence regarding their validity and reliability. However, these technical arguments are not compelling to practitioners (Johns, 1993; Terpstra & Rozell, 1997), who are not trained to understand them (Cohen, 2007). Such arguments may lead practitioners to interpret structured interviews as something complex or abstract, explaining their negative attitudes towards them (Bangerter et al., 2008).

Conversely, books tend to describe "behavioral" interviews using administrative or managerial arguments. For instance, Davila and Kursmark (2005, p. 14) explain that "in

behavior-based interviewing, each question is deliberately designed to obtain behavioral examples to assess the candidate's competence in a particular job-related area". Similarly, Yeung (2008, p. 9) argues that "by identifying and articulating the competencies that are necessary for each particular job, an interviewer can decide on appropriate questions to find the best person for the job". Such arguments may be more easily accepted by practitioners because they are closer to the language of business (Latham, 2007). Practitioners may thus be more receptive to arguments linking structured interviewing to the notion of competencies.

Finally, social representations theory stresses the key role of intermediate actors (e.g., book authors) in the transmission and potential transformation of scientific knowledge. We supposed that authors with an academic background would be more likely to describe "structured" and "behavioral" interviews than authors without such a background. Our results show that "structured" interviews are indeed described more often in books written by authors with an academic background (i.e., PhDs) than in books written by non-academic authors. Academic authors also use more technical arguments when describing "structured" interviews than non-academic authors. These results can be explained by differences in familiarity with research (Cascio, 2007) and because academics and practitioners weight psychometric evidence differently (Herriot, 1993). Academic authors are certainly more familiar with personnel selection findings, such as the large body of evidence regarding the good psychometric properties of structured interviews. Conversely, and contrary to our expectations, "behavioral interviews" are equally frequently mentioned in books written by academic and non-academic authors. And both types of authors used more administrative than technical arguments.

This study has some limitations. First, even if advice books are popular among practitioners (Palmer et al., 1999), it is unclear how many practitioners actually read them. Furthermore, practitioners also get information from other media sources, which may provide different advice than investigated here. Practitioner-oriented magazines (Rynes et al., 2002) or websites (Cohen, 2007) are two examples. Future studies may extend our study to magazine

articles about selection interviews. Websites may be more difficult to study over time because they are regularly updated. In addition, we argued that the lack of adoption of structured interview techniques may potentially be explained by their lack of diffusion in the advice literature. These books are seen as credible sources of knowledge by practitioners (Cohen, 2007). But we do not know how practitioners take advice into consideration when choosing how to conduct interviews. Future studies might explore this issue by investigating how practitioners react to advice books, what advice they remember after reading them, and to what extent they apply advice in practice. Finally, our study is based on a limited number of advice books in English. Our conclusions are thus limited to English-speaking countries, and similar literature in other languages may contain different advice. However, an analysis of advice books in French we conducted subsequently to the main study yields similar results as with books in English (i.e. increasing mention of "behavioral" interviews only)[2].

Despite these limitations, our study has implications for expanding research on the academic-practitioner gap. Perhaps the most important contribution is the theory-driven approach we have presented based on social representations theory. The volume of publications on the academic-practitioner gap in management seems to be increasing. However, many of these publications constitute empirical studies or commentary. In the future, to make progress, it will be important to apply cutting-edge theories from fields of study specialized in investigating the links between science and everyday practice. A particular advantage of social representations theory is its focus on processes of diffusion rather than outcomes, and on the role of the media as an intermediary between science and practice.

Our results also have practical implications for bridging the academic-practitioner gap regarding structured interview techniques. Promoting higher levels of structure in interview

[2] We sampled 45 advice books for applicants (advice books for recruiters are rare in French) to replicate the findings relative to Hypotheses 1a and 1b.We compared the presence of both interview types in books published before and after 2000. Results showed no difference for "structured" interviews (mentioned in none of books before 2000 and 12% after 2000), $\chi^2(1, N = 45) = 2.35$, $p = .13$. But "behavioral" interviews were mentioned more often after than before 2000 (58% vs. 21%), $\chi^2(1, N = 45) = 6.04$, $p = .01$.

practice constitutes a key challenge for personnel selection (e.g., Lievens & De Paepe, 2004). Our results suggest that accumulating additional evidence about the validity or reliability of structured interview techniques will probably not help further this endeavor. On the contrary, we believe that the solution will come from a closer collaboration between academics and practitioners (e.g., Klehe, 2004; Rynes, Bartunek, & Daft, 2001; Terpstra & Rozell, 1997). We further believe that academics need to rethink the way they communicate with practitioners. Our results showed that "behavioral" interviews were described with more managerial arguments than "structured" interviews. Therefore, we agree with Latham (2007) that academics should learn to communicate the advantages of evidence-based practices (e.g., structured and behavioral interviews) using practitioners' language.

In conclusion, diffusing structured interviewing practices may require academics to increase their participation in intermediate publications such as practitioner-oriented magazines, books, and websites (Guest, 2007). To do so, they may collaborate with partners who can help creating material (e.g., books, website content) synthesizing evidence-based practices, such as structured interview techniques, that can be communicated to practitioners (Rynes, 2007). Only 46 percent of the books in our sample were written (or co-written) by authors with a PhD. Increasing academics' participation in such joint ventures can help controlling the quality of information transmitted to practitioners and describe state-of-the-art information about best practices. If academics can describe structured interviewing using the right language, this may increase the chances that practitioners get exposed to arguments that will convince them to adopt these best practices.

References

Bangerter, A. (2000). Transformation between scientific and social representations of conception: The method of serial reproduction. *British Journal of Social Psychology, 39*, 521-535.

Bangerter, A., & Heath, C. (2004). The Mozart effect: Tracking the evolution of a scientific legend. *British Journal of Social Psychology, 43*, 605–623.

Bangerter, A., Krings, F., Petetin, M., & Blatti, S. (2008). Les représentations de l'entretien structuré chez les recruteurs [recruiters' representations of the structured interview]. *Psychologie du Travail et des Organisations, 14*, 258-275.

Barclay, J. M. (1999). Employee selection: A question of structure. *Personnel Review, 28*, 134-151.

Bell, A. H. (1992). *Extraviewing: Innovative ways to hire the bests*. Homewood, IL: Business One Irwin.

Campion, M. A., Campion, J. E., & Hudson, P. J. J. (1994). Structured interviewing: A note on incremental validity and alternative question types. *Journal of Applied Psychology, 79*, 998-1002.

Campion, M. A., Palmer, D. K., & Campion, J. E. (1997). A review of structure in the selection interview. *Personnel Psychology, 50*, 655-702.

Campion, M. A., Pursell, E. D., & Brown, B. K. (1988). Structured interviewing: Raising the psychometric properties of the employment interview. *Personnel Psychology, 41*, 25-42.

Cascio, W. F. (1991). *Costing human resources: The financial impact of behavior in organizations*. Boston, MA: PWS-Kent.

Cascio, W. F. (2007). Evidence-based management and the marketplace for ideas. *Academy of Management Journal, 50*, 1009-1012.

Chapman, D. S., & Zweig, D. I. (2005). Developing a nomological network for interview structure: Antecedents and consequences of the structured selection interview. *Personnel Psychology, 58*, 673-702.

Chen, Y. C., Tsai, W. C., & Hu, C. Y. (2008). The influences of interviewer-related and situational factors on interviewer reactions to high structured job interviews. *International Journal of Human Resource Management, 19*, 1056-1071.

Clark, H. H., & Murphy, G. L. (1982). Audience design in meaning and reference. In J.-F. Le Ny & W. Kintsch (Eds.), *Language and comprehension*. Amsterdan, Netherlands: North-Holland Publishing Company.

Cohen, D. J. (2007). The very separate worlds of academic and practitioners publications in human resource management: Reasons for the divide and concrete solutions for bridging the gap. *Academy of Management Journal, 50*, 1013-1019.

Davila, L., & Kursmark, L. (2005). *How to choose the right person for the right job every time*. New York: McGraw-Hill.

Dipboye, R. L. (1994). Structured and unstructured selection interviews: Beyond the job-fit model. *Research in Personnel and Human Resources Management, 12*, 79-123.

Freeman, F. H. (1985). Books that mean business: The management best sellers. *The Academy of Management Review, 10*, 345-350.

Green, E. G. T., & Clémence, A. (2008). Discovery of the faithfulness gene: A model of transmission and transformation of scientific information. *British Journal of Social Psychology, 47*, 497-517.

Green, P. C. (2007). *Get Talent! Interview for actions, select for results*. Memphis, TN: SkilFast.

Guest, D. E. (2007). Don't shoot the messenger: A wake-up call for academics. *Academy of Management Journal, 50*, 1020-1026.

Harris, M. M., & Eder, R. W. (1999). The state of employment interview practice: commentary and extension. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 369-398). Thousands Oaks, CA: Sage.

Herriot, P. (1993). A paradigm bursting at the seams. *Journal of Organizational Behavior, 14*, 371-375.

Huffcutt, A. I., & Arthur, W. J. (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. *Journal of Applied Psychology, 79*, 184-190.

Janz, T. (1982). Initial comparisons of patterned behavior description interviews versus unstructured interviews. *Journal of Applied Psychology, 67*, 577-580.

Jodelet, D. (1991). *Madness and social representations: Living with the mad in one French community*. Berkeley, CA: University of California Press.

Johns, G. (1993). Constraints on the adoption of psychology-based personnel practices: Lessons from organizational innovation. *Personnel Psychology, 46*, 569-592.

Klehe, U.-C. (2004). Choosing how to choose: Institutional pressures affecting the adoption of personnel selection procedures. *International Journal of Selection and Assessment, 12*, 327-342.

Latham, G. P. (2007). A speculative perspective on the transfer of behavioral science findings to the workplace. "The times they are a-changin'". *Academy of Management Journal, 50*, 1027-1032.

Latham, G. P., & Saari, L. M. (1984). Do people do what they say? Further studies on the situational interview. *Journal of Applied Psychology, 69*, 569-573.

Latham, G. P., Saari, L. M., Pursell, E. D., & Campion, M. A. (1980). The situational interview. *Journal of Applied Psychology, 64*, 422-427.

Latham, G. P., & Skarlicki, D. P. (1996). The effectiveness of situational, patterned behaviour, and conventional structured interview in minimising in-group favouritism of Canadian francophone managers. *Applied Psychology: An International Review, 45*, 177-184.

Latham, G. P., & Sue-Chan, C. (1999). A meta-analysis of the situational interview: An enumerative review of reasons for its validity. *Canadian Psychology, 40*, 56-67.

Lievens, F., & De Paepe, A. (2004). An empirical investigation of interviewer-related factors that discourage the use of high structure interviews. *Journal of Organizational Behavior, 25*, 29-46.

Lievens, F., & Sanchez, J. I. (2007). Can training improve the quality of inferences made by raters in competency modeling? A quasi-experiment. *Journal of Applied Psychology, 92*, 812-819.

Maurer, S. D. (1997). The potential of the situational interview: Existing research and unresolved issues. *Human Resource Management Review, 7*, 185-201.

Moscovici, S. (1961). *La psychanalyse, son image et son public*. Paris: Presses Universitaires de France.

Moscovici, S. (1984). The phenomenon of social representations. In R. M. Farr & S. Moscovici (Eds.), *Social Representations* (pp. 3-69). Cambridge, UK: Cambrige University Press.

Motowidlo, S., J., Carter, G. W., Dunnette, M. D., Tippins, N., Warner, S., Burnett, J. R., et al. (1992). Studies of the structured behavioral interview. *Journal of Applied Psychology, 77*, 571-587.

Nancherla, A. (2008). Anticipated growth in behavioral interviewing. *T+D, 62,* 20.

Palmer, D. K., Campion, M. A., & Green, P. C. (1999). Interviewing training for both applicant and interviewer. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 337-351). Thousand Oaks, CA: Sage.

Pulakos, E. D., & Schmitt, N. (1995). Experience-based and situational interview questions: Studies of validity. *Personnel Psychology, 48*, 289-308.

Ryan, A. M., McFarland, L., Baron, H., & Page, R. (1999). An international look at selection practices: Nation and culture as explanations for variability in practice. *Personnel Psychology, 52*, 359-391.

Rynes, S. L. (2007). Let's create a tipping point: What academics and practitioners can do, alone and together. *Academy of Management Journal, 50*, 1046-1054.

Rynes, S. L., Bartunek, J. M., & Daft, R. L. (2001). Across the great divide: Knowledge creation and transfer between practitioners and academics. *Academy of Management Journal, 44*, 340-355.

Rynes, S. L., Colbert, A. E., & Brown, K. G. (2002). HR Professionals' beliefs about effective human resource practices: correspondence between research and practice. *Human Resource Management, 41*, 149-174.

Rynes, S. L., Giluk, T. L., & Brown, K. G. (2007). The very separate worlds of academic and practitioner periodicals in human resource management: Implications for evidence-based management. *Academy of Management Journal, 50*, 987-1008.

Sanders, K., van Riemsdijk, M., & Groen, B. (2008). The gap between research and practice: a replication study on the HR professionals' beliefs about effective human resource practices. *International Journal of Human Resource Management, 19*, 1976-1988.

Shrivastava, P., & Mitroff, I. I. (1984). Enhancing organizational research utilization: The role of decision makers' assumptions. *Academy of Management Review, 9*, 18-26.

Simola, S. K., Taggar, S., & Smith, G. W. (2007). The employment selection interview: Disparity among research-based recommendations, current practices and what matters to human rights tribunals. *Canadian Journal of Administrative Sciences, 24*, 30-44.

Singer, M. S., & Bruhns, C. (1991). Relative effect of applicant work experience and academic qualification on selection interview decisions: A study of between-sample generalizability. *Journal of Applied Psychology, 76*, 550-559.

Subramony, M. (2006). Why organizations adopt some human resource management practices and reject others: An exploration of rationales. *Human Resource Management, 45*, 195-210.

Sun, W., Chou, C.-P., Stacy, A., Ma, H., Unger, J., & Gallaher, P. (2007). SAS and SPSS macros to calculate standardized Cronbach's alpha using the upper bound of the phi coefficient for dichotomous items. *Behavior Research Methods, 39*, 71-81.

Terpstra, D. E., & Rozell, E. J. (1993). The relationship of staffing practices to organizational level of measures of performance. *Personnel Psychology, 46*, 27-48.

Terpstra, D. E., & Rozell, E. J. (1997). Why some potentially effective staffing practices are seldom used. *Public Personnel Management, 26*.

Thom, N., & Zaugg, R. J. (1996). *Recrutement et sélection du personnel dans les entreprises suisses [Personnel recrutment and selection in Swiss companies]*. Arbeitsbericht Nr. 12. Instituts für Organisation und Personal der Universität Bern. Bern, Switzerland.

van der Zee, K. I., Bakker, A. B., & Bakker, P. (2002). Why are structured interviews so rarely used in personnel selection? *Journal of Applied Psychology, 87*, 176-184.

Wagner, W., & Hayes, N. (2005). *Everyday discourse and common-sense: The theory of social representations*. Basingstoke, UK: Palgrave-Macmillan Publishers.

Wagner, W., Kronberger, N., & Seifert, F. (2002). Collective symbolic coping with new technology: Knowledge, images and public discourse. *British Journal of Social Psychology, 41*, 323-343.

Yeung, R. (2008). *Successful interviewing and recruitment*. London: Kogan Page.

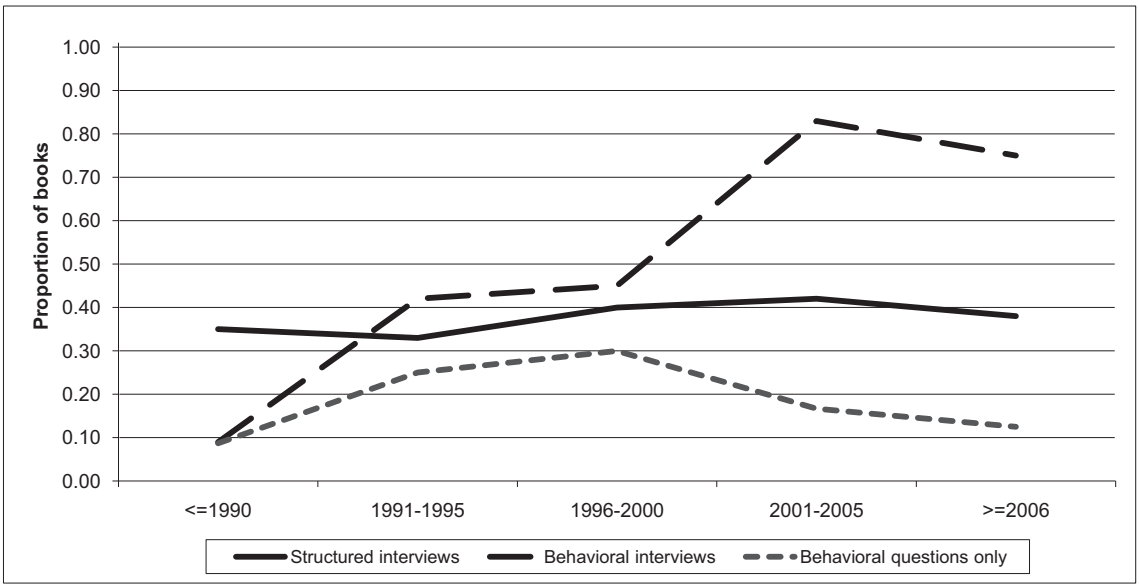

Figure 1: Mentions of "structured" and "behavioral" interviews and behavioral questions in advice books over time

Appendix II

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Personnel Selection as a Signaling Game

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Personnel selection involves exchanges of information between job market actors (applicants and organizations). These actors do not have an incentive to exchange accurate information about their ability and commitment to the employment relationship unless it is to their advantage. This state of affairs explains numerous phenomena in personnel selection (e.g., faking). Signaling theory describes a mechanism by which parties with partly conflicting interests (and thus an incentive for deception) can nevertheless exchange accurate information. We apply signaling theory to personnel selection, distinguishing between adaptive relationships between applicants and organizations, among applicants, and among organizations. In each case, repeated adaptations and counteradaptations between actors can lead to situations of equilibrium or escalation (arms races). We show that viewing personnel selection as a network of adaptive relationships among job market actors enables an understanding of both classic and underexplored micro- and macro-level selection phenomena and their dynamic interactions.

Keywords: personnel selection, signaling theory, adaptation, information exchange, faking

Personnel selection involves exchanges of information between applicants and organizations. Many commentators have noted that this exchange is as much a competitive as a cooperative endeavor; that is, applicants and organizations approach employment relationships with goals that may not be perfectly aligned. Personnel selection is the moment when these goals are confronted for the first time. For example, Porter, Hackman, and Lawler (1975) stated that "the search for a fit between the goals of a particular individual and the goals of a particular organization typically begins with the selection process. Individuals seek a work organization where they can fulfill their goals, and organizations try to hire people who can help them reach their objectives" (p. 131).

The degree of goal misalignment undoubtedly varies, and, as the budding relation between applicant and organization unfolds, both parties may discover ways to better align their goals. However, at the moment of personnel selection, this misalignment can have far-reaching consequences for information exchanges in selection situations. Indeed, parties with imperfectly aligned goals have little incentive to exchange accurate information unless it is to their advantage (Frank, 2006). That is, organizations are interested in accurately assessing applicants' abilities and their commitment to the employment relationship, but applicants may not be motivated to provide accurate information regarding these qualities unless it serves their candidacy. Moreover, applicants and organizations each react to their counterparts' actions. Cycles of behavior with potentially unanticipated consequences may then emerge. In the selection interview, for example, applicants may try to detect selection criteria and produce the answers they think recruiters want to hear in order to appear qualified for the job. Repeated exposure to such behavior may lead recruiters to be concerned with detecting what applicants are really like behind such performances. Kirkwood and Ralston (1999) wrote that "interviewers' attempts to penetrate applicants' performances only invite more sophisticated applicant performances, producing an ongoing spiral of mistrust in which each party tries to outdo the other" (p. 64).

On the basis of these observations and many others, we argue in this article that (a) personnel selection situations present powerful incentives for job market actors to adapt their behavior to those of other actors, (b) actual behavior of job market actors reacts to these incentives, and (c) repeated cycles of such individual-level behaviors lead to *signaling systems* that organize information exchanges. A signaling system consists of a sender, a receiver, and a signal that correlates with an unobservable characteristic of the sender (Spence, 1973). Signaling systems allow actors to determine what information is reliable for making job market choices (e.g., choosing among applicants). Signaling phenomena and their implications have not been sufficiently recognized in research on personnel selection, which has historically focused on only one side of the employment relation (either the organization's or the applicant's perspective; e.g., Phillips, 1998; Schmidt & Hunter, 1998; Smither, Reilly, Millsap, Pearlman, & Stoffey, 1993) and overwhelmingly on individual-level behavior.

We use signaling theory, a general framework derived from evolutionary biology, game theory, and economics, to describe how signaling systems in personnel selection evolve over time as a result of behavior of individual job market actors. This frame-

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work is innovative because it is explicitly based on the incentives that operate in personnel selection situations. It is useful for linking micro-level processes (individual choices) and macro-level processes (evolution of signals, including market trends in the emergence and decline of selection devices) relevant to personnel selection (Morgeson & Hofmann, 1999). It therefore can lead to theoretical progress and implications for research, including offering novel testable propositions and focusing attention on hitherto ignored phenomena.

Signaling Theory: Basic Principles and Applications

In this section, we review signaling theory in detail as a foundation for applying its principles to personnel selection, which we then do in the next three sections. We first explicate the structure of cooperative behavior and the dilemma it poses for individuals. We then describe the principle of honest signaling and its wide-ranging explanatory power in the study of nonhuman and human behavior. We then focus on signaling in economics and management before describing three types of adaptive relationships in personnel selection: between applicants and organizations, among applicants, and among organizations.

Dilemmas of Cooperative Behavior

Signaling theory seeks to explain cooperative behavior between rational organisms—*rational* meaning the efficient pursuit of the individual organism's interests (Frank, 1988). Two basic domains of such behavior exist. The first concerns behavior of nonhuman organisms such as animals and is traditionally investigated by evolutionary biology. Although largely instinctive, the behavioral repertoire of nonhuman organisms is "rational" in the sense that it has emerged through processes of natural and sexual selection (Darwin, 1871) and thereby represents successful solutions to recurrent problems posed by past environmental pressures. Because the unit of natural and sexual selection is the individual organism carrying the genes that determine a particular behavior or trait, behavior is rational if it furthers the reproductive or survival chances of the individual. The second domain concerns human behavior, which is of course at least partly guided by conscious intentions (Dennett, 1987). Human behavior is also rational in the sense that it is self-interested (i.e., human beings seek to further their individual interests; Frank, 2006).[1] In both domains, individual organisms may seek to cooperate with other individuals to achieve better outcomes than they could achieve by acting in isolation (as we will see, such cooperation is even possible among individuals belonging to classes of organisms with diametrically opposed interests, like predators and prey). In situations of potential cooperation, individuals are motivated to discover information about the ability of the other party to cooperate usefully and about its trustworthiness, or commitment to the relationship (Zahavi & Zahavi, 1999). Indeed, humans have an evolved capacity to rapidly detect these two dimensions of warmth and competence in conspecifics (Fiske, Cuddy, & Glick, 2007). At the same time, being self-interested, individuals have an incentive to deceive their partner to exploit the relationship for their own gain. The problem that each party must then solve is how to gain accurate information of the other's abilities and intentions.

Signaling theory therefore addresses the conditions under which exchange of accurate information is possible among rational individuals with partly divergent interests. Principles of signaling have been successfully applied to dilemmas of cooperative behavior in many disciplines, including evolutionary biology (Zahavi & Zahavi, 1999), political science (Poundstone, 1993), anthropology (Cronk, 2005), economics (Spence, 1973), management (Connelly, Certo, Ireland, & Reutzel, 2011), and organizational behavior (Deutsch Salamon & Deutsch, 2006). As suggested by the opening comments of this article, personnel selection is also a situation where rational actors with partly incompatible interests interact (Palmer, Campion, & Green, 1999), and thus it constitutes another promising but unexplored field of application.

The Handicap Principle

Individual organisms need to obtain accurate information about potential cooperation partners. Absent an altruistic incentive to reveal such information to others, how can this be accomplished? Accurate information (e.g., about an animal's genetic fitness) can be communicated between organisms with diverging interests if sending a message imposes a cost on the sender that only certain individuals (e.g., a truly fit individual) can bear. This is called the *handicap principle* (Zahavi, 1975), and signals that transmit such information are variously termed *honest* signals, *reliable* signals, *costly* signals, or *hard-to-fake* signals (Bergstrom, 2006; Cronk, 2005).

The handicap principle is widespread in animal behavior. One example from predator–prey interaction is so-called stotting behavior, observed in the Thomson's gazelle and other hooved animals (Walther, 1969). When a gazelle spots a predator, it sometimes jumps high in the air. Such behavior is apparently maladaptive because it attracts the predator's attention and wastes precious energy that the gazelle would need to escape if the predator did pursue it. Initially interpreted as altruistic behavior (i.e., alerting other gazelles to the presence of a predator), stotting has since been explained as a signal of fitness directed toward the predator. It credibly demonstrates that the gazelle is fit because it can afford to waste energy. Stotting benefits both the gazelle and the predator, because the gazelle avoids the expenditure of energy related to a long and tiring chase, and the predator gains information about which individual gazelles are fit and therefore probably harder to catch. Indeed, sick or weak individuals will need all their energy in a chase and thus cannot afford to stot. Stotting allows predators to identify these individuals. Empirical studies of gazelles in the field support these conjectures (Caro, 1986a, 1986b; FitzGibbon & Fanshawe, 1988). By stotting, then, a fit individual imposes a handicap on itself. This handicap is proof of the credibility of the signal, because less fit individuals are unable to produce it without incurring unbearable costs.

[1] We do not intend to suggest that individuals are motivated purely by self-interest or that altruistic behavior does not exist. Indeed, commentators in various fields have long noted the ubiquity of such behavior. However, altruism can often be explained as being in the best interests of an individual (i.e., as an extended form of self-interested behavior), and even altruistically motivated individuals face the problem of assessing whether or not potential cooperation partners have exploitative intentions (Frank, 2006).

Another class of situations where honest communication is possible through displaying a handicap is constituted by within-species interactions, in particular by sexual signals between males and females assessing potential mating partners, as exemplified by the peacock's tail. Naturalists since Darwin have wondered how the peacock's extravagant tail, obviously a survival disadvantage because it is cumbersome and energetically expensive to maintain, has survived natural selection. The theory of sexual selection (Darwin, 1871; Miller, 2000) posits that ornamental characteristics such as antlers and tails can constitute an honest signal to females about their bearer's genetic fitness. Indeed, that the bearer can afford to invest in and carry a wasteful ornament is proof that he has resources to squander, and thus that he is fit and is a good mating partner. This conjecture is empirically supported (Petrie, 1994; Petrie & Halliday, 1994; Petrie, Halliday, & Sanders, 1991).

Stotting and sexual signals illustrate situations where senders and receivers of a signal have a broad conflict of interests, for instance, predators and prey or male and female potential mating partners. But within that conflict of interests, individual organisms have converging interests. The fit gazelle and the predator both have an interest in avoiding a chase. It is to their mutual benefit if they can signal this state of affairs to each other. Likewise, the conflict of interest between male and female arises from the fact that, in certain species, females invest more resources into parenting than do males. But the fit peacock and the discerning peahen have an interest in mating together. It is also to their mutual benefit if they can signal this state of affairs to each other.

The evolution of handicaps as a mechanism for guaranteeing accurate communication mitigates the problem of *cheating*. Cheaters are individuals that send a signal that is not related to their true level of ability or commitment. Examples include mimicry, as when certain nonpoisonous prey species mimic the coloration of poisonous prey to deter potential predators (Zahavi & Zahavi, 1999). If a signal does not impose a cost on its sender that is related to fitness, cheating strategies may evolve and spread within a population, ultimately undermining the value of the signal as receivers evolve to ignore it. However, potential benefits of cheating are offset by costs if the cheater is caught, for example, by the risk of predation or the fact that many species severely punish cheaters (e.g., birds whose coloration patterns are experimentally manipulated to mimic high-status markings get attacked by their conspecifics; Searcy & Nowicki, 2005).

Honest Signaling in Human Behavior

Honest signaling also applies to human cooperation. However, because humans are capable of intentional action, they can make strategic decisions to invest resources in sending a signal to attain a particular outcome. At the same time, many aspects of human behavior are beyond conscious control. As a result, the catchall metaphor of an "honest" signal becomes more complex (Cronk, 2005). There are thus two kinds of signals that are honest. First, similarly to the domain of evolutionary biology, there are costly signals, which are honest because they require investment of resources the cost of which only fit individuals can bear. Then, there are signals that are not costly per se but are hard to fake because they are beyond the conscious control of the individual and thus not manipulable.

For example, Frank (1988) proposed that emotional displays constitute hard-to-fake signals of an individual's commitment to a particular course of action because they are difficult to consciously manipulate. Thus, displays of rage are a hard-to-fake signal of an individual's aggressive intentions and, thus, a preemptive deterrent to a potential attack (Boster, Yost, & Peeke, 2003). As another example, one ethnographic study (Boster, 2003) documented the polite custom in the Shuar culture of the Andes of repeatedly spitting on the floor when visiting someone's home. Such a display is a hard-to-fake signal of peaceful intent: A guest with aggressive designs would be physiologically aroused and have a dry mouth and would therefore be unable to muster the saliva necessary for repeated spitting.

Because humans may also be tempted to cheat by sending signals unrelated to their true level of ability or commitment, and because cheating can undermine cooperation, punishment of cheaters is also widespread across human societies (Henrich et al., 2006). Just as for nonhumans, punishment can be considered as indirectly raising the cost of a signal (Searcy & Nowicki, 2005).

How Signaling Systems Evolve: Adaptation, Equilibrium, and Escalation

Signals typically evolve from behavior originally designed for another function. This is the *derivation principle*, originally proposed by Tinbergen (1952). According to this principle, a reliable but incidental correlation between an observable feature (behavior, morphology) of an organism and an unobservable parameter (e.g., genetic fitness) can be detected by other organisms. Krebs and Dawkins (1984) coined the metaphor of *mind-reading* to describe this detection process. Those other organisms might use the information to anticipate the future behavior of the organisms exhibiting the observable features. In turn, these organisms might come to produce the observable feature in a more conspicuous way to manipulate the mind-reading organisms (with either cooperative or exploitative purposes). Over time, this reciprocal adaptation, or coevolution, between mind-readers and manipulators leads to the emergence of a signaling system, where a behavior or morphological feature survives because of its informative value to other organisms.

There are many cases of the emergence of signals from nonsignaling behavior. One example concerns how male toads settle contests for possession of females. Instead of fighting rivals, they signal information about body size (and thus about their potential fighting ability) by croaking. The pitch of a croak was probably initially an incidental but reliable signal of body size. Experiments show that croaking has probably evolved to become a signal (rather than an incidental indicator) of body size because deeper croaks are more intimidating to other toads than high-pitched croaks (Davies & Halliday, 1977). The emergence of a signal often corresponds to a process of *ritualization* (Tinbergen, 1952), whereby it becomes more conspicuous, for example, by means of exaggerated, simplified and repetitive movements. Examples such as gazelles' demonstrative stotting and oversized peacock tails illustrate the end result of ritualization processes.

The emergence of a signal thus results from a process of reciprocal interaction between organisms in an ecosystem (or human actors in a market; Krebs & Dawkins, 1984). Depending on the honesty of the signal and on the intentions of the actors or

organisms implicated (either cooperative or exploitative), the emergent system can be more or less stable. It will be stable if senders and receivers' behaviors are mutually reinforcing; such a system is then in a state of equilibrium. If not, outcomes other than equilibrium may emerge, namely, *escalation* (Vermeij, 1994). An organism that develops a superior adaptation is at an advantage relative to other competing organisms in the same ecology. For example, a peacock that develops a larger and more extravagant tail is at an advantage relative to other peacocks in the competition for peahens. Or a predator species that evolves a more lethal weapon (a stronger jaw, faster running speed) is at an advantage relative to its prey. But this relative advantage may be short-lived, because it may trigger a counteradaptation that subsequently increases the selection pressure on the original organism. The resulting cycle of adaptations and counteradaptations, alternatively described as the Red Queen phenomenon (Van Valen, 1973), an arms race (Dawkins & Krebs, 1979), or simply escalation (Vermeij, 1994), is one of the most important motors of the evolution of species. In the domain of human behavior, many applications can be found. For example, human cognitive abilities may have evolved as the result of an intraspecies arms race (Flinn, Geary, & Ward, 2005). And of course, the term *arms race* is itself a metaphor derived from the escalation in the production of nuclear weapons by the United States and the USSR during the Cold War—a case famously amenable to analysis by game theory (Poundstone, 1993).

One possible, beneficial outcome of escalation is an overall increase in individual fitness. Another, less beneficial outcome is that individuals may continue to invest resources into staying ahead of competitors while their average relative benefit does not increase (Frank, 2006). Arms races can lead to the domination and exploitation of one party over the other, or they may lead to a state of mutually beneficial reciprocal exploitation. Dawkins and Krebs (1979) proposed the *life–dinner principle* to explain the outcome of an arms race. The life–dinner principle is illustrated by a race between a fox (predator) and a rabbit (prey). The rabbit forfeits its life if caught by the fox, whereas the fox forfeits its dinner if the rabbit escapes. Thus, although the fox will eventually starve if it does not catch any rabbits, the selection pressure for running speed operating on it is less severe than the pressure operating on the rabbit. Organisms subjected to stronger selection pressures will tend to evolve better adaptations and a relative competitive advantage.

Signaling in Economics and Management

Human economic behavior has long been described along the lines of the handicap principle. Veblen (1899) suggested that conspicuous consumption (the wasteful display of excess resources by the rich) and conspicuous leisure (the ostentatiously wasteful pursuit of economically unnecessary activities) serves as a signal of social status. In a seminal paper, Spence (1973) independently developed a theory of signaling similar to that of Zahavi (1975) to explain the effects of information asymmetries in markets. Although he was an economist with no particular interest in personnel selection, Spence used the domain of hiring as an information asymmetry example. He conceptualized hiring from the perspective of employers as an investment decision made under uncertainty, as employers have only imperfect information about the qualities of a given applicant. Nor are applicants particularly motivated to provide the employer with accurate information unless it is to their advantage. In such a situation, the employer must decide to offer the applicant high or low wages.

Spence (1973) outlined a system whereby high-quality applicants can signal their worth to employers. Any signal whose production costs are negatively correlated with the quality of the applicant sending it can be an honest signal. As an example, Spence assumed that education is marginally easier to acquire for high-quality applicants than for low-quality ones. If employers believe that education is a credible signal of higher productivity, they will offer higher wages for educational credentials. This will cause higher quality applicants to invest in acquiring an education. Lower quality applicants will not do so, because the costs are too high for them (e.g., they may not possess the ability to fulfill the degree requirements). Employers' beliefs about the relation between education and applicant quality will be confirmed, causing employers to again offer higher wages in the next round of hiring and applicants to differentially invest in acquiring an education depending on their quality. In this way, education (or any signal the production costs of which are negatively correlated with quality) emerges as an honest signal between employers and applicants.

Although Spence pointed out in a footnote that the same reasoning applies to the decisions of applicants, he did not explore what might constitute potential signals in their case. It is important to note the negative relation between productivity and cost: If signaling costs were the same for all individuals, then all would invest in education, and education would cease to be a credible signal (Spence, 2002). The same would happen if the costs of education decreased (e.g., if grade inflation reduced the effort necessary to acquire a high-quality degree). In such a situation, its signaling power would also decrease and employers and applicants would need to converge on other signals. Spence's work is foundational in many areas of economics that describe cooperative dilemmas between agents with conflicting interests and asymmetrical information, for example, agency theory and contract theory (Eisenhardt, 1989).

Signaling has widely been applied in management. Early scholars have noted the fundamental problem of aligning employees' goals with those of the firm (Porter et al., 1975; Simon, 1947). A recent integrative review (Connelly et al., 2011) found that interest in signaling has increased, especially in the fields of strategy and entrepreneurship, but also in organizational behavior (Nicholson & White, 2006) and human resources management. Deutsch Salamon and Deutsch (2006) described how organizational citizenship behavior (OCB) can serve as an honest signal of otherwise unobservable capabilities to other organizational members. OCB has been traditionally investigated as altruistic behavior (e.g., employees who engage in OCB are "good soldiers"). But the handicap principle suggests that it may be a way of credibly signaling attributes that would not be visible from in-role behavior. For example, a cashier who volunteers to organize an organization-wide social event gains the opportunity to display abilities (e.g., organizing skills, leadership) that would not be visible in her day-to-day job. In doing so, she imposes a cost on herself that less capable employees may not be able to bear (Deutsch Salamon & Deutsch, 2006).

Signaling in Personnel Selection

Ironically, although he shared the 2001 Nobel Prize in economics for his work on signaling using hiring as an example, Spence has been little cited in the personnel psychology literature. Research in personnel selection has used signaling theory to study how recruiters infer unobservable information about applicants (e.g., value congruence) from observable attributes (e.g., cognitive ability; Aguinis, Michaelis, & Jones, 2005; Cable & Judge, 1997). Research in recruitment, on the other hand, has studied how applicants infer unobservable characteristics of organizations from known characteristics (e.g., inferring information about the organization from the characteristics of recruiters encountered during the selection process; Ehrhart & Ziegert, 2005; Ryan, Sacco, McFarland, & Kriska, 2000; Rynes, 1991; Rynes, Bretz, & Gerhart, 1991). In both cases, however, researchers have focused on only a part of signaling theory (i.e., how actors infer unobservable characteristics of their partners from observable characteristics; Highhouse, Thornbury, & Little, 2007). The notion of honest signals has gone unacknowledged in the twin selection and recruitment literatures, as have the notions of reciprocal adaptation and escalation and their implications for the long-term stability of signaling systems.

To date, then, there has been no systematic application of the most important aspects of signaling theory to the field of personnel selection. The remainder of this article will show that it holds important potential for understanding and integrating research findings in this field. We start by summarizing its main principles. First, signaling theory applies to all interactions (human or otherwise) where individuals with imperfectly aligned motives seek cooperation. Personnel selection is such a situation, because organizations' goals of obtaining accurate information about applicants are imperfectly aligned with applicants' goals of appearing attractive. At the same time, however, it is in interests of applicants and organizations to exchange accurate information with each other in order to increase the quality of the selection decision for both the applicant and the organization. Both parties do cooperate in exchanging information to this end, but they need to solve the dilemma of cooperation outlined above.

Second, a basic requirement for accurate communication in such situations is that signals either must be hard to fake or must impose a cost on the sender such that only fit individuals can bear the cost (otherwise, the incentive to cheat will lead some senders to do so, and receivers will learn to rely less and less on the signal over time). Third, signals often evolve from activities originally designed for purposes other than signaling, through reciprocal adaptation between senders and receivers. Fourth, *signaling systems* consist of (a) a population of senders who produce the signal to influence receivers' behavior, (b) a signal that is correlated with an unobservable but relevant characteristic of senders, and (c) a population of receivers who interpret the signal as an indicator of that characteristic. Fifth, signaling systems can vary in stability along a continuum ranging from equilibrium to escalation (an arms race).

We argue that these principles constitute a framework with wide-reaching potential for understanding phenomena related to personnel selection. However, not only organizations and applicants have misaligned interests. Applicants may also compete with each other to distinguish themselves from other applicants and thus stand out to potential employers. Depending on how high the competitive stakes are, such behavior can take various forms. Applicants may try to outdo each other by engaging in noteworthy extracurricular activities (P. Brown & Hesketh, 2004), padding their resumés (Amare & Manning, 2009), or even directly sabotaging other applicants' progress (Coombs & Virshup, 1998). On the other side of the fence, organizations may also compete with each other to attract and retain the best applicants. This competition is known as the War for Talent, a term that describes the widespread belief that talented employees are rare yet crucial for the prosperity and survival of organizations (Michaels, Handfield-Jones, & Axelrod, 2001). Waging the War for Talent requires organizations to signal desirable attributes to attract applicants, like high wages and bonuses, fast-track promotion systems, or commitments to employee well-being or corporate social responsibility.

In the next sections, we therefore examine three types of adaptive relationships among job market actors. The first is between applicants and organizations and corresponds to the typical personnel selection situation. The second concerns applicants in competition with other applicants for jobs. The third concerns organizations in competition with other organizations to attract applicants. In each case, cycles of individual-level adaptations and counteradaptations can lead to the market-level emergence of signaling systems, equilibrium situations, or arms races (Dawkins & Krebs, 1979; Vermeij, 1994). We discuss these three relationships in more detail and develop general propositions applying signaling theory to personnel selection. Some of these propositions are reconceptualizations of phenomena already studied under current theoretical paradigms, and others are novel statements that can lead to new research questions. Taken together, these propositions constitute a novel, high-level theoretical framework within which many personnel selection phenomena can be studied. We also highlight relevant examples of classic, emerging and declining signaling systems from research and practice. Relationships between applicants and organizations are the prototypical case of personnel selection, having been most studied by academics, and offer many practical examples. They therefore are developed in more detail. But adaptive relationships among applicants and among organizations are also relevant for personnel selection. Moreover, outcomes from one adaptive relationship may influence another.

Adaptive Relationships Between Applicants and Organizations

Adaptations between applicants and organizations constitute the classical situation in personnel selection where organizations select among applicants for a job. On the one hand, organizations try to identify honest signals of two unobservable qualities of applicants: ability and commitment to the employment relationship. Identifying honest signals of applicant *ability* corresponds to assessment of *person–job fit* (whether the abilities of the applicant correspond to the abilities required by the organization). On the other hand, organizations' interest in identifying honest signals of applicant *commitment* corresponds to assessment of *person–organization fit* (whether the values of the applicant correspond to

the culture of the organization).[2] This distinction between two kinds of fit has a long history in organizational psychology (Kristof-Brown, 2000; March & Simon, 1958; Wanous, 1978). It is analogous to the two fundamental dimensions of competence and warmth evaluated in any human social relation (Fiske et al., 2007).

On the other hand, applicants try to mind-read organizations (Kleinmann et al., 2011; Krebs & Dawkins, 1984), that is, to detect the criteria they are interested in and send the right signals. In turn, organizations may adapt their selection criteria. This may lead to cycles of reciprocal adaptations between the two parties. Over time, these *adaptive dynamics* lead to the emergence and evolution of signaling systems. Figure 1 graphically depicts this process, distinguishing between individual-level behavior and market-level outcomes and featuring Propositions 1–6.

In what follows, we discuss what constitutes an honest signal from the organization's point of view, what strategies applicants use to detect and adapt to organizational selection criteria, how counteradaptations emerge, and what consequences these entail for the evolution of applicant–organization signaling systems.

Organizational Selection Strategies: The Search for Honest Signals of Applicant Ability and Commitment

Organizations and their representatives or allies try to identify honest signals of desirable applicant qualities. Two kinds of honest signals exist in personnel selection, *costly* signals and *hard-to-fake* signals. Costly signals correspond to the handicap principle: they require applicants to invest resources to acquire and display them. These we call *investment* costs. Signals that are hard to fake are typically beyond the conscious control of applicants. Both kinds of honest signals also must be associated with *cheating* costs, in order to deter potential cheaters. A central preoccupation of personnel selection is predictive validity, or the correlation between an observable predictor (a selection device) and an unobservable quantity of interest to employers (typically job performance; Schmidt & Hunter, 1998). Predictive validity thus describes the empirical strength of a signal at a given point in time. As such, predictive validity is a necessary (but not sufficient) condition for a signal to be honest. In knowing predictive validity, one nevertheless remains agnostic about whether a signal is costly or hard to fake. For example, predictive validity may simply reflect an incidental link between the signal and an unobservable characteristic, as in the case of the typical empirical approach to identifying biodata items (Gunter, Furnham, & Drakeley, 1993). And some signals that have predictive validity may not be costly or hard to fake, for example, personality tests. Nevertheless, signaling theory suggests that the predictive validity of a selection device may change over time if the investment costs of the signal change or if cheating costs change. In particular, if such costs decline, validity may also decline. There is some circumstantial evidence that predictive validity may change over time. Van Iddekinge, Roth, Raymark, and Odle-Dusseau (2011) found that the predictive validity of integrity tests has decreased over time. They did not offer an explanation for this finding. A recent meta-analysis of assessment center validity for predicting supervisor performance ratings (Hermelin, Lievens, & Robertson, 2007) also found a decrease over time. Hermelin et al. suggested that this might be due to range restriction caused by stronger preselection of applicants in organizational settings, but they were unable to directly test this conjecture. A recent meta-analysis of work sample validity (Roth, Bobko, & McFarland, 2005) also found a decrease over time, which was not explained.

We now discuss costly signals, hard-to-fake signals, and cheating costs in detail. Costly signals of ability include educational credentials (Spence, 1973), job experience, professional reputation, letters of recommendation, and references. Educational credentials require investment of time, money, and effort to acquire. Professional reputations must be built through mindful interactions with colleagues, clients, and the like. And letters of recommendation are costly to produce by proxy, i.e., letter writers are typically high-status individuals whose time is a precious commodity. Their willingness to "waste" time on a letter is credible proof of their esteem for the applicant. Providing references in one's resumé also constitutes a costly signal of applicants' job experience, because only experienced applicants can provide references. Organizations may also search for costly signals of applicants' commitment to accepting the position if offered it, especially in job markets where unemployed applicants are required to apply regularly for positions to continue to receive unemployment benefits. Such signals may include the applicant's longevity in previous organizations, credible demonstrations of willingness to incur personal costs in order to occupy the position (e.g., willingness to accept a lower salary to work for an organization or to move to another city), or effort visibly expended to inform oneself about the organization. Many of these signals are inferred from biodata in the resumé (B. K. Brown & Campion, 1994; Thoms, McMasters, Roberts, & Dombkowsky, 1999).

The second kind of honest signal typically involves signals that are hard to fake because they are beyond conscious control. Cognitive ability tests and work samples are examples. They have predictive validity (Roth et al., 2005; Schmidt & Hunter, 1998). Ability tests are hard to fake, because the cognitive processes underlying intelligent performance (e.g., working memory span or processing speed; Jensen, 1998) are not under conscious control. And scoring high on a work sample is impossible without the requisite experience or knowledge. Another kind of hard-to-fake signal may be constituted by structured interview questions about past behavior (Janz, 1982). Structured interviews have predictive validity (Huffcutt & Arthur, 1994). And because such questions can require applicants to describe their past on-the-job behavior in detail, it can be difficult for them to provide high-quality answers without having corresponding job experience.

Some applicants may be tempted to cheat and mimic an honest signal. Returning to the examples above, applicants can buy a fake degree in what has been estimated as a billion-dollar industry (Bear & Ezell, 2005). They can lie about their experience on their resumés (Aamodt, 2006). Writers of letters of recommendation can "cheat" by reusing templates of previous letters that may not reflect the true qualities of the person they are recommending. And references can also be faked. Thus, for applicants to have a genuine incentive to actually pay investment costs in the long run,

[2] This situation makes the adaptive relationship between applicants and organizations analogous to mating games between male and female conspecifics, where ability (genetic fitness) and commitment to a relationship are also qualities females evaluate in males and where males are selected on their ability to send the right signals (Zahavi & Zahavi, 1999).

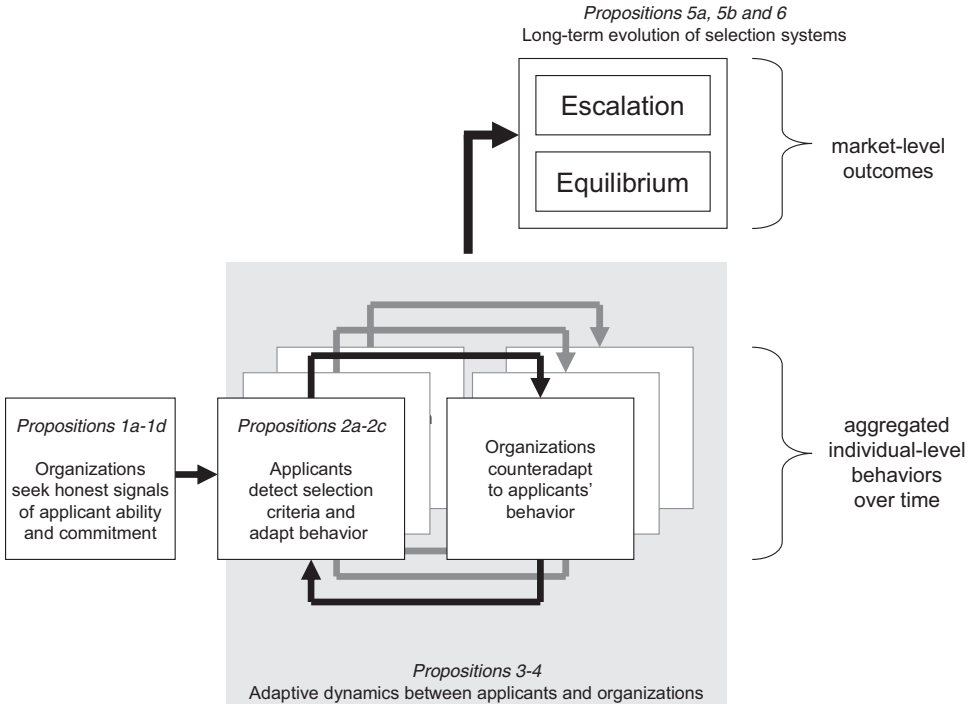

Figure 1. Reciprocal adaptations between applicants and organizations in personnel selection and their consequences.

there must be some risk of punishment linked to cheating. Otherwise, many applicants would cheat and organizations would learn to discount the signal over time (we discuss the dynamic evolution of signaling systems below). Organizations thus need to increase *cheating costs*. At least part of the extensive efforts they invest in verifying applicant information can be considered an attempt to increase such costs and to ensure applicants refrain from mimicking costly signals. For example, reference checks are a way of increasing cheating costs. Applicants generally must authorize recruiters to check references (Levashina & Campion, 2009). This constitutes either a credible signal that the information has at least not been blatantly faked by the applicant or a highly risky bluff. Also, organizations can invest in running background checks to investigate applicants' past (Isaacson, Griffith, Kung, Lawrence, & Wilson, 2008).

It is also theoretically possible to cheat on hard-to-fake signals. However, because such signals are beyond conscious control, cheating in this case typically involves, for example, obtaining test questions and answers before completing a mental ability test (Burke, 2009; Lievens & Burke, 2011). Organizations also invest substantial resources in guarding the security of such test items and identifying potential cheaters (Burke, 2009). Such actions in turn increase the costs would-be cheaters must incur and therefore act as a deterrent.

Given our focus on imperfectly aligned motives of applicants and organizations, it is worth noting that organizations are themselves composed of multiple actors, all of whom may differ in their motives for hiring (e.g., their relative focus on ability vs. commitment). For example, human resources professionals may differ from line managers in their focus on person–job fit versus person–organization fit or other perspectives (Sanders & Frenkel, 2011). And actors may also differ in their approaches to identifying honest signals. Some actors may rely on experiential learning or past experience (Herriott, Levinthal, & March, 1985; Huber, 1991). However, some organizational allies, such as academic researchers, may engage in systematic research on behalf of organizations (Brief, 2000) to discover and develop honest signals. Thus, validation research (Schmidt & Hunter, 1998) can be considered a systematic, organized attempt at signal detection.

Some organizational actors may intrinsically value the hard-to-fake or costly nature of a signal to the extent that they neglect predictive validity. This can explain why recruiters are sometimes interested in invalid methods like graphology or nonverbal behavior. For instance, if recruiters believe that verbal behavior (i.e., applicants' interview answers) can be easily faked, they may focus more on nonverbal behavior. This is more difficult to manipulate (Ekman & Friesen, 1969) and commonly believed to "leak" information about unobservable states or traits of applicants (Bavelas, 1992). Similarly, the persistence of graphology in some settings may be due to recruiters' beliefs that it is both hard to fake and costly. Some recruiters believe graphology is hard to fake because it is more difficult for applicants to manipulate their writing than content (Balicco, 2002). Other recruiters use handwritten application letters because they require more effort to produce. The additional effort is believed to deter potential applicants who are not really interested in the job, and thus handwritten letters purportedly constitute costly signals of the applicants' motivation for the job (Bangerter, König, Blatti, & Salvisberg, 2009; Driver, Buckley, & Frink, 1996).

We summarize the above discussion on organizational efforts around signaling by the following propositions:

Proposition 1a: Organizations try to discover and exploit honest signals of applicant quality and commitment.

Proposition 1b: Organizations invest resources to keep cheating costs high.

Proposition 1c: The predictive validity of a selection device is a function of (a) its costly or hard-to-fake nature and (b) its cheating costs.

Proposition 1d: Organizational actors differ in how they try to identify and exploit honest signals.

Applicant Adaptation Strategies: Mind-Reading Organizations and Sending the Right Signals

Organizations' selection criteria are typically not made known to applicants in advance. However, applicants are both motivated and able to detect what organizations are interested in (i.e., to mind-read their criteria) and to use this information to adapt their strategies accordingly. There are also individual differences in applicants' motivation and ability to engage in these activities (Levashina & Campion, 2006), as well as differences in the extent to which applicants can adapt to different kinds of honest signals.

There are individual differences in applicant *motivation* to mind-read organizations. Brown and Hesketh (2004) distinguished two applicant types that represent two prototypical categories at opposite ends of a continuum: *players* and *purists*. Players consider the job market as a positional game. They spend time preparing themselves and mind-reading employers to maximize the chances of getting hired. On the other hand, purists view hiring as a process based on merit. They believe their individual achievement, capabilities, efforts, and ambition will be sufficient to get them the job they want and expect to be judged on their merit. Applicants also differ with respect to mind-reading *ability*, as shown by research on the ability to identify selection criteria (Kleinmann, 1993; Kleinmann et al., 2011; König, Melchers, Kleinmann, Richter, & Klehe, 2006, 2007). Applicants high in this ability can more easily detect and adapt to criteria and thus perform better in the selection process.

The environment is replete with cues that facilitate mind-reading. For instance, applicants can prepare for the selection process using the abundant *advice literature* available. Scores of books, websites, or online training videos and programs tell applicants how to play the recruitment game: how to tune their resumés, how to write a remarkable letter, what interview questions they will be asked and what answer they should provide, how to behave or dress during interviews, how to prepare for tests or even how to cheat on them (P. Brown & Hesketh, 2004; Palmer et al., 1999). Even experienced applicants get coached by headhunters on how to behave during job interviews to conform to hiring organizations' expectations (Finlay & Coverdill, 2002). However, it is unclear whether advice actually improves applicants' future job performance or simply makes applicants better during the selection process (Palmer et al., 1999). This situation is also interpretable along the lines of signaling theory. Similar to mimicry in zoology (Zahavi & Zahavi, 1999), less qualified applicants can use advice to prepare themselves to look like more qualified ones. Yet by transmitting potentially deceptive signals, they must also accept cheating costs: the risk of getting caught and eliminated from the selection process.

Applicants not only mind-read organizations but may also adapt their behavior during selection encounters. Applicants are motivated to adapt their responses in personality tests (Birkeland, Manson, Kisamore, Brannick, & Smith, 2006; Marcus, 2006) or the way they present themselves in interviews to better fit the job profile and alter interviewers' evaluations (Stevens & Kristof, 1995). During interviews, they can do this using impression management or faking tactics to reduce or eliminate discrepancies between what they think they can offer and the ideal profile the organization is looking for (Levashina & Campion, 2006) or simply to be liked by the interviewer (Gilmore, Stevens, Harrell-Cook, & Ferris, 1999; Kristof-Brown, Barrick, & Franke, 2002). The importance of this phenomenon explains the growing attention given to impression management and faking in selection interview research during the past decades (Ellis, West, Ryan, & DeShon, 2002; Gilmore & Ferris, 1989; Levashina & Campion, 2007; Sackett & Lievens, 2008; Tsai, Huang, Wu, & Lo, 2010).

Different kinds of honest signals may be differently vulnerable to applicant adaptations. We argue that costly signals are easier to adapt to than hard-to-fake signals. This is because shifts in costliness may change the accessibility of signals, whereas a hard-to-fake signal is intrinsically difficult to manipulate. First, societal and technological changes may radically decrease the cost of a signal and allow applicants to acquire and send it more easily. For example, the increased accessibility of higher education has led to an increase of university graduates in many labor markets, thereby decreasing the signaling value of educational credentials (P. Brown & Hesketh, 2004). And information technologies have led to an increase in information about selection devices available to applicants in recent years, via the mass media discussed above. Moreover, organizations may not always invest sufficiently in keeping cheating costs high, thus creating opportunities for some applicants to cheat (Levashina & Campion, 2006). On the other hand, it seems that it is more difficult to adapt to hard-to-fake signals. This is particularly striking for the case of ability tests. Despite the existence of a flourishing test coaching industry, it remains controversial whether such tests can be prepared for effectively (Kulik, Bangert-Drowns, & Kulik, 1984; Powers, 1993; Ryan, Ployhart, Greguras, & Schmit, 1998).

This discussion on applicants' strategies can be summarized by the following propositions:

Proposition 2a: Applicants try to detect organizational selection criteria and adapt their behavior to fulfill these criteria.

Proposition 2b: There are individual differences in applicants' motivation and ability to detect organizational criteria and adapt their behavior.

Proposition 2c: Costly signals are easier to adapt to than hard-to-fake signals.

Counteradaptation

We showed that organizations try to identify honest signals of desirable applicant qualities using selection instruments and that

applicants respond by attempting to detect organizations' criteria and adapting to them. In this section we describe *counteradaptation* (the next step in the emergence of signaling systems) and its consequences. Organizations may counteradapt by trying to keep their selection criteria from being identified by applicants. Or they may modify them to keep a step ahead of applicants. For instance, if recruiters realize applicants can detect selection criteria in interviews, they may change their questions or their evaluation process or turn to alternative selection procedures that are perceived as costlier or to harder-to-fake signals of applicant qualities. Similarly, recruiters who become aware that applicants use impression management tactics during interviews may learn to discount such tactics (Rosenfeld, 1997).

> *Proposition 3:* Over time, cycles of repeated adaptations and counteradaptations (hereafter, adaptive dynamics) to a selection system will occur between organizations and applicants.

An important question at this point is whether one party is systematically at an advantage over the other. Signaling theory offers an answer to this question, by invoking the different selection pressures put on applicants and organizations depending on the job market situation (the life–dinner principle as described above; Dawkins & Krebs, 1979) and the cost of failure (Vermeij, 1994). This account predicts that applicants have more influence on signaling games (e.g., by preparing themselves, trying to identify selection criteria, or cheating) and are at an advantage relative to organizations (Kador, 2006; Ralston & Kirkwood, 1999). Indeed, the selection pressure on organizations seems weaker than on applicants. If there are few jobs available and unemployment is high, failing to recruit a good applicant may not endanger the organization's survival, because there will be other qualified applicants on the market. On the other hand, applicants often need to find a job in a relatively short period of time out of pure financial necessity (P. Brown & Hesketh, 2004). They will thus be more motivated to adapt quickly, influencing the evolution of signaling systems and developing a potential advantage over recruiters (Ralston & Kirkwood, 1999). The prediction that applicants have a systematic advantage over organizations seems to be supported for the case of faking in personality tests, where attempts to identify fakers and correct their scores often fail (Griffith & Peterson, 2008; Morgeson et al., 2007; but see also Ones, Dilchert, Viswesvaran, & Judge, 2007). Another case is maintaining the security of item pools in ability testing using Internet technology, which experts have claimed will be "ultimately a losing battle" (Davey & Nering, 2002, p. 187).

Of course, the situation may be reversed when there are more job openings than qualified applicants, or when fluctuations in applicant pool quality (Connerley, Carlson, & Mecham, 2003) limit the number of qualified applicants on the market. Organizations may then be subjected to more pressure to counteradapt than are applicants. This may lead to increased competition among organizations (see Adaptive Relationships Among Organizations below).

> *Proposition 4:* The pressure to adapt and counteradapt is moderated by market forces: It will be stronger on applicants when there are few jobs available but stronger on organizations when there are more jobs than qualified applicants.

The Evolution of Signaling Systems

Over time, adaptive dynamics between applicants and organizations can affect the evolution of signaling systems, leading to various market-level outcomes such as the decline of existing signaling systems or the emergence of new ones. We distinguish between two paths of evolution, equilibrium and escalation. As discussed above, a signaling system is in a state of equilibrium if senders' and receivers' behaviors are mutually reinforcing. A paradigm example of equilibrium is Spence's (1973) example of education as a signal of applicant quality. If employers believe that education discriminates between high-quality and low-quality applicants, if they structure wage differentials accordingly, and if applicants invest differentially in education depending on their quality, then employers' beliefs will be confirmed by applicants' behavior, and employers will continue to pay more for better educated applicants.

But reciprocal adaptations can also *undermine* the stability of signaling systems, leading to escalation (arms races). One prominent arena for an arms race is the selection interview. We showed above that applicants can use advice books to prepare for interviews. But recruiters can adapt their questions, for instance, by asking unexpected questions, posing trick questions, or using puzzles (Poundstone, 2003). Recruiters may also counteradapt by using new interview techniques such as the patterned behavior interview, a technique designed to measure applicants' past behavior in job-related situations (Janz, 1982). But, as new interview techniques are adopted, so does new advice become available to applicants. For example, advice books now propose ready-made techniques to help applicants adapt to behavioral interview questions (Ralston & Kirkwood, 1999). And applicants have been reported to routinely devise answers to such questions when preparing for an interview (Martin & Pope, 2008). In sum, both recruiters and applicants try to find ways to take the control of the interview (Palmer et al., 1999), constantly adapting and counteradapting, and the interview becomes a game in which both applicants and interviewers are trying to trick and outguess the other (Kirkwood & Ralston, 1999).

Another prominent example of an arms race involves personality testing. Personality tests are self-report measures, so they are vulnerable to faking (Cook, 2009). Thus, this arms race is driven by applicants' well-documented propensity to fake on personality tests (Ones & Viswesvaran, 1998). Many popular personality tests have been leaked, and their structure and desirable responses are now widely available (e.g., Hoffman, 2001). Counteradaptations by organizations consist in the development of techniques for detecting fakers, dissuading would-be fakers, and camouflaging the selection criteria. Examples of attempts of detecting fakers include the use of social desirability scales or trick questions to test honesty. Examples of dissuasion include telling applicants that faking can be detected and will be punished (Dwight & Donovan, 2003). Camouflaging selection criteria involves the use of more subtly formulated items. A recent development in this respect is the conditional reasoning test of aggression, where individuals solve dilemmas camouflaged as inductive reasoning problems. These allow inferences about applicants' potential for dysfunctional behavior (Berry, Sackett, & Tobares, 2010; James, 1998; LeBreton, Barksdale, Robin, & James, 2007).

Proposition 5a: Selection systems that are relatively difficult to adapt to (i.e., that are based on costly or hard-to-fake signals) will remain in stable use over time.

Proposition 5b: Selection systems that are relatively easy to adapt to will lead to processes of escalation.

Signaling theory predicts that escalation will lead to more sophisticated adaptations over time, and a cursory look at the case of personnel selection seems to support this. Taking faking in personality testing as an example again, we can observe an evolution in this direction. One of the earliest attempts to control faking was the invention of a lie scale (Ruch, 1942). Later on, researchers tried to use response latencies to detect fakers (e.g., Holden & Hibbs, 1995), whereas latest developments consist of the conditional reasoning tests described above (James et al., 2005) or even eye-tracking technology (van Hooft & Born, 2011).

Resumé screening seems to follow the same pattern of increasing sophistication. Organizations have developed scanning software to automatically select resumés based on the number of appropriate keywords (Amare & Manning, 2009). The advice literature then advised applicants to "write for the robot" (Amare & Manning, 2009, p. 35) by directly copying keywords from job ads into their resumés to better match criteria. Some applicants even use more subtle techniques, such as typing keywords in microscopic fonts or in white colors that are invisible to the human eye but detectable by a scanner. Organizations then developed more sophisticated scanning software to thwart applicants.

The rise of computerized aptitude testing constitutes yet another case of an arms race. Computerized tests of aptitude show great promise because they can reduce administration costs (e.g., via unproctored testing) and speed up the selection process (Lievens & Burke, 2011). However, several issues have emerged, including applicant cheating and the threat of systematic item piracy by unscrupulous test coaching vendors. Pirates can attempt to breach tests by sending a large set of applicants to take the test and memorize items they encounter (Schnipke & Scrams, 1999). These items can then be deposited on so-called braindumps on the Internet and sold to applicants. Test vendors have reacted by creating so-called web patrols, which are search devices that troll the Internet to detect piracy, or by implementing forensic analyses of test takers' responses to detect items that have been compromised (Burke, 2009). All of these efforts may be construed as increasing cheating costs (Proposition 1b).

Social networking websites (e.g., Facebook) may constitute another emerging battleground for arms races between applicants and organizations. Currently, many applicants openly post personal information on such sites, even to the point of exhibiting problematic content (e.g., related to sexual activity or drug or alcohol abuse). Posting such information also correlates with certain personality traits (Karl, Peluchette, & Schlaegel, 2010). However, organizations are increasingly using this information to check on applicants' backgrounds, sometimes even infiltrating student groups or getting access to private information (Brandenburg, 2008). This situation can be interpreted along the lines of the derivation principle (Tinbergen, 1952): Observable features (a Facebook profile) are incidentally but reliably correlated with unobservable characteristics (personality traits) of an organism (an applicant), and other organisms (recruiters) are learning to detect this correlation (mind-reading; Krebs & Dawkins, 1984). In the near future, applicants might learn to manipulate this information to influence potential employers (e.g., self-censoring the content they post when they go on the job market or even strategically posting content designed to impress recruiters).

These examples suggest that, in the long run, escalation may affect the stability of signaling systems. Less sophisticated systems may decline, eventually becoming extinct, if receivers learn to discount information channeled by the signal. Another interesting moment in the evolution of a signaling system is its emergence, as when job market actors try to establish the honesty of a signal. Users' mistrust and discounting seems to be an initial sign of the decline of a signaling system. An example of this comes from impression management research. Repeated exposure to impression management may lead recruiters to mistrust applicants in the long run or even to discount their responses. This may lead to an adversarial relationship between recruiters and applicants or to a cynical view of the interview as an empty ritual where parties "simply go through the motions" (Ralston & Kirkwood, 1999, p. 199) and no information of use is exchanged.

The history of personnel selection contains several examples of extinct or declining signaling systems. Graphology as a selection device is, arguably, near extinction (Bangerter et al., 2009). The letter of recommendation is a case of a system in decline. Letters of recommendation are widely used (Ryan, McFarland, Baron, & Page, 1999). However, there are many signs that their stability as an honest signal is compromised. They exhibit rather low reliability and validity (Colarelli, Hechanova-Alampay, & Canali, 2002; Hunter & Hunter, 1984; Moser & Rhyssen, 2001; Reilly & Chao, 1982) because they are uniformly positive. As a result, many recruiters question their utility in selection decisions (Nicklin & Roch, 2009). Letters of recommendation are amenable to a signaling game analysis (e.g., Farrell & Gibbons, 1989) based on divergent interests of the three parties involved: the applicant (or target), the letter writer, and the organization. Writers' interests are often more aligned with the applicant and less with the organization (Colarelli et al., 2002). Thus, writers often face a kind of prisoner's dilemma: If they are honest (e.g., by mentioning negative as well as positive information) while others are not, the applicants they recommend will be at a disadvantage. This problem is exacerbated by the fact that applicants have implicit ways of pressuring the writer (e.g., threat of litigation, access to the letter; Farrell & Gibbons, 1989; Paetzold & Wilborn, 1992). Interestingly, mistrust of the content of letters of recommendation has also led to counteradaptations. For example, some efforts have focused on extracting reliable information from the text of the letter (Peres & Garcia, 1962) or mind-reading the true intent of the writer by deciphering purportedly "coded" language (Thornton, 2003). Other possibilities involve focusing on peripheral aspects of the letter, like its length. Writers write longer letters for applicants they favor (Mehrabian, 1965), and readers are sensitive to this feature (Kleinke, 1978). It seems like a good candidate for an honest signal, because it is hard to fake: Because writers are often high-status individuals, their time is a precious commodity. Their willingness to "waste" it on a long letter is thus credible proof of their esteem for the applicant. In sum, the evolution of adaptations and counteradaptations has led to mistrust of letters of recommendation as an honest signal, to a decline in their use and to the evolution of alternative ways of extracting credible information from them.

There are also examples of emerging but not yet established alternative signaling systems. Aguinis et al. (2005) proposed that certification could be considered as signals of human resources professionals' potential productivity. They showed that the number of individuals possessing such certification in the United States increased by 50% between 2000 and 2003. However, less than five percent of human resources job announcements either required or preferred such certification. Aguinis et al. (2005) concluded that "apparently, employers do not consider HR certification as a signal of employee value-added and future productivity" (p. 168). A more recent study found that certification increased job prospects (Lester, Mencl, Maranto, Bourne, & Keaveny, 2010). These conflicting results suggest that human resources constituencies are trying to promote a new signal of applicant quality but that organizations have not yet uniformly accepted it. More generally, institutions of certification can constitute ways to guarantee the quality of the certified individual or organization and thus constitute sophisticated signaling systems, provided that the certification is costly to acquire (Lizzeri, 1999).

Proposition 6: Over time, escalation will lead less sophisticated signaling systems to decline in use and new, more sophisticated systems to emerge.

Adaptive Relationships Among Applicants

Adaptive relationships among applicants correspond to cases where applicants compete with each other for job vacancies. In principle, as soon as there are more applicants than vacancies, applicants are in competition with each other. Thus, getting a job depends not only on the abilities of applicants to fulfill the requirements of the job but also on their relative ability compared to other job seekers (P. Brown & Hesketh, 2004). Positioning oneself as an applicant is related to employability, which means adaptability and personal career-related assets like attitudes, knowledge, skills, and abilities (Fugate, Kinicki, & Ashforth, 2004; Van Der Heijde & Van Der Heijden, 2006). The discourse on employability is increasingly present in the media and has become a preoccupation of individuals, organizations, and governments (Moreau & Leathwood, 2006). The traditional way to signal employability was through education (Spence, 1973), which can be an honest signal of applicant qualities if it reliably distinguishes high-quality from low-quality applicants. However, the development of mass higher education has led to an increasing graduation rate in many countries. Brown and Hesketh (2004) argued that as advanced degrees become more common, the signaling power of education decreases. We agree in part but suggest that, consistent with Proposition 6 above, more sophisticated signals can emerge, such as the reputation of the degree-granting institution in some countries, leading to educational arms races (Winston, 2004). Graduates are acutely aware of this, as well as of the importance of distinguishing themselves relative to their peers (Tomlinson, 2007, 2008).

In response to the above development, new ways for applicants to honestly signal their abilities have emerged. Like many signaling systems we discussed previously, these activities were not originally undertaken for signaling purposes, but under current market forces (i.e., media discourse on employability) they have evolved to become signals interpreted as such by both recruiters and applicants.

Take the example of internships. They are traditionally a source of practical experience for university graduates. However, a study with German university students has shown that they consider the internship as a way of distinguishing their resumé from those of other job seekers, based, for instance, on the prestige of the companies they worked for. In general, students are also aware of what their colleagues are doing and of what kind of activities are useful to include in a resumé (Bloch, 2007).

Extracurricular activities are a second way of signaling employability. These activities can be considered a costly signal. Although participation in some activities allows applicants to acquire competencies related to future work (e.g., managing skills), this does not apply to all activities. For instance, it is unclear how running a marathon makes an applicant a better manager. Yet spending time and energy on these activities means having less time to invest in studying. Therefore only high-quality applicants can bear the cost of such activities without hurting their academic results. However, for these activities to emerge as a signaling system, both senders (i.e., applicants) and receivers (i.e., recruiters) have to consider these activities as a costly and thus honest signal and understand that the other party does. Several anecdotes show that applicants do indeed perceive this, as the following graduate argues: "I've been to America for a year, I've been doing this, I've been doing that—employers go like 'Wow! How has she been doing all that and got a degree?'" (P. Brown & Hesketh, 2004, pp. 130–131). The graduate's argument (*how has she been doing all that and got a degree*) is an illustration of the handicap principle. On the other hand, there is evidence that recruiters use extracurricular achievements as signals of applicants' value. Graduates with higher levels of participation in extracurricular activities and more leadership positions within these activities are perceived as being of higher quality and are invited to more job interviews (Chia, 2005; Nemanick & Clark, 2002). A recent international study (Hustinx et al., 2010) found that the motivation to engage in volunteering activities was stronger in job markets where such activities are used by potential employers to evaluate productivity. Therefore, extracurricular activities do seem to constitute a costly signaling system both for applicants and for recruiters.

That such activities are valued by employers is not new. What is new is that applicants get involved in these activities not only out of intrinsic motivation but also with the strategic intention to improve their resumés (Tomlinson, 2007). Organizations are sensitive to this and advertise extracurricular activities they offer using the employability argument. For example, a website writes that "Getting involved in a university related activity is a great way to make new friends—and boost your CV" (http://www.manchester.ac.uk/undergraduate/studentlife/extra-curricularactivities/). The nature of extracurricular activities has also changed. Older studies of recruiters' preferences (Harcourt & Krizan, 1989; Hutchinson, 1984) focused on traditional activities such as membership in sports clubs or associations. It seems that the activities that were positively viewed by recruiters in the past are now considered commonplace among applicants, who try to distinguish themselves with increasingly inventive activities (P. Brown & Hesketh, 2004). For instance, MBA students signal their ability by running marathons, sailing regattas, making films, or climbing Mount Everest while still getting top grades (Morris, 2007).

Competition may be particularly intense for new job market entrants such as graduates, who are pushed to find means of

distinguishing themselves because they lack job experience and because of the steady decrease in the signaling power of their primary credentials (education). More experienced job seekers are likely to rely on other costly or hard-to-fake signals of quality, such as job experience or reputation.

Job experience is valued by employers because of its link with performance (Schmidt, Hunter, & Outerbridge, 1986). However, experience is difficult to display in detail. Typically, experience is showcased by applicants in their resumés, in an attempt to induce recruiters to invite them for an interview. Recruiters are indeed sensitive to various aspects of experience, such as statements of accomplishments (Thoms et al., 1999), in deciding which applicants to interview (Behrenz, 2001). The interview itself is often focused on evaluating experience (Salgado & Moscoso, 2002). Given these incentives, applicants may be motivated to seek distinctiveness through displays of experience, perhaps to the point of exaggerating their past accomplishments or responsibilities. The difficulty of converting experience to a visible market signal becomes clear when considering the many degree mills that offer bogus degrees based on "life experience" (U.S. Department of Education, 2011).

A primary means of signaling reputation is by enlisting third parties to vouch for oneself, as in letters of recommendation or reference checks. A special case of this is when reputations are guaranteed by institutional membership (e.g., a physician who is a member of a professional society). However, like all costly signals, third-party enlistment can be faked. There are even companies that help applicants fake job references, some going so far as to provide bogus employers, complete with bogus contacts who will answer recruiters' phone calls in order to bypass reference checks. Counteradaptations to these tactics include cross-checking companies and phone numbers to make sure they are real (Leonard, 2009). As suggested by Proposition 2c, technological innovations can significantly decrease the cheating costs associated with managing reputation, thereby leading to arms races (Tennie, Frith, & Frith, 2010).

As described in Proposition 2a, applicants' adaptive behaviors may also depend on individual characteristics, such as the motivation or ability to engage in faking (Levashina & Campion, 2006; McFarland & Ryan, 2000) or the extent to which applicants engage in player or purist strategies (P. Brown & Hesketh, 2004). We therefore suggest:

> *Proposition 7a:* Applicants try to send signals that distinguish them from other applicants to appear more attractive to employers.

> *Proposition 7b:* There are individual differences in the degree to which applicants try to send signals that distinguish them from other applicants.

Proposition 7a goes beyond current conceptualizations of signaling in selection research (e.g., Cable & Judge, 1997) because it emphasizes that applicants do not just try to appeal to organizations (Proposition 2a) but also position themselves relative to each other. It has several implications for research, for example, that applicants will try to be aware of what other applicants are doing and that they will integrate this awareness into their own job market choices. Initial evidence for this conjecture comes from research on internships (Bloch, 2007), but much more work could be done.

Although individuals may differ in their propensity to distinguish themselves from other applicants (Proposition 7b), all applicants are subject to market pressure resulting indirectly from the choices of other applicants. Recall the abovementioned distinction between player and purist applicants (P. Brown & Hesketh, 2004). Players view their employability relative to others, whereas purists do not. However, even purists may be pressured to switch strategies in order to avoid being crowded out of the job market. Frank (2006) discussed the case of legislation prohibiting recruiters from asking female applicants about plans to marry or have children. This legislation can be ineffective to the degree that women who do not have such plans may realize they have an advantage relative to rivals if they spontaneously disclose such information, which may induce some of them to do just that (these women can be called players). If enough players do this, other women (who are purists) may be pressured to do so as well in order to not invite unfavorable inferences about their future family-related plans and thus jeopardize their hiring prospects.

A similar logic applies to faking. Earlier, we discussed how faking during the selection process (Levashina & Campion, 2007; Ones & Viswesvaran, 1998) can be considered part of an arms race between applicants and organizations. But faking is also part of the competition among applicants. In this context, faking can be seen as a prisoner's dilemma. Applicants' behavior in selection situations will depend on what they believe rivals will do. Because faking can modify selection decisions depending on the proportion of applicants who fake, the extent of faking, and the selection ratio (Levashina & Campion, 2007; Marcus, 2006; Stewart, Darnold, Zimmerman, Parks, & Dustin, 2010), applicants who do not fake when many of their competitors do can sometimes get eliminated by their honesty (Morgeson et al., 2007). Thus, assuming that others may fake, applicants may reason that they improve their own chances by doing so as well.

Using the example of extracurricular activities again, given enough market pressure and an abundance of applicants with similar formal qualifications, such activities are a signal that can potentially lead to an arms race among applicants. In other words, applicants might allocate resources to engaging in increasingly impressive extracurricular activities over time. Such a process of escalation may also motivate cheaters to try and cheaply mimic these signals by falsely claiming to engage in impressive activities. For example, one student blithely admitted to adding expertise in martial arts to her resumé depending on the position she applies for (P. Brown & Hesketh, 2004). In general, the above considerations suggest that adaptive behavior among applicants can lead to escalation, if the pressure from the job market is severe enough.

> *Proposition 8:* The higher the market pressure, the more applicants will attempt to distinguish themselves from other applicants, leading to escalation.

One way to test Proposition 8 is by analyzing archives of applicants' resumés over time, quantifying the efforts invested in extracurricular activities, or their originality, and tracking their

evolution as a function of past job market pressure.[3] Another possibility that follows from Proposition 8 is that job market pressure may affect rates of applicant faking. Robie, Emmons, Tuzinski, and Kantrowitz (2011) found that mean levels of applicant personality scores increased across three time periods with increasing unemployment rates. They suggested that unemployment may increase market pressure and lead to higher applicant motivation or levels of faking, in line with Proposition 8.

Adaptive Relationships Among Organizations

The third situation we examine is analogous to the previous one: Adaptations among organizations correspond to cases where organizations compete with each other to attract applicants. This is a special case of more general processes whereby organizations seek ways to improve their performance relative to their rivals (Barnett & Hansen, 1996). For example, if company A differentiates itself from others by developing a competitive advantage (e.g., better brand image through a new marketing program), its competitor B will face performance shortfalls. It will develop improvements (e.g., its own marketing campaign) to reduce the difference with A. This move will put greater competitive pressure on A to respond, leading to escalation (Van Valen, 1973).

In recruitment, such an arms race exists: the *War for Talent* (P. Brown & Hesketh, 2004; Larkan, 2007; Michaels et al., 2001; Resto, Ybarra, & Sethi, 2007). It is part of the more general problem of labor market shortage that is a prime concern of both practitioners and academics (Lievens, van Dam, & Anderson, 2002). The War for Talent suggests that talented employees are a scarce resource that organizations must compete for in order to survive.[4] Successful organizations are those that adapt successfully to this situation by mind-reading applicants' requirements. High wages and bonuses, fast-track promotions systems based on employees' potential, responsibilities given to talented junior managers, and selective hiring have all been used to attain such objectives (Michaels et al., 2001). In addition to employing such economic tactics, organizations can try to appeal to talented applicants by signaling social reputation. For instance, they can portray themselves as being environmentally responsible (Behrend, Baker, & Thompson, 2009), supportive of diversity (Ng & Burke, 2005), or committed to stakeholders (Turban & Greening, 1997), even to the point of triggering arms races (Starr, 2008).

Another signal organizations can send is a realistic job preview (Wanous, 1973). Realistic job previews feature candid information about both positive and negative aspects of a position. Inclusion of negative information decreases applicants' initial expectations about a job and favors self-selection on the part of applicants. This in turn has the benefit of increasing commitment and reducing turnover on the part of those applicants who remain in the selection process (Premack & Wanous, 1985). Realistic job previews can be interpreted as honest signals of an organization's commitment to a long-term relationship based on transparency of information. They constitute handicaps because they are costly to design and their utility in a narrow economic sense has been disputed (Buckley, Fedor, Carraher, Frink, & Marvin, 1997). Moreover, they disclose negative information about the job and the organization. As such, organizations that use realistic job previews impose a cost on themselves (i.e., going out of their way to decrease their own attractiveness) that constitutes a potential signal they are truly committed to a long-term relationship.

Of course, not all organizations can easily counteradapt to competitors' conditions, nor may they want to. Organizations may compete in a different institutional environment (Klehe, 2004) and may have different dynamic adaptation capabilities (Teece, Pisano, & Shuen, 1997), or may be less inclined to engage in the War for Talent, depending on their organizational culture or values (Pfeffer, 2001).

> *Proposition 9a:* Organizations try to send signals that distinguish them from each other to appear more attractive to applicants.

> *Proposition 9b:* Organizations differ in the degree to which they try to send signals that distinguish them from each other.

Proposition 9a goes beyond current conceptualizations of signaling in organizational attraction research (e.g., Ehrhart & Ziegert, 2005) because it emphasizes that organizations do not just try to attract applicants but position themselves relative to each other. However, this process may only confer short-lived advantages because, as described above (Barnett & Hansen, 1996), becoming more attractive increases the selective pressure on competitors who can counteradapt in turn, thus eliminating the organization's competitive advantage. For instance, some companies began offering signing bonuses not only to MBAs but also to undergraduate students after learning that their competitors were making such offers (Gardner, 2002). Another development in the arms race among organizations are "golden handcuffs," loyalty bonuses offered by organizations to retain key employees. But, in a counteradaptation, competitors offer bonuses, called "golden hellos," to explicitly compensate for the loss of the loyalty bonus (Cappelli, 2000). At the executive level, CEO compensation is strongly influenced by what competitors are paying (Fulmer, 2009).

> *Proposition 10:* The higher the market pressure, the more organizations will attempt to distinguish themselves from each other, leading to escalation.

One way researchers could track this process is by analyzing the content of companies' recruitment websites (e.g., mentions of environmentally responsible or diversity supportive claims, description of fast-track promotion opportunities) over time or by comparing different job markets.

As noted above, if signaling systems are to develop, both parties need to converge on interpreting the signal. Research suggests that applicants interpret recruitment initiatives as signals of unobserv-

[3] This research strategy is similar to that employed by paleontologists who examine the fossil record to investigate evolutionary pressures and adaptations of organisms over time (Vermeij, 1994).

[4] The War for Talent rhetoric has been criticized as being based on incorrect facts, flawed assumptions, and hype (Pfeffer, 2001). We take no stance on these issues here but note that even skeptical organizations may find themselves pressured into engaging in the War for Talent if most of their competitors do so as well (as purists may be pressured into more player tactics in adaptive dynamics among applicants).

able organizational characteristics. Individuals with high academic achievement (grades and cognitive ability) prefer organizations offering selective hiring practices, merit-based pay, praise and recognition, or fast-track promotions (Trank, Rynes, & Bretz, 2002). Even less ambitious applicants may interpret signals about the organization as a good or socially responsible employer. Indeed, the literature on organizational attraction and applicant reactions (Ryan & Ployhart, 2000) suggests that the selection process is used by applicants to infer characteristics of organizations. Thus, applicants' preferences both reflect and affect the arms race among organizations.

Advantages of Signaling Theory for Personnel Selection

Signaling theory (Spence, 1973; Zahavi, 1975; Zahavi & Zahavi, 1999) is a broad framework (Cronk, 2005) that describes in a principled and parsimonious manner the incentives involved in cooperative interactions between rational individuals with partly divergent goals. It explains how exchange of accurate information is possible under such conditions (i.e., by making the signals costly or hard to fake) and how repeated cycles of micro-level phenomena (reciprocal adaptations of individual job market actors) can affect macro-level phenomena (the evolution of personnel selection signaling systems). It also describes how macro-level phenomena (market selection pressures) affect micro-level, individual adaptive behavior (e.g., faking). This articulation of phenomena at different levels of analysis (a classic example of the reciprocal relationship between structure and interaction; Morgeson & Hofmann, 1999) makes a signaling framework theoretically innovative, because most theoretical work in personnel selection research focuses on individual-level processes, and the few studies on macro-level processes (e.g., Klehe, 2004) are not articulated with individual-level theories. We now examine the implications of signaling theory for three levels of theoretical development: the level of neighboring domains of study (recruitment and selection), the level of individual-level theoretical approaches within selection (the psychometric approach, the applicant reactions approach, and the social process approach), and the level of macro-level theoretical approaches within selection (institutional theory). We also examine an example of how signaling theory can open up new areas of investigation as well as implications for the practice of selection.

Implications for Neighboring Domains of Study: Recruitment and Selection

The neighboring domains of recruitment and selection have often been treated separately (Barber, 1998). Few theoretical accounts systematically and comprehensively examine interactions or similarities between these fields (but see Wanous, 1980). Particularly striking is the fact that research in selection has focused on how organizations interpret signals from applicants (Cable & Judge, 1997) and research in recruitment has focused on how applicants interpret signals sent by organizations (Ehrhart & Ziegert, 2005), without any recognition of this similarity. And yet, recruitment and selection often occur simultaneously and are interdependent in their outcomes (Barber, 1998). The signaling perspective we have developed links aspects of recruitment and selection in a novel way by specifying analogous adaptive processes in each domain. Adaptive relationships among organizations to attract applicants (an aspect of recruitment) are analogous to adaptive relationships among applicants trying to maximize their relative attractiveness to potential employers (an aspect of selection). In other words, recruitment and selection may serve similar functions while being accomplished by different structures (Morgeson & Hofmann, 1999). Our approach is similar to related approaches in personnel economics that consider recruitment and selection as two facets of the same problem, namely, matching firms and workers (Lazear & Oyer, in press).

Implications for Individual-Level Theoretical Approaches Within Selection

A signaling framework complements existing theoretical approaches in personnel selection, such as the psychometric approach, the applicant reactions approach, and the social process approach. The psychometric approach focuses on systematically documenting the properties (reliability and validity) of selection devices. It has been immensely successful (Schmidt & Hunter, 1998). However, it is based on several assumptions that have been questioned in recent years, for example, that selection is a unilateral process on the part of the organization. Research has shown that applicants' choices of organizations (Murphy, 1986) affect the utility of selection procedures, thus suggesting that selection is a bilateral process. And applicant reactions research (Ryan & Ployhart, 2000) as well as related theoretical work focused on understanding the effects of applicants' perceptions of selection procedures has shown that selection procedures are not neutral predictors but also act as transmitters of information about the organization to applicants (Anderson, 2001). Critics have argued that it has not yet convincingly been shown that applicant reactions really matter (Sackett & Lievens, 2008). Signaling suggests a theoretical rationale for why they should matter, because applicant adaptations are a prime motor of the long-term evolution of signaling systems. But signaling would also suggest studying the effects of applicants' repeated interactions on their perceptions of and attitudes toward selection systems in general and about the job market, rather than only toward a particular selection device or a particular organization.

Seen through the lens of signaling theory, the psychometric approach and the applicant reactions approach can be seen as embodying complementary perspectives on the selection relationship. However, they are both silent about the interactive and adaptive nature of that relationship. Some recent theoretical perspectives on personnel selection, such as social process models (Derous & De Witte, 2001; Herriot, 1993), do emphasize the adaptive, interpersonal, and motivational nature of selection. For example, Herriot (1993, p. 372) asserted about the selection relationship that "clearly, information is being processed by both parties, and how each processes the information provided by the other's behavior affects how each behaves and is consequently perceived." But though social process models focus on individual-level processes and outcomes, the signaling framework links individual behavior of job market actors and emergent collective phenomena and also extends the scope of relevant phenomena to repeated interactions and their long-term, macro-level effects.

Implications for Macro-Level Theoretical Approaches Within Selection

Signaling theory complements the phenomena accounted for by institutional theory, which has recently become more prominent in personnel selection. For example, Klehe (2004) applied institutional theory to the question of how organizations choose selection devices. She developed a model of the various environmental pressures that influence the adoption of selection devices as well as the types of responses organizations may adopt. An example response is imitation, whereby organizations adopt selection procedures only after other organizations have done so, to reduce uncertainty.

Institutional theory predicts limits to signaling dynamics. For example, the selection interview is arguably an institutionalized aspect of personnel selection (i.e., it is taken for granted by all actors) that will not foreseeably become extinct; it is therefore likely to remain a battleground for arms races between applicants and recruiters. On the other hand, signaling also constrains institutional pressures. For example, imitation may not be a rational strategy for certain actors when the costs of adopting a signal are too high (e.g., not all applicants can afford to imitate their colleagues' more exotic extracurricular activities). In general, then, signaling theory and institutional theory describe opposing pressures and make complementary predictions (Terlaak & King, 2010). We speculate that the specific nature of institutional theory makes it inherently more applicable to adaptive relationships among organizations, whereas signaling is more applicable to adaptive relationships between applicants and organizations. The links between institutional theory and signaling theory in personnel selection should be explored in more detail.

Illuminating Blind Spots of Selection Research: The Advice Industry

Signaling theory can stimulate research on previously underresearched areas in selection. In particular, macro-level factors driving escalation have largely been ignored by selection research so far, and the lack of theory capturing these phenomena has most likely contributed to these blind spots. A prominent example is the *advice industry* for potential applicants. The adaptive dynamics between applicants and organizations leading to applicant adaptations and counteradaptations has driven the emergence of a huge industry that claims to help applicants to cheaply mimic otherwise costly signals of ability and commitment. This industry operates through media such as web forums where one can purportedly learn how to beat commercially sold mental ability or personality tests (e.g., www.jobtestprep.co.uk), books on how to prepare a resumé or answer interview questions, or headhunters who train assessment center participants (see Finlay & Coverdill, 2002). There is even a thriving market for fake degrees of higher education (see Bear & Ezell, 2005) that has been estimated to have generated more than one billion dollars of sales and to have sold degrees to at least one million customers. If faked degrees represent such a large market (Bear & Ezell, 2005), it is easy to imagine how huge the advice industry in total must be and how many applicants have been willing to spend money for it. Such topics are rarely mentioned in the academic literature on selection. However, according to signaling theory, the advice market deserves attention from researchers because it is not a side effect of personnel selection; rather, it plays a systematic role in affecting individual-level adaptive behaviors of applicants.

Implications for Selection Practice

A signaling approach to personnel selection also has implications for selection practice. Many of the issues discussed in this article are well known to practitioners but have been largely ignored by academics. Palmer, Campion, and Green (1999) suggested that the notion of the selection interview as a competitive arena is much more of an issue in the practitioner literature on interview preparation than it has been for academics: "A sense of inherent conflict between interviewers and applicants is evident in the practice literature, although it is generally downplayed or ignored in the extant research" (p. 346). This claim is consistent with recurrent examples of competitive rhetoric from advice books for recruiters. For example, Kador (2006) writes, "If you repeat questions or use generalized interview questions, you will most assuredly be fooled by a group of well-rehearsed applicants" (p. xi). And Kanter (1995) writes, "Few people view the job interview as a joint effort to find a good match or to determine that a match does not exist. Instead, both sides view it as a game" (p. xvii). On the other hand, qualitative research on applicants' experiences on the labor market often reveals a sense of mistrust, frustration, and cynicism (e.g., Billsberry, 2007; P. Brown & Hesketh, 2004). These examples suggest that dilemmas of cooperation are a reality for many job market actors. At the same time, the aggregated individual decisions of these actors affect adaptive dynamics described in this article.

Currently, it seems premature to offer specific recommendations for practice. However, if there is one broad practical issue that emerges from signaling theory as applied to the domain of personnel selection (writ large, i.e., also encompassing analogous processes of applicant choice), it is unquestionably that of trust as a means of defusing escalation. Trust is the mechanism that keeps information exchanges reliable; in its absence, would-be cooperators cannot be sure they will not be exploited or duped.

Organizations and applicants, as well as other job market actors such as consultants, should be sensitized to the importance of building trust and opportunities for generating trust and cooperation in the selection process should be pursued (Pearce, 2000). This may entail, among other things, renouncing the rhetoric of conflict (e.g., the War for Talent) when creating or diffusing discourses about selection (e.g., advice books) or attempting to analyze and thus better align actors' incentives. Further, long-term guarantees of trustworthiness in a particular market (e.g., reputations) are a way of solving the dilemma of cooperation (Tennie et al., 2010). By this logic, both applicants and organizations should invest resources to maintain their reputational standing in the job market.

Developing and maintaining a reputation as a trustworthy actor does not imply blindly trusting one's partners or opening oneself up to exploitation by cheaters. In the prisoner's dilemma, one of the most successful strategies is tit for tat, which initially trusts cooperation partners but punishes them if they cheat (Poundstone, 1993). This implies that organizations should both invest in managing reputation but also use selection devices that tap into honest

(either costly or hard-to-fake) signals and seek to keep cheating costs high to deter and punish cheating by applicants.

Conclusion

Signaling theory offers a simple yet powerful set of mechanisms for charting the interactive, adaptive, and thus dynamic nature of personnel selection relationships, going beyond the current theoretical approaches to personnel selection and linking personnel psychology to related fields of study in management, economics, and other disciplines. We have explored three kinds of adaptive relationships—between applicants and organizations, among applicants, and among organizations—showing how many important phenomena can be described in terms of signaling. Signaling theory has important implications for theoretical development between neighboring fields of study and at the level of theoretical approaches in personnel selection. Signaling theory leads to new predictions about selection phenomena, focuses attention on underresearched but important topics, and can inform selection practice. The benefits of viewing personnel selection as a network of adaptive relationships among job market actors are numerous.

References

Aamodt, M. G. (2006). *Industrial/organizational psychology: An applied approach.* Belmont, CA: Wadsworth.

Aguinis, H., Michaelis, S. E., & Jones, N. M. (2005). Demand for certified human resources professionals in Internet-based job announcements. *International Journal of Selection and Assessment, 13,* 160–171. doi:10.1111/j.0965-075X.2005.00310.x

Amare, N., & Manning, A. (2009). Writing for the robot: How employer search tools have influenced resumé rhetoric and ethics. *Business Communication Quarterly, 72,* 35–60. doi:10.1177/1080569908330383

Anderson, N. (2001). Towards a theory of socialization impact: Selection as pre-entry socialization. *International Journal of Selection and Assessment, 9,* 84–91. doi:10.1111/1468-2389.00165

Balicco, C. (2002). L'utilisation de la graphologie dans le recrutement de cadres au sein des cabinets conseils [The use of graphology for management selection in consulting firms]. *L' Orientation Scolaire et Professionnelle, 31,* 195–222.

Bangerter, A., König, C. J., Blatti, S., & Salvisberg, A. (2009). How widespread is graphology in personnel selection practice? A case study of a job market myth. *International Journal of Selection and Assessment, 17,* 219–230. doi:10.1111/j.1468-2389.2009.00464.x

Barber, A. E. (1998). *Recruiting employees: Individual and organizational perspectives.* Thousand Oaks, CA: Sage.

Barnett, W. P., & Hansen, M. T. (1996). The Red Queen in organizational evolution. *Strategic Management Journal, 17,* 139–157. doi:10.1002/smj.4250171010

Bavelas, J. B. (1992). Research into the pragmatics of human communication. *Journal of Strategic and Systemic Therapies, 11,* 15–29.

Bear, J., & Ezell, A. (2005). *Degree mills: The billion dollar industry that has sold over a million fake diplomas.* Amherst, NY: Prometheus.

Behrend, T. S., Baker, B. A., & Thompson, L. F. (2009). Effects of pro-environmental recruiting messages: The role of organizational reputation. *Journal of Business and Psychology, 24,* 341–350. doi:10.1007/s10869-009-9112-6

Behrenz, L. (2001). Who gets a job and why: An explorative study of employers' recruitment behavior. *Journal of Applied Economics, 4,* 255–278.

Bergstrom, C. T. (2006, October 23). An introduction to the theory of honest signaling. Retrieved from http://octavia.zoology.washington.edu/handicap

Berry, C. M., Sackett, P. R., & Tobares, V. (2010). A meta-analysis of conditional reasoning tests of aggression. *Personnel Psychology, 63,* 361–384. doi:10.1111/j.1744-6570.2010.01173.x

Billsberry, J. (2007). *Experiencing recruitment and selection.* Chichester, England: Wiley.

Birkeland, S. A., Manson, T. M., Kisamore, J. L., Brannick, M. T., & Smith, M. A. (2006). A meta-analytic investigation of job applicant faking on personality measures. *International Journal of Selection and Assessment, 14,* 317–335. doi:10.1111/j.1468-2389.2006.00354.x

Bloch, R. (2007). "Natürlich möchte man es auch gern im Lebenslauf stehen haben . . ."—Bedeutungen des Praktikums für Studierende ["Naturally people want to have that in the resumés too . . ." —The meaning of internships for students]. *Beiträge zur Hochschulforschung, 4,* 82–106.

Boster, J. S. (2003). Blood feud and table manners: A neo-Hobbesian approach to Jivaroan warfare. *Antropológica, 99–100,* 153–164.

Boster, J. S., Yost, J., & Peeke, C. (2003). Rage, revenge, and religion: Honest signaling of aggression and nonaggression in Waorani coalitional violence. *Ethos, 31,* 471–494. doi:10.1525/eth.2003.31.4.471

Brandenburg, C. (2008). The newest way to screen job applicants: A social networker's nightmare. *Federal Communication Law Journal, 60,* 597–626.

Brief, A. P. (2000). Still servants of power. *Journal of Management Inquiry, 9,* 342–351. doi:10.1177/105649260000900403

Brown, B. K., & Campion, M. A. (1994). Biodata phenomenology: Recruiters' perceptions and use of biographical information and resumé screening. *Journal of Applied Psychology, 79,* 897–908. doi:10.1037/0021-9010.79.6.897

Brown, P., & Hesketh, A. (2004). *The mismanagement of talent: Employability and jobs in the knowledge economy.* Oxford, England: Oxford University Press.

Buckley, M. R., Fedor, D. B., Carraher, S. M., Frink, D. D., & Marvin, D. (1997). The ethical imperative to provide recruits realistic job previews. *Journal of Managerial Issues, 9,* 468–484.

Burke, E. (2009). Preserving the integrity of online testing. *Industrial and Organizational Psychology, 2,* 35–38. doi:10.1111/j.1754-9434.2008.01104.x

Cable, D. M., & Judge, T. A. (1997). Interviewers' perceptions of person–organization fit and organizational selection decisions. *Journal of Applied Psychology, 82,* 546–561. doi:10.1037/0021-9010.82.4.546

Cappelli, P. (2000). A market-driven approach to retaining talent. *Harvard Business Review, 78,* 103–111.

Caro, T. M. (1986a). The functions of stotting: A review of the hypotheses. *Animal Behaviour, 34,* 649–662. doi:10.1016/S0003-3472(86)80051-3

Caro, T. M. (1986b). The functions of stotting in Thomson's gazelles: Some tests of the predictions. *Animal Behaviour, 34,* 663–684. doi:10.1016/S0003-3472(86)80052-5

Chia, Y. M. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education, 14,* 75–93. doi:10.1080/0693928042000229707

Colarelli, S. M., Hechanova-Alampay, R., & Canali, K. G. (2002). Letters of recommendation: An evolutionary perspective. *Human Relations, 55,* 315–344. doi:10.1177/0018726702553002

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37,* 39–67. doi:10.1177/0149206310388419

Connerley, M. L., Carlson, K. D., & Mecham, R. L. I. (2003). Evidence of differences in applicant pool quality. *Personnel Review, 32,* 22–39. doi:10.1108/00483480310454709

Cook, M. (2009). *Personnel selection: Adding value through people.* Chichester, England: Wiley.

Coombs, R. H., & Virshup, B. (1998). *Surviving medical school.* Thousand Oaks, CA: Sage.

Cronk, L. (2005). The application of animal signaling theory to human phenomena: Some thoughts and clarifications. *Social Science Information, 44,* 603–620. doi:10.1177/0539018405058203

Darwin, C. (1871). *The descent of man and selection in relation to sex.* London, England: Murray.

Davey, T., & Nering, M. (2002). Controlling item exposure and maintaining item security. In C. N. Mills, M. T. Potenza, J. J. Fremer, & W. C. Ward (Eds.), *Computer-based testing: Building the foundation for future assessments* (pp. 165–191). Mahwah, NJ: Erlbaum.

Davies, N. B., & Halliday, T. (1977, September 1). Optimal mate selection in the toad *Bufo bufo. Nature, 269,* 56–58. doi:10.1038/269056a0

Dawkins, R., & Krebs, J. R. (1979). Arms races between and within species. *Proceedings of the Royal Society of London: Series B: Biological Sciences, 205,* 489–511. doi:10.1098/rspb.1979.0081

Dennett, D. C. (1987). *The intentional stance.* Cambridge, MA: MIT Press.

Derous, E., & De Witte, K. (2001). Looking at selection from a social process perspective: Towards a social process model on personnel selection. *European Journal of Work and Organizational Psychology, 10,* 319–342. doi:10.1080/13594320143000708

Deutsch Salamon, S., & Deutsch, Y. (2006). OCB as a handicap: An evolutionary psychological perspective. *Journal of Organizational Behavior, 27,* 185–199. doi:10.1002/job.348

Driver, R. W., Buckley, M. R., & Frink, D. D. (1996). Should we write off graphology? *International Journal of Selection and Assessment, 4,* 78–86. doi:10.1111/j.1468-2389.1996.tb00062.x

Dwight, S. A., & Donovan, J. J. (2003). Do warnings not to fake reduce faking? *Human Performance, 16,* 1–23. doi:10.1207/S15327043HUP1601_1

Ehrhart, K. H., & Ziegert, J. C. (2005). Why are individuals attracted to organizations? *Journal of Management, 31,* 901–919. doi:10.1177/0149206305279759

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14,* 57–74.

Ekman, P., & Friesen, W. V. (1969). The repertoire of nonverbal behavior: Categories, origins, usage and coding. *Semiotica, 1,* 49–98.

Ellis, A. P. J., West, B. J., Ryan, A. M., & DeShon, R. P. (2002). The use of impression management tactics in structured interviews: A function of question type? *Journal of Applied Psychology, 87,* 1200–1208. doi:10.1037/0021-9010.87.6.1200

Farrell, J., & Gibbons, R. (1989). Cheap talk with two audiences. *American Economic Review, 79,* 1214–1223.

Finlay, W., & Coverdill, J. E. (2002). *Headhunters: Matchmaking in the labor market.* Ithaca, NY: Cornell University Press.

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences, 11,* 77–83. doi:10.1016/j.tics.2006.11.005

FitzGibbon, C. D., & Fanshawe, J. H. (1988). Stotting in Thomson's gazelles: An honest signal of condition. *Behavioral Ecology and Sociobiology, 23,* 69–74. doi:10.1007/BF00299889

Flinn, M. V., Geary, D. C., & Ward, C. V. (2005). Ecological dominance, social competition, and coalitionary arms races: Why humans evolved extraordinary intelligence. *Evolution and Human Behavior, 26,* 10–46. doi:10.1016/j.evolhumbehav.2004.08.005

Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions.* New York, NY: Norton.

Frank, R. H. (2006). *Microeconomics and behavior.* New York, NY: McGraw-Hill.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65,* 14–38. doi:10.1016/j.jvb.2003.10.005

Fulmer, I. S. (2009). The elephant in the room: Labor market influence on CEO compensation. *Personnel Psychology, 62,* 659–695. doi:10.1111/j.1744-6570.2009.01154.x

Gardner, T. M. (2002). In the trenches at the talent wars: Competitive interaction for scarce human resources. *Human Resource Management, 41,* 225–237. doi:10.1002/hrm.10033

Gilmore, D. C., & Ferris, G. R. (1989). The effects of applicant impression management tactics on interviewer judgments. *Journal of Management, 15,* 557–564. doi:10.1177/014920638901500405

Gilmore, D. C., Stevens, C. K., Harrell-Cook, G., & Ferris, G. R. (1999). Impression management tactics. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 321–336). Thousand Oaks, CA: Sage.

Griffith, R. L., & Peterson, M. H. (2008). The failure of social desirability measures to capture applicant faking behavior. *Industrial and Organizational Psychology, 1,* 308–311. doi:10.1111/j.1754-9434.2008.00053.x

Gunter, B., Furnham, A., & Drakeley, R. (1993). *Biodata: Biographical indicators of business performance.* London, England: Psychology Press.

Harcourt, J., & Krizan, A. C. (1989). A comparison of resumé content preferences of *Fortune* 500 personnel administrators and business communication instructors. *Journal of Business Communication, 26,* 177–190. doi:10.1177/002194368902600206

Henrich, J., McElreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyanatz, A., . . . Ziker, J. (2006, June 23). Costly punishment across human societies. *Science, 312,* 1767–1770. doi:10.1126/science.1127333

Hermelin, E., Lievens, F., & Robertson, I. T. (2007). The validity of assessment centres for the prediction of supervisory performance ratings: A meta-analysis. *International Journal of Selection and Assessment, 15,* 405–411. doi:10.1111/j.1468-2389.2007.00399.x

Herriot, P. (1993). A paradigm bursting at the seams. *Journal of Organizational Behavior, 14,* 371–375. doi:10.1002/job.4030140407

Herriott, S. R., Levinthal, D., & March, J. G. (1985). Learning from experience in organizations. *American Economic Review, 75,* 298–302.

Highhouse, S., Thornbury, E. E., & Little, I. S. (2007). Social-identity functions of attraction to organizations. *Organizational Behavior and Human Decision Processes, 103,* 134–146. doi:10.1016/j.obhdp.2006.01.001

Hoffman, E. (2001). *Ace the corporate personality test.* New York, NY: McGraw-Hill Professional.

Holden, R. R., & Hibbs, N. (1995). Incremental validity of response latencies for detecting fakers on a personality test. *Journal of Research in Personality, 29,* 362–372. doi:10.1006/jrpe.1995.1021

Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science, 2,* 88–115. doi:10.1287/orsc.2.1.88

Huffcutt, A. I., & Arthur, W. J. (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. *Journal of Applied Psychology, 79,* 184–190. doi:10.1037/0021-9010.79.2.184

Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin, 96,* 72–98. doi:10.1037/0033-2909.96.1.72

Hustinx, L., Handy, F., Cnaan, R. A., Brudney, J. L., Pessi, A. B., & Yamauchi, N. (2010). Social and cultural origins of motivations to volunteer. *International Sociology, 25,* 349–382. doi:10.1177/0268580909360297

Hutchinson, K. L. (1984). Personnel administrators' preferences for resumé content: A survey and review of empirically based conclusions. *Journal of Business Communication, 21,* 5–14. doi:10.1177/002194368402100401

Isaacson, J. A., Griffith, R. L., Kung, M.-C., Lawrence, A., & Wilson, K.-A. (2008, April). *Liar, liar: Examining background checks and applicants who fail them.* Paper presented at the twenty-third conference for the Society for Industrial and Organizational Psychology, San Francisco, CA.

James, L. R. (1998). Measurement of personality via conditional reasoning. *Organizational Research Methods, 1,* 131–163. doi:10.1177/109442819812001

James, L. R., McIntyre, M. D., Glisson, C. A., Green, P. D., Patton, T. W., LeBreton, J. M., . . . Williams, L. J. (2005). A conditional reasoning measure for aggression. *Organizational Research Methods, 8,* 69–99. doi:10.1177/1094428104272182

Janz, T. (1982). Initial comparisons of patterned behavior description interviews versus unstructured interviews. *Journal of Applied Psychology, 67,* 577–580. doi:10.1037/0021-9010.67.5.577

Jensen, A. R. (1998). *The* g *factor: The science of mental ability.* Westport, CT: Praeger.

Kador, J. (2006). *The manager's book of questions: 1001 great interview questions for hiring the right person.* New York, NY: McGraw-Hill.

Kanter, A. B. (1995). *The essential book of interviewing: Everything you need to know from both sides of the table.* New York, NY: Times Books.

Karl, K., Peluchette, J., & Schlaegel, C. (2010). Who's posting Facebook *faux pas*? A cross-cultural examination of personality differences. *International Journal of Selection and Assessment, 18,* 174–186. doi:10.1111/j.1468-2389.2010.00499.x

Kirkwood, W. G., & Ralston, S. M. (1999). Inviting meaningful applicant performances in employment interviews. *Journal of Business Communication, 36,* 55–76. doi:10.1177/002194369903600103

Klehe, U.-C. (2004). Choosing how to choose: Institutional pressures affecting the adoption of personnel selection procedures. *International Journal of Selection and Assessment, 12,* 327–342. doi:10.1111/j.0965-075X.2004.00288.x

Kleinke, C. L. (1978). Perceived approbation in short, medium, and long letters of recommendation. *Perceptual and Motor Skills, 46,* 119–122. doi:10.2466/pms.1978.46.1.119

Kleinmann, M. (1993). Are rating dimensions in assessment centers transparent for participants? Consequences for criterion and construct validity. *Journal of Applied Psychology, 78,* 988–993. doi:10.1037/0021-9010.78.6.988

Kleinmann, M., Ingold, P. V., Lievens, F., Jansen, A., Melchers, K. G., & König, C. J. (2011). A different look at why selection procedures work: The role of candidates' ability to identify criteria. *Organizational Psychology Review, 1,* 128–146. doi:10.1177/2041386610387000

König, C. J., Melchers, K. G., Kleinmann, M., Richter, G. M., & Klehe, U.-C. (2006). The relationship between the ability to identify evaluation criteria and integrity test scores. *Psychology Science, 48,* 369–377.

König, C. J., Melchers, K. G., Kleinmann, M., Richter, G. M., & Klehe, U.-C. (2007). Candidates' ability to identify criteria in nontransparent selection procedures: Evidence from an assessment center and a structured interview. *International Journal of Selection and Assessment, 15,* 283–292. doi:10.1111/j.1468-2389.2007.00388.x

Krebs, J. R., & Dawkins, R. (1984). Animal signals: Mind-reading and manipulation. In J. R. Krebs & N. B. Davies (Eds.), *Behavioural ecology: An evolutionary approach* (pp. 380–402). Sunderland, MA: Sinauer.

Kristof-Brown, A. L. (2000). Perceived applicant fit: Distinguishing between recruiters' perceptions of person–job and person–organization fit. *Personnel Psychology, 53,* 643–671. doi:10.1111/j.1744-6570.2000.tb00217.x

Kristof-Brown, A. L., Barrick, M. R., & Franke, M. (2002). Applicant impression management: Dispositional influences and consequences for recruiter perceptions of fit and similarity. *Journal of Management, 28,* 27–46.

Kulik, J. A., Bangert-Drowns, R. L., & Kulik, C. C. (1984). Effectiveness of coaching for aptitude tests. *Psychological Bulletin, 95,* 179–188. doi:10.1037/0033-2909.95.2.179

Larkan, K. (2007). *The talent war.* Singapore: Cavendish Business.

Lazear, E. P., & Oyer, P. (in press). Personnel economics. In R. Gibbons & D. J. Roberts (Eds.), *Handbook of organizational economics.* Princeton, NJ: Princeton University Press. Retrieved from http://faculty-gsb.stanford.edu/oyer/wp/handbook.pdf

LeBreton, J. M., Barksdale, C. D., Robin, J., & James, L. R. (2007). Measurement issues associated with conditional reasoning tests: Indirect measurement and test faking. *Journal of Applied Psychology, 92,* 1–16. doi:10.1037/0021-9010.92.1.1

Leonard, B. (2009, November 20). Fake job reference services add new wrinkle to screening. *HR News.* Retrieved from http://www.shrm.org/Publications/HRNews/Pages/FakeJobReferences.aspx

Lester, S. W., Mencl, J., Maranto, C., Bourne, K. A., & Keaveny, T. (2010). The impact of passing the professional in human resources exam on early career success for undergraduates entering the human resource field. *International Journal of Selection and Assessment, 18,* 282–290. doi:10.1111/j.1468-2389.2010.00511.x

Levashina, J., & Campion, M. A. (2006). A model of faking likelihood in the employment interview. *International Journal of Selection and Assessment, 14,* 299–316. doi:10.1111/j.1468-2389.2006.00353.x

Levashina, J., & Campion, M. A. (2007). Measuring faking in the employment interview: Development and validation of an interview faking behavior scale. *Journal of Applied Psychology, 92,* 1638–1656. doi:10.1037/0021-9010.92.6.1638

Levashina, J., & Campion, M. (2009). Expected practices in background checking: Review of the human resource management literature. *Employee Responsibilities and Rights Journal, 21,* 231–249. doi:10.1007/s10672-009-9111-9

Lievens, F., & Burke, E. (2011). Dealing with the threats inherent in unproctored Internet testing of cognitive ability: Results from a large-scale operational test program. *Journal of Occupational and Organizational Psychology.* Advance online publication. doi:10.1348/096317910X522672

Lievens, F., van Dam, K., & Anderson, N. (2002). Recent trends and challenges in personnel selection. *Personnel Review, 31,* 580–601. doi:10.1108/00483480210438771

Lizzeri, A. (1999). Information revelation and certification intermediaries. *RAND Journal of Economics, 30,* 214–231. doi:10.2307/2556078

March, J. G., & Simon, H. A. (1958). *Organizations.* New York, NY: Wiley.

Marcus, B. (2006). Relationships between faking, validity, and decision criteria in personnel selection. *Psychology Science, 48,* 226–246.

Martin, P. D., & Pope, J. (2008). Competency-based interviewing: Has it gone too far? *Industrial and Commercial Training, 40,* 81–86. doi:10.1108/00197850810858910

McFarland, L. A., & Ryan, A. M. (2000). Variance in faking across noncognitive measures. *Journal of Applied Psychology, 85,* 812–821. doi:10.1037/0021-9010.85.5.812

Mehrabian, A. (1965). Communication length as an index of communicator attitude. *Psychological Reports, 17,* 519–522. doi:10.2466/pr0.1965.17.2.519

Michaels, E., Handfield-Jones, H., & Axelrod, B. (2001). *The war for talent.* Boston, MA: Harvard Business School Press.

Miller, G. (2000). *The mating mind: How sexual choice shaped the evolution of human nature.* New York, NY: Anchor.

Moreau, M.-P., & Leathwood, C. (2006). Graduates' employment and the discourse of employability: A critical analysis. *Journal of Education and Work, 19,* 305–324. doi:10.1080/13639080600867083

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K. R., & Schmitt, N. (2007). Reconsidering the use of personality tests in personnel selection contexts. *Personnel Psychology, 60,* 683–729. doi:10.1111/j.1744-6570.2007.00089.x

Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review, 24,* 249–265.

Morris, S. (2007, October 18). A stand-out CV: So much to do, so little time. *The Independent.*

Moser, K., & Rhyssen, D. (2001). Referenzen als eignungsdiagnostische Methode [References as a fit diagnostic method]. *Zeitschrift für Arbeits- und Organisationspsychologie, 45,* 40–46.

Murphy, K. R. (1986). When your top choice turns you down: Effect of rejected offers on the utility of selection tests. *Psychological Bulletin, 99,* 133–138. doi:10.1037/0033-2909.99.1.133

Nemanick, R. C. J., & Clark, E. M. (2002). The differential effects of extracurricular activities on attributions in resumé evaluation. *International Journal of Selection and Assessment, 10,* 206–217. doi:10.1111/1468-2389.00210

Ng, E. S. W., & Burke, R. J. (2005). Person–organization fit and the war for talent: Does diversity management make a difference? *International Journal of Human Resource Management, 16,* 1195–1210. doi:10.1080/09585190500144038

Nicholson, N., & White, R. (2006). Darwinism: A new paradigm for organizational behavior? *Journal of Organizational Behavior, 27,* 111–119. doi:10.1002/job.345

Nicklin, J. M., & Roch, S. G. (2009). Letters of recommendation: Controversy and consensus from expert perspectives. *International Journal of Selection and Assessment, 17,* 76–91. doi:10.1111/j.1468-2389.2009.00453.x

Ones, D. S., Dilchert, S., Viswesvaran, C., & Judge, T. A. (2007). In support of personality assessment in organizational settings. *Personnel Psychology, 60,* 995–1027. doi:10.1111/j.1744-6570.2007.00099.x

Ones, D. S., & Viswesvaran, C. (1998). The effects of social desirability and faking on personality and integrity assessment for personnel selection. *Human Performance, 11,* 245–269.

Paetzold, R. L., & Wilborn, S. L. (1992). Employer (ir)rationality and the demise of employment references. *American Business Law Journal, 30,* 123–142. doi:10.1111/j.1744-1714.1992.tb00657.x

Palmer, D. K., Campion, M. A., & Green, P. C. (1999). Interviewing training for both applicant and interviewer. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 337–351). Thousand Oaks, CA: Sage.

Pearce, J. L. (2000). Employability as trustworthiness. In C. R. Leana & D. M. Rousseau (Eds.), *Relational wealth: The advantages of stability in a changing economy* (pp. 79–90). Oxford, England: Oxford University Press.

Peres, S. H., & Garcia, J. R. (1962). Validity and dimensions of descriptive adjectives used in reference letters for engineering applicants. *Personnel Psychology, 15,* 279–286. doi:10.1111/j.1744-6570.1962.tb01622.x

Petrie, M. (1994, October 13). Improved growth and survival of offspring of peacocks with more elaborate trains. *Nature, 371,* 598–599. doi:10.1038/371598a0

Petrie, M., & Halliday, T. (1994). Experimental and natural changes in the peacock's (*Pavo cristatus*) train can affect mating success. *Behavioral Ecology and Sociobiology, 35,* 213–217. doi:10.1007/BF00167962

Petrie, M., Halliday, T., & Sanders, C. (1991). Peahens prefer peacocks with elaborate trains. *Animal Behaviour, 41,* 323–331. doi:10.1016/S0003-3472(05)80484-1

Pfeffer, J. (2001). Fighting the war for talent is hazardous to your organization's health. *Organizational Dynamics, 29,* 248–259. doi:10.1016/S0090-2616(01)00031-6

Phillips, J. M. (1998). Effects of realistic job previews on multiple organizational outcomes: A meta-analysis. *Academy of Management Journal, 41,* 673–690. doi:10.2307/256964

Porter, L. W., Lawler, E. E., & Hackman, J. R. (1975). *Behavior in organizations.* New York, NY: McGraw-Hill.

Poundstone, W. (1993). *Prisoner's dilemma: John von Neumann, game theory, and the puzzle of the bomb.* New York, NY: Anchor Books.

Poundstone, W. (2003). *How would you move Mount Fuji? Microsoft's cult of the puzzle: How the smartest companies select the most creative thinkers.* New York, NY: Little Brown.

Powers, D. E. (1993). Coaching for the SAT: A summary of the summaries and an update. *Educational Measurement: Issues and Practice, 12,* 24–30. doi:10.1111/j.1745-3992.1993.tb00530.x

Premack, S. L., & Wanous, J. P. (1985). A meta-analysis of realistic job preview experiments. *Journal of Applied Psychology, 70,* 706–719. doi:10.1037/0021-9010.70.4.706

Ralston, S. M., & Kirkwood, W. G. (1999). The trouble with applicant impression management. *Journal of Business and Technical Communication, 13,* 190–207. doi:10.1177/1050651999013002004

Reilly, R. R., & Chao, G. T. (1982). Validity and fairness of some alternative employee selection procedures. *Personnel Psychology, 35,* 1–62. doi:10.1111/j.1744-6570.1982.tb02184.x

Resto, C., Ybarra, I., & Sethi, R. (2007). *Recruit or die: How any business can beat the big guys in the war for young talents.* New York, NY: Penguin.

Robie, C., Emmons, T., Tuzinski, K. A., & Kantrowitz, T. (2011). Effects of an economic recession on leader personality and general mental ability scores. *International Journal of Selection and Assessment, 19,* 183–189. doi:10.1111/j.1468-2389.2011.00545.x

Rosenfeld, P. (1997). Impression management, fairness, and the employment interview. *Journal of Business Ethics, 16,* 801–808. doi:10.1023/A:1017972627516

Roth, P. L., Bobko, P., & McFarland, L. A. (2005). A meta-analysis of work sample test validity: Updating and integrating some classic literature. *Personnel Psychology, 58,* 1009–1037. doi:10.1111/j.1744-6570.2005.00714.x

Ruch, F. L. (1942). A technique for detecting attempts to fake performance on a self-inventory type of personality test. In Q. McNemar & M. A. Merrill (Eds.), *Studies in personality* (pp. 229–234). New York, NY: McGraw-Hill.

Ryan, A. M., McFarland, L., Baron, H., & Page, R. (1999). An international look at selection practices: Nation and culture as explanations for variability in practice. *Personnel Psychology, 52,* 359–392. doi:10.1111/j.1744-6570.1999.tb00165.x

Ryan, A. M., & Ployhart, R. E. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future. *Journal of Management, 26,* 565–606. doi:10.1177/014920630002600308

Ryan, A. M., Ployhart, R. E., Greguras, G. J., & Schmit, M. J. (1998). Test preparation programs in selection contexts: Self-selection and program effectiveness. *Personnel Psychology, 51,* 599–621. doi:10.1111/j.1744-6570.1998.tb00253.x

Ryan, A. M., Sacco, J. M., McFarland, L. A., & Kriska, S. D. (2000). Applicant self-selection: Correlates of withdrawal from a multiple hurdle process. *Journal of Applied Psychology, 85,* 163–179. doi:10.1037/0021-9010.85.2.163

Rynes, S. L. (1991). Recruitment, job choice, and post-hire consequences: A call for new research directions. In M. D. Dunnete & L. M. Hough (Eds.), *Handbook of industrial and organization psychology* (2nd ed., pp. 399–444). Palo Alto, CA: Consulting Psychologists Press.

Rynes, S. L., Bretz, R. D. J., & Gerhart, B. (1991). The importance of recruitment in job choice: A different way of looking. *Personnel Psychology, 44,* 487–521. doi:10.1111/j.1744-6570.1991.tb02402.x

Sackett, P. R., & Lievens, F. (2008). Personnel selection. *Annual Review of Psychology, 59,* 419–450. doi:10.1146/annurev.psych.59.103006.093716

Salgado, J. F., & Moscoso, S. (2002). Comprehensive meta-analysis of the construct validity of the employment interview. *European Journal of Work and Organizational Psychology, 11,* 299–324. doi:10.1080/13594320244000184

Sanders, K., & Frenkel, S. (2011). HR–line management relations: Characteristics and effects. *International Journal of Human Resource Management, 22,* 1611–1617. doi:10.1080/09585192.2011.565644

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124,* 262–274. doi:10.1037/0033-2909.124.2.262

Schmidt, F. L., Hunter, J. E., & Outerbridge, A. N. (1986). Impact of job

experience and ability on job knowledge, work sample performance, and supervisory ratings of job performance. *Journal of Applied Psychology, 71,* 432–439. doi:10.1037/0021-9010.71.3.432

Schnipke, D., & Scrams, D. (1999). *Representing response-time information in item banks* (Computerized Testing Rep. No. 97–09). Newtown, PA: Law School Admissions Council.

Searcy, W. A., & Nowicki, S. (2005). *The evolution of animal communication: Reliability and deception in signaling systems.* Princeton, NJ: Princeton University Press.

Simon, H. A. (1947). *Administrative behavior: A study of decision-making processes in administrative organizations.* New York, NY: Free Press.

Smither, J. W., Reilly, R. R., Millsap, R. E., Pearlman, K., & Stoffey, R. W. (1993). Applicant reactions to selection procedures. *Personnel Psychology, 46,* 49–76. doi:10.1111/j.1744-6570.1993.tb00867.x

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics, 87,* 355–373. doi:10.2307/1882010

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review, 92,* 434–459. doi:10.1257/00028280260136200

Starr, M. A. (2008). Socially responsible investment and pro-social change. *Journal of Economic Issues, 62,* 52–73.

Stevens, C. K., & Kristof, A. L. (1995). Making the right impression: A field study of applicant impression management during job interviews. *Journal of Applied Psychology, 80,* 587–606. doi:10.1037/0021-9010.80.5.587

Stewart, G. L., Darnold, T. C., Zimmerman, R. D., Parks, L., & Dustin, S. L. (2010). Exploring how response distortion of personality measures affects individuals. *Personality and Individual Differences, 49,* 622–628. doi:10.1016/j.paid.2010.05.035

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18,* 509–533. doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Tennie, C., Frith, U., & Frith, C. D. (2010). Reputation management in the age of the world-wide web. *Trends in Cognitive Sciences, 14,* 482–488. doi:10.1016/j.tics.2010.07.003

Terlaak, A., & King, A. (2002, April). *Contrasting institutional theory and signaling theory to explain the adoption process of an industry standard.* Paper presented at the second annual Wharton Technology Miniconference, University of Pennsylvania, Philadelphia.

Terlaak, A., & King, A. A. (2010). *Contrasting institutional theory and signaling theory to explain the adoption process of an industry standard.* Manuscript submitted for publication.

Thoms, P., McMasters, R., Roberts, M. R., & Dombkowsky, D. A. (1999). Resumé characteristics as predictors of an invitation to interview. *Journal of Business and Psychology, 13,* 339–356. doi:10.1023/A:1022974232557

Thornton, R. J. (2003). *The lexicon of intentionally ambiguous recommendations.* Naperville, IL: Sourcebooks.

Tinbergen, N. (1952). Derived activities: Their causation, biological significance, origin and emancipation during evolution. *Quarterly Review of Biology, 27,* 1–32. doi:10.1086/398642

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work, 20,* 285–304. doi:10.1080/13639080701650164

Tomlinson, M. (2008). Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education, 29,* 49–61. doi:10.1080/01425690701737457

Trank, C. Q., Rynes, S. L., & Bretz, R. D. J. (2002). Attracting applicants in the War for Talent: Differences in work preferences among high achievers. *Journal of Business and Psychology, 16,* 331–345. doi:10.1023/A:1012887605708

Tsai, W.-C., Huang, T.-C., Wu, C.-Y., & Lo, I.-H. (2010). Disentangling the effects of applicant defensive impression management tactics in job interviews. *International Journal of Selection and Assessment, 18,* 131–140. doi:10.1111/j.1468-2389.2010.00495.x

Turban, D. B., & Greening, D. W. (1997). Corporate social performance and organizational attractiveness to prospective employees. *Academy of Management Journal, 40,* 658–672. doi:10.2307/257057

U.S. Department of Education. (2011). Diploma mills and accreditation. Retrieved from http://www2.ed.gov/students/prep/college/diplomamills/diploma-mills.html

Van Der Heijde, C. M., & Van Der Heijden, B. I. J. M. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management, 45,* 449–476. doi:10.1002/hrm.20119

van Hooft, E. A. J., & Born, M. P. (2011). Intentional response distortion on personality tests: Using eye-tracking to understand response processes when faking. *Journal of Applied Psychology.* Advance online publication. doi:10.1037/a0025711

Van Iddekinge, C. H., Roth, P. L., Raymark, P. H., & Odle-Dusseau, H. N. (2011). The criterion-related validity of integrity tests: An updated meta-analysis. *Journal of Applied Psychology.* Advance online publication. doi:10.1037/a0021196

Van Valen, L. (1973). A new evolutionary law. *Evolutionary Theory, 1,* 1–30.

Veblen, T. (1899). *The theory of the leisure class.* New York, NY: MacMillan.

Vermeij, G. J. (1994). The evolutionary interaction among species: Selection, escalation, and coevolution. *Annual Review of Ecology and Systematics, 25,* 219–236. doi:10.1146/annurev.es.25.110194.001251

Walther, F. R. (1969). Flight behaviour and avoidance of predators in Thomson's gazelle (*Gazella Thomsoni* Guenther 1884). *Behaviour, 34,* 184–220. doi:10.1163/156853969X00053

Wanous, J. P. (1973). Effects of a realistic job preview on job acceptance, job attitudes, and job survival. *Journal of Applied Psychology, 58,* 327–332. doi:10.1037/h0036305

Wanous, J. P. (1978). Realistic job previews: Can a procedure to reduce turnover also influence the relationship between abilities and performance? *Personnel Psychology, 31,* 249–258. doi:10.1111/j.1744-6570.1978.tb00444.x

Wanous, J. P. (1980). *Organizational entry: Recruitment, selection, orientation and socialization of newcomers.* Reading, MA: Addison-Wesley.

Winston, G. C. (2004). Differentiation among U.S. colleges and universities. *Review of Industrial Organization, 24,* 331–354. doi:10.1023/B:REIO.0000037539.78539.02

Zahavi, A. (1975). Mate selection: A selection for a handicap. *Journal of Theoretical Biology, 53,* 205–214. doi:10.1016/0022-5193(75)90111-3

Zahavi, A., & Zahavi, A. (1999). *The handicap principle: A missing piece of Darwin's puzzle.* Oxford, England: Oxford University Press.

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Appendix III

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Students' use of extra-curricular activities for positional advantage in competitive job markets

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With the rise of mass higher education, competition between graduates in the labour market is increasing. Students are aware that their degree will not guarantee them a job and realise they should add value and distinction to their credentials to achieve a positional advantage. Participation in extra-curricular activities (ECAs) is one such strategy, as it allows students to demonstrate competencies not otherwise visible in their résumés due to limited job experience. This article presents data from interviews with 66 students about their use of ECAs in relation to the labour market. It describes the reasons students got involved in ECAs, how they integrate them in their résumés, their perceptions of their peers' behaviour and their beliefs about how employers will interpret their activities. Our data show that especially students involved in associations use ECAs to distinguish themselves from competition. Implications for employers, students and further research are discussed.

Keywords: extra-curricular activities; employability; labour market competition; positional advantage

Introduction

Today graduates are entering a labour market where competition is intensified, mainly due to the rise of mass higher education (HE) (Brown, Hesketh, and Williams 2003), the development of knowledge-based economies and the abandon of traditional long-term employment relationships (Brown and Hesketh 2004). Transition from elite to mass HE happened through the growth of non-elite institutions and technical or vocational education, partly due to middle class attempts to access graduate credentials (Brown, Hesketh, and Williams 2003). This has been reflected in the important transformation of many countries' HE systems (Trow 2006). Also, the new employment relationships imply that workers have to manage their own career and regularly change jobs. As a result, each year, many potential workers with

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similar degrees and practical experience enter the market and compete for a small number of positions. The intensification of this competition has been observed in Europe (Ball 2003; Brown and Hesketh 2004; Brown, Hesketh, and Williams 2003) and North America (Brown 2001; Davies and Hammack 2005), but also more recently in countries like China or India (Brown, Lauder, and Ashton 2011). To adapt to this situation, graduates have to develop strategies to distinguish themselves from their peers both during and after their studies. The purpose of this article is to explore one such strategy: using extra-curricular activities (ECAs) to build a distinctive profile as a potential employee.

We present data collected with business students from Swiss universities. The Swiss HE system is composed of 10 'historical' (cantonal) universities and two Federal institutes of technology, as well as seven recently created universities of applied sciences (i.e. vocational teaching and applied research institutions, Perellon 2003). The universities of applied sciences were created to promote vocational education at the same level as traditional scientific education and to add differentiation to the Swiss HE. Such a dual HE system is also found in other European countries, such as Germany or Finland (Lepori 2007). In transforming its HE system, Switzerland followed the path many European countries have taken towards mass HE. Accordingly, the number of students in the Swiss HE system has grown from less than 100,000 in 1997 to more than 200,000 in 2010 (Swiss Federal Statistical Office [SFSO] 2010). In Switzerland, prestige is not a distinguishing feature of educational institutions. There is very little selection of students based on prior grades or ability tests to enter different universities and differences in prestige between universities are small. Switzerland is therefore different from France and its *Grandes Ecoles* or the UK with Oxbridge (Ball 2003). It is also different from the US, where HE institutions are increasingly investing resources in a competition for excellence to attract the best students (Winston 2004). The transformation of the Swiss HE system also put pressure on 'historical' universities to develop more vocationally oriented research and courses. As a result, Swiss employers are now facing a larger pool of young graduates with similar credentials, at least in business studies (Perellon 2003).

Employability, job market competition and the need for distinctiveness

The discourse of employability has long been the centre of attention of individuals, organisations and governments (Moreau and Leathwood 2006). Employability is considered as a source of national economic growth by governments, as a source of workforce productivity by companies and as a source of employment and career opportunities by individuals. Employability has been defined as 'a psycho-social construct that embodies individual characteristics that foster adaptive cognition, behaviour, and affect, and

enhance the individual-work interface' (Fugate, Kinicki, and Ashforth 2004, 15). In the past years the burden of employability has increasingly been transferred to individuals, who are now responsible for acquiring the skills or competencies valued by employers (Fugate, Kinicki, and Ashforth 2004; Van Der Heijde and Van Der Heijden 2006). The latitude graduates once had to adapt to a new job has now disappeared, and they are expected to be productive as soon as they enter a job (Brown and Hesketh 2004). Governments also have made clear that providing individuals with these skills and competencies should become the main role of HE, even if there is no clear evidence that universities or vocational schools successfully make graduates employable. For instance, employers are not always satisfied with the actual competencies graduates possess (Hesketh 2000) and employees themselves perceive that the skills they developed during their studies do not completely correspond to what is required in subsequent employment, especially in business and management (Wilton 2008).

Graduates therefore face a difficult task: ensuring their employability in an increasingly competitive labour market. They are pressured by employers' changing demands. In addition to demonstrating that they are talented people who can 'get the job done', they now need to demonstrate their business awareness, their proactivity and their capacity to get accepted by customers and colleagues (Brown and Hesketh 2004). They need to possess both *hard* (e.g. education credentials, practical experience, achievements) and *soft* (e.g. interpersonal skills, teamwork abilities, emotional resilience) currencies of employability. Furthermore, even if they possess the required qualifications for a position, they may face other applicants who are even more qualified or experienced, and not get the job (Brown, Hesketh, and Williams 2003). The labour market has therefore become the site of a *positional competition* among graduates for a limited number of jobs at the national and, to some extent, at the international level (Brown 2000; Tomlinson 2007). This has led to the emergence of the *relative* and the *subjective* dimensions of employability (Brown, Hesketh, and Williams 2003; Tomlinson 2007, 2008). The *relative* dimension of employability implies that each graduate is in competition with other graduates with similar qualifications and education and therefore that employability depends on the relative value of credentials. The *subjective* dimension of employability implies that graduates' attitudes, beliefs and orientations towards the labour market may influence the way they perceive the issue of employability, respond to the increasing positional competition and thus manage their own employability. Graduates perceive employability as a problem they should solve themselves, based on individual dispositions or motivation (Tomlinson 2007). Therefore the way graduates position themselves in the labour market, the strategies they use and their chances to get employment depend on both the *relative* and the *subjective* dimensions of employability.

Furthermore, the value of formal credentials (e.g. university degrees) is decreasing in the labour market, because if all applicants for a job possess such credentials, it is more difficult for employers to use this information to choose among them. The rise of mass HE is therefore a sign of the decline of the education credentialing system (Collins 1981). Originating in Max Weber's sociology of education, credentialing theory considers educational credentials as 'a historical legitimation of advantages that empower degree holders in occupational and organizational recruitment' (Brown 2001, 20). Therefore degree holders were more powerful than non-degree holders because graduates' credentials were seen by employers as a guarantee of competence that has been validated through education (Brown 2001; Buon and Compton 1990; Spence 1973). Yet, educational credential inflation (Collins 2002) indicates the decline of the education credentialing system. As explained by Brown and Hesketh (2004, 30) 'if in the future everyone had a Ph.D., law degree, MBA, or the like, then these advanced degrees would be worth no more than a job in a fast food restaurant'.

In response to intensification of competition in the labour market, graduates and students realise that they have to manage their own employability and expect to face a more difficult career progression. They know that hard currencies are not a guarantee of future employability anymore (Tomlinson 2007). Bourdieu (1984) developed the notion of distinction to explain the bourgeoisie's consumption of leisure activities or goods. Similarly, graduates now believe they need to add value and distinction to their credentials, and use this distinction to place themselves at an advantage over their competitors (Tomlinson 2008). This can be achieved through strategies used to manage employability, especially through the development of *personal capital* (Brown and Hesketh 2004; Brown, Hesketh, and Williams 2003) in addition to the traditional *cultural* and *social* forms of capital (Ball 2003; Bourdieu 1986). The notion of personal capital implies that graduates are able to package their hard and soft currencies together with their *self* (e.g. their personality and values) into a narrative of employability (Brown and Hesketh 2004). They need to demonstrate how their education, experiences, accomplishments, interpersonal skills and character match job requirements. But graduates can use different strategies to succeed in the competitive labour market.

Strategies to appear distinctive

Brown and Hesketh (2004) suggested that applicants can use either a *player* or a *purist* strategy (or a mix of the two) in navigating the employment process. The player strategy treats employability as a 'positional game' (126) in which the quality of applicants depends on the relative value of their credentials compared to those of others. Players therefore accept the relative dimension of employability and use every possible

tactic to discover employers' requirements and match them while differentiating themselves from other candidates. They develop a narrative of employability based on their personal capital and do not hesitate to be 'economical with the truth' if such behaviour is required to win the competition (Brown and Hesketh 2004, 131). They consider every failure as a valuable experience, helping them to learn and to improve the way they package themselves for the next round of applications. The player strategy resembles Tomlinson's (2007) *careerism*, or employment behaviour that is active and market-oriented. Careerist individuals are sensitive to the challenge of employability and respond by acquiring knowledge about the labour market from both formal and informal sources. In contrast, the purist strategy is based on employability as a more traditional 'meritocratic race' (Brown and Hesketh 2004, 137) in which being employable depends only on the individual's achievements, capabilities or ambition. Purists are aware that the competition in the labour market is increasing, but do not consider their employability in relative terms and do not compare their credentials to those of their competitors. They believe that the labour market is fair and that employers are looking for the right person for the right job. They are thus convinced that they will get the job if they are qualified for it. Purists also gather information about employers, but not to develop a narrative of employability. Rather they do it to find the best fit with the currencies they actually possess. They do not use adaptive or deceptive strategies to appear more competent that they really are. A failure is then considered as an indication that their currencies did not fit the organisation's requirements, and lead them to reconsider alternative career paths (Brown and Hesketh 2004).

To discover what employers are looking for, players exploit sources of career information, use their social contacts, attend workshops to prepare for assessment centres and read books to prepare for interviews. For instance, they provide responses that employers 'want to hear' by tailoring their experiences to employers' requirements in assessment centres or interviews (Brown and Hesketh 2004, 128). Furthermore, in order to adequately position themselves relative to the competition, they try to gather as much information as possible about what their competitors do. For instance, a study with German students showed that internships were regarded by students as a way to appear distinctive, mainly by trying to work for the most prestigious companies, and that competitive students were aware of the kind of internships their peers were engaged in Bloch (2007). Players look for ways to add value to their credentials already before graduation. Brown and Hesketh (2004) suggested that one solution involves capitalising on ECAs. ECAs are part of the *economy of experience*, that is, graduates can build on such activities to develop their employability narrative, and obtain a positional advantage over their competitors. In the next section, we focus on this specific tactic.

ECAs as a strategy to appear distinctive

ECAs seem to be increasingly instrumentalised by graduates to distinguish themselves. Participating in ECAs is part of the life of many students during their education. For instance, US high school students are active in sports, church activities and school clubs (Marsh 1992). Similarly, university students are involved in clubs or organisations, fraternities or sororities and sport teams (Rubin, Bommer, and Baldwin 2002). Many studies have investigated the effects of participation in ECAs. A positive relationship between ECA participation and academic and post-academic outcomes has been observed for students of various ages (Derous and Ryan 2008; Kaufman and Gabler 2004; Mahoney, Cairns, and Farmer 2003; Marsh 1992).

Participation in ECAs affects individuals' labour market outcomes. Economic analyses suggest that participation in ECAs can have both positive and negative effects for graduates (Sattinger 1998). On the one hand, employers may believe ECAs demonstrate qualities of applicants. On the other hand, they may believe too much involvement in ECAs leads to lower professional commitment and higher turnover. Previous research in social or educational sciences generally supports the first interpretation. New graduates benefit from ECA participation because it demonstrates qualities (e.g. interpersonal skills) that are not otherwise visible on their résumés due to their typically limited work experience (Brown and Campion 1994; Brown and Hesketh 2004; Nemanick and Clark 2002). ECAs can be good indicators of individuals' competencies. For instance, members of clubs or organisations and fraternities/sororities possess more interpersonal skills than their non-participating counterparts (Rubin, Bommer, and Baldwin 2002). Moreover, employers can infer competencies from ECAs in graduates' résumés, e.g. inferring leadership competencies from an applicant's experience as the vice-president of an association. But employers expect graduates to deploy narratives of employability to effectively demonstrate how ECAs helped them to develop competencies that are actually valued for a specific job. For instance, in their analysis of assessment centres, Brown and Hesketh (2004, 155) stated that 'where it was once enough to simply state that one had canoed up the Khyber backwards, one now has to demonstrate the individual competences, which have been acquired and developed through undertaking such an exercise'. Participation in ECAs is also interpreted as a signal of the applicant's personality (Cole, Feild, and Giles 2003; Cole et al. 2009). For instance, volunteering for community activities can be perceived as a signal of openness, while being member of a fraternity can be perceived as a signal of extraversion, two personality traits employers particularly value because they are predictors of employee job or training performance (Hurtz and Donovan 2000).

Résumés of applicants with more ECAs and leadership positions in these activities got better evaluations and received more invitations for an

interview (Cole et al. 2007; Nemanick and Clark 2002). In interviews, students participating in ECAs received more job offers (Chia 2005). Organisations, especially larger ones, apparently attach importance to ECAs when screening applicants (Barber et al. 1999; Feldman Barr and McNeilly 2002). Overall, university graduates who participated in ECAs found jobs corresponding to their qualifications more easily than their colleagues who did not participate in such activities (Merino 2007). Those who exercised responsibilities in their ECAs or participated in community work had access to larger firms and more managerial positions after graduation (Tchibozo 2008).

Given these positive effects, students may be especially motivated to get involved in various ECAs not only out of intrinsic interest, but because they realise that it can add to their résumés. Instrumental reasons leading students to getting involved in ECAs have been documented, for instance the possibility of getting credit (see Merino 2007), but few studies have investigated instrumentalisation in direct relation with the labour market. Exceptions can be found in Tomlinson (2007), who found that some careerist students instrumentalise ECAs to add value to their credentials, and in Brown and Hesketh (2004), who found that some players deliberately undertook ECAs to demonstrate competencies employers were looking for. But ECAs were not at the centre of these studies. In addition, a recent study found that volunteering was instrumentalised by applicants in countries where such activities are valued by employers (Hustinx et al. 2010). We note also from media anecdotes that students seem to increasingly instrumentalise ECAs. For instance, MBA students in the UK and France got involved in original and spectacular activities (e.g. running a marathon, climbing Mount Everest, making documentary films for prestigious festivals, brewing a specialty ale) to demonstrate their competencies (Morris 2007).

This study

Despite the apparent increasing interest of students towards ECAs, very few studies have undertaken a comprehensive and systematic study of the above issues, especially precisely what activities students are active in, why they get involved in these activities in the first place, or whether they believe ECAs will give them an advantage over other job seekers in the labour market. Thus, our goal is to better understand the relationship students have with ECAs. Furthermore, we will try to evaluate the prevalence of Brown and Hesketh's (2004) player and purist strategies in the context of ECAs. That is, we ask to what extent students use these activities as an instrument to distinguish themselves from competitors in the labour market (i.e. a player strategy).

To better understand how students use ECAs to gain a positional advantage in the job market, we first need a clearer picture of students'

involvement in such activities. This means learning what activities students are involved in, how much of their time they spend in these activities or what responsibilities they assume. Moreover, some students seem to spend more time participating in ECAs than in classrooms (Feldman Barr and McNeilly 2002). Therefore, it is worth knowing how students perceive the relationship between their involvement in ECAs and their academic results. Therefore our first general research question (RQ) is:

RQ1: What is the degree of students' involvement in ECAs?

According to Brown and Hesketh (2004), because of the increasing competition in the labour market and the decreasing distinctiveness of educational credentials, some students tend to develop more player strategies. Applying this to ECAs, player students should have an instrumentalist view of ECAs. They should know that participating in ECAs could give them an advantage over their competitors. They may get involved in some activities because they believe they will look good on their résumés or because they can allow them to develop competencies or a business network. However, some students may prefer to get involved in ECAs for more intrinsic reasons (e.g. for their own pleasure). Based on the above, our second RQ is:

RQ2: Why do students get involved in the ECAs?

Moreover, depending on their strategy, students will exploit ECAs differently. On the one hand, those using a player strategy should know how to use ECAs to position themselves in the labour market. They may allocate an substantial portion of their résumés to these activities, demonstrate how participating in such activities helped them developing specific competencies or, more generally, hard and soft currencies of employability (Brown and Hesketh 2004). They may also adapt the way they present their activities to the position they will apply for. Moreover, they may consider ECAs as an efficient solution to distinguish themselves from the competition. On the other hand, students using a purist strategy may believe their chances to get hired will mainly depend on their education and/or experiences and could thus attribute less importance to ECAs in their résumés. In short, our third RQ is:

RQ3: How do students use ECAs in relation to the labour market?

As presented above, in order to develop the best positioning strategy when entering the labour market, players need to know what their competitors do. They should thus be aware of other students' behaviour in relation to ECAs (e.g. what activities they are involved in, why they get involved, how they integrate them in their résumés). Because they believe their own

qualifications will be sufficient to get them the position they want, purists will be less interested in knowing what others do. They may have a less precise idea about their peers' involvement in ECAs or may have a more critical view of those following a player strategy. This leads to our fourth RQ:

RQ4: What are students' beliefs regarding their peers' use of ECAs?

Finally, players need to identify what employers are looking for in order to better position themselves. They may believe employers will use ECAs in their decision to hire a new employee and should have precise ideas about how employers will interpret these activities. For instance, they may have a clear picture of what unobservable characteristics employers will infer from these activities. Purists may think ECAs will only play a minor role in employers' decisions. Moreover they may have a less precise idea about the interpretations employers could make when reading ECAs in a résumé. Overall our last RQ asks:

RQ5: What are students beliefs regarding employers' interpretations of ECAs?

Method

Sample

The sample was composed of 66 students from French-speaking Swiss universities. Average students' age was 24 years, 34 students were women, one-third were Bachelor students and two-thirds were Masters students. Forty-nine students were studying business and economics, nine law, five social sciences and three other fields of study. We purposely chose to recruit business students, because the market for business graduates is considered, at least in Switzerland, as being especially competitive and may therefore exert more pressure on such students to elaborate discourses of employability.

Data collection and measurement

Students were recruited on the business campuses of French-speaking universities in Switzerland. They agreed to participate in a short (20–30 min) semi-structured audio-taped interview about their ECAs. The interview included 12 open-ended questions related to three main topics: (a) their involvement in ECAs: (b) perceptions of other students' involvement in ECAs; and (c) perceptions of employers' evaluations of ECAs and the impact on their chances to get a job. Demographic information was subsequently collected by means of a short questionnaire. We also asked students to estimate their average grade and the time they spent working part-time

jobs. Regarding their involvement, they were invited to talk about what activities they are involved in, how much time they allocate to these activities per week, the responsibilities they have, the impact of such activities on their studies, the reason why they got involved in them in the first place, how these activities were included in their résumés and if they viewed these activities as evidence of competencies. Then they were asked about their impressions regarding their peers' activities. More precisely, we asked them about what activities they thought other students in their field of study were involved in, why they thought other students get involved in these activities and how they thought other students include these activities in their résumés. They were asked how they believed students can distinguish themselves from each other on the job market and if ECAs can help doing so. We also asked them how employers may interpret such activities. Finally, we asked them whether they had already used their ECAs to market themselves during a job interview.

Data preparation

Audiotapes were transcribed, leading to nearly 300 pages of transcriptions. These transcriptions were read several times in order to iteratively build a coding system for each question. For many of our analyses, participants produced long discourses. We coded the topics in several categories, some of them being non-exclusive. For instance, we coded ECAs in four categories (sports, artistic, associative and community) and each participant could be included in more than one category (e.g. sports and associative). This coding system is presented in Table 1, which displays the coded variables, the coding categories and descriptive results (percentages). This table also provides Cohen's Kappa scores, a measure of interrater agreement that takes chance agreement into account. Kappa scores above .60 are considered as sufficient and above .70 as good (Fleiss, Levin, and Cho Paik 2003). These scores were computed based on the coding of 12 transcripts by a second coder and showed sufficient to excellent agreement.

Results and discussion

To investigate RQs 1 and 2, we first describe students' involvement in ECAs. Then we examine our third RQ about how students perceive ECAs in relation to the job market. We then discuss different attributions in the way students regard their peers' use of such activities (RQ4), how they believe employers will interpret these activities (RQ5), and how they use ECAs during the recruitment process. We finally look at one specific activity, student associations, and compare the motives and beliefs of members of such associations and non-members. For all RQs we present descriptive statistical results for our coding categories (see Table 1), provide inferential

Table 1. RQs, variables, coding categories, proportion of students' responses and students' beliefs about their peers and interrater agreement (Cohen's kappa).

RQ	Variables	Coding categories	Proportion		Cohen's kappa	
			Student	Peers	Students	Peers
RQ 1/4	Participating in ECA (Yes/No)	Yes	93.9	95.5	–	
	Type of ECAs	Sports (e.g. football, tennis, fitness)	68.2	86.4		
		Artistic (e.g. music, dance, acting, painting)	42.4	25.8		
		Associative (e.g. associations, committees)	25.8	47.0		
		Community (e.g. charity, NGO volunteer)	15.2	16.7		
	Responsibilities (Yes/No)	Yes	49.2	–	1.0	–
	Impact of ECAs on studies	No impact	27.1	–	.63	–
		Positive only	37.3			
		Positive and negative	23.7			
		Negative only	11.9			
RQ 2/4	Reason for getting involved in ECAs	Interest/passion	54.2	42.4	1.0	.67
		Well-being	33.9	47.0	1.0	.60
		Continue something started as a child	44.1	9.1	.78	1.0
		Meet other people	15.3	30.3	.62	1.0
		Help other people	10.2	1.5	1.0	1.0
		Acquire practical experience	23.7	30.3	1.0	.83
		It will look good on the résumé	13.6	31.8	1.0	.68

(*Continued*)

Table 1. (*Continued*).

RQ	Variables	Coding categories	Proportion		Cohen's kappa	
			Student	Peers	Students	Peers
RQ 3/4	ECAs included in résumé	Always	88.1	86.0	1.0	1.0
		Sometimes	11.9	12.1		
		Never	0	1.5		
	If included, importance	Important/not important	47.4	43.9	.66	–
	If included, adapted to job (Yes/No)	Yes	10.5	13.6	1.0	
	Included under hobbies/activities (Yes/No)	Yes	59.6	–	.82	
	Included under experiences (Yes/No)	Yes	26.3		.75	
	ECAs associated with competencies in the résumé	Yes	29.8	–	.61	–
		No, because it is implicit	5.3			
		No, but in the cover letter or during interviews	12.3			
		Not at all	52.6			
	Need to distinguish from each other (Yes/No)	Yes	90.1		1.0	
	Solutions to distinguish from competition	Education (e.g. advanced degrees, specialised training)	16.7		.75	
		Job experience (e.g. internships, part-time jobs)	40.9		.80	
		Languages (e.g. going abroad to learn other languages)	19.7		.75	
		Originality (e.g. in their résumés or cover letters)	10.6		.63	
		ECA	66.7		.83	
	ECA can help getting a job (Yes/No)	Yes	74.2		.78	

(*Continued*)

Table 1. (*Continued*).

RQ	Variables	Coding categories	Proportion		Cohen's kappa	
			Student	Peers	Students	Peers
RQ5	Importance for employers	Appreciate ECAs and consider them as important	68.2		.63	
		Consider them but not as the most important decision factor	30.3			
		Do not take them into account at all	1.5			
	Employers' interpret ECAs as...	A way to choose when two applicants have similar qualifications	42.4		1.0	
		A way to find similarities between them and the applicant	16.7		.63	
		Signals of job related competencies or experiences	54.5		.67	
		Signals of personality traits	45.5		.66	
		Signals of ability to manage time effectively	25.8		.75	

Note: "–" indicates that there was no question regarding perception of peers for the coding category.

statistical analyses when required and illustrate some patterns of responses with examples taken from transcripts.

Students' involvement in ECAs

ECAs are part of the life of participants. Overall, 94% were active in ECAs and 62% participated in two or more activities. No difference in participation was observed between men and women (both 94%). These activities took students considerable time every week, which was equal to the time they spent working on part-time jobs ($M = 8.20$, $SD = 6.30$ for ECAs vs. $M = 8.34$, $SD = 6.36$ for jobs; the difference between the two is not significant, $t(57) = .283$, ns). Participating in ECAs thus did not prevent students from working in part-time jobs. Seventy-one percent of students active in ECAs were also working. Sixty-four percent of students believed their involvement in ECAs to have a positive impact or no impact on their academic performance. Only a small proportion of them believed it had a negative impact or observed both positive and negative effects. There was a weak and non-significant positive correlation between time spent in ECAs and self-reported average grade, $r = .26$, $n = 58$, *ns*. Half of students involved in ECAs exercised responsibility, like being a student association president or a team captain. Sports and artistic activities were the most popular. Less students were active in associative or community activities. Overall, these results confirm that ECAs represent an important part of students' time use outside their studies.

The main reasons students offered to explain their participation were interest and passion, continuing something started as a child or stress reduction and maintaining well-being. Many students thus seemed to get involved in ECAs mainly out of personal reasons. They did not think of the impact of such ECAs in relation to the labour market *a priori* and therefore adopted a purist vision when it comes to choosing what activities to get involved in:

> *Man, 24, graduate student in law*: The [music events] association is a passion since I was a child. You see it's a passion and music is my thing … I love that since I was 15 … That's clear.

> *Woman, 22, undergraduate student in business*: … to do something else than studying I think, because you can be concentrated on your studies but you need to be open to other things … to do other things, either to reduce your stress or for other personal reasons.

> *Woman, 25, graduate student in business*: … there were some people I know who created this [cultural] association and also at some point the motivation to get involved in something new. I wanted to participate in creating something with the many ideas I had in mind at this point. It also was the personal affinities I had with some people in the association.

Only a minority of students (about 25%) openly cited opportunistic or instrumental reasons (corresponding to a player strategy). For instance they explained that an ECA would look good on their résumés or that it allowed them to gain practical experience or create business networks that could be useful for their future career:

> *Man, 24, graduate student in business*: . . . and then one thing, one of the reasons to join a student association is also the possibility to mention it in my résumé.

> *Woman, 25, graduate student in business*: . . . and then the student association it's mainly to gain experience. I mean learning to work in the business world . . . working with companies. But it was also clearly for my résumé.

> *Woman, 26, graduate student in business*: Mountain bike . . . well there are a lot of executives in this field who are working in management or things like that. That's a network [. . .] So it's a way to build a network of contacts for a future job.

These are representative examples of a player vision of participation in ECAs. The first two students thought about the positive impact such activities could have in their résumés when they chose to get involved. The second student also thought about the practical experience she could accumulate during her participation in the association, therefore seeing her involvement as a way to improve her employability. Finally the third student was aware of the kind of people who will participate in the activity and thought of the opportunities it could provide her when she would look for a position.

Students' use of ECAs in relation to the labour market

Most students (88%) who participated in ECAs included them in their résumés. Yet, even for those who did so, ECAs did not always seem to be key elements. Less than half of them regarded ECAs as an important part of their résumés. In most of the cases ECAs were included under a 'hobbies', 'activities' or 'interests' section, which was often the last and least developed section. These students did not seem to know exactly how to present ECAs and thus how to exploit their full potential in regard to their employability. Therefore, even though many students include ECAs in their résumés, many can be considered as purists in how they use them in relation to the labour market. They do not try to promote these activities to impress employers, but simply considered them as part of the information they provide about themselves. Some of them even chose deliberately not to include them, because they did not want employers to know about the activities they were involved in, as it was their *private* life:

> *Woman, 21, graduate student in business*: I just note like under a *interest* section or I don't remember exactly how I noted it ... but generally that I like sports, that's all.

> *Man, 20, undergraduate student in business*: I heard that when you get hired for a job it is important to be active in an association. I never understood why, but I don't really know if it should be in a résumé ... apparently it is important for those who hire, but I don't see how it should be included.

> *Woman, 22, undergraduate student in business*: It [helping others] is something I do voluntarily. It is for people I like ... to help them. It is not something I want to show in my résumé.

On the other hand, a smaller proportion of students believed ECAs to be an important asset in their résumés. They assumed that presenting such activities could help them to demonstrate specific skills or competencies they possess. For instance, one-fourth of students who included ECAs in their résumés did it under a 'practical experiences' section and a similar proportion described competencies related to these activities. These students followed a player strategy by using ECAs as an instrument to distinguish their résumés from those of their competitors and gain a positional advantage:

> *Man, 24, graduate student in business*: Oh yes [I integrate my ECAs in my résumé]! My associative activity I think it is really an advantage over other students. I got the opportunity to apply my knowledge in practice. And football I also include it because I was the team captain several times. It is simple, but it is always a signal that shows that I can have responsibilities in a group.

> *Woman, 24, undergraduate student in service management*: Sports ... I will include them in my leisure activities ... and I will indicate that because of these sports I developed an important team spirit.

The above students had a clear vision of which aspects of their activities will be described in their résumés and how it will help them to demonstrate soft currencies of employability (e.g. *have responsibilities in a group* or *team spirit*).

Some students also deliberately adapted the way they present activities in their résumés. Again they followed a player strategy and used ECAs as instruments to fine-tune their profile to better match employers' expectancies:

> *Woman, 26, graduate student in business*: It depends a lot on the position or the company [...] If I'm going for a position in a Non-Governmental Organization or things like that, of course I would say that I'm doing volunteer work. It is a positive point. So I am talking about competencies such as negotiation, a little bit about listening skills [...] and mountain bike normally I use it when I want to do something like a trainee program or something, because they are looking for someone who is very pushy, who likes doing different things, or goes beyond her limits.

> *Woman, 25, graduate student in business*: If I apply for a position in sports then I would highlight my experiences in sports. In my résumé I would put forward my experiences related to the specific domain I apply for.

Their responses suggest that they first try to gather information about employers' requirements, realise that not all employers or positions require the same soft currencies and finally adapt their narrative of employability in their résumés (e.g. *in a Non-Governmental Organization or things like that, of course I would say that I'm doing volunteer work*).

When asked about competition on the job market and the need to distinguish themselves from each other because of it, students reported an increasing competition. Most assumed their degree would not guarantee getting a job and agreed they needed to distinguish themselves from competitors. Students cited practical experiences, languages, and additional education as solutions to appear distinctive, that are additional hard currencies of employability. Yet ECAs were the most frequently mentioned way to distinguish oneself (see Table 1). Two-thirds of students cited ECAs as a solution, which demonstrates the potential of these activities as a way to appear distinctive, even if this result was possibly influenced by the fact that previous questions were related to ECAs. These activities were seen as adding value to the hard currencies in graduates' packaging of themselves:

> *Man, 22, undergraduate student in business*: You see we all graduate with the same degree. Employers will never look at your grades at exam A or exam B, they don't care. They see that you have your degree, you have a bachelor degree, and you are an economist. Now they simply want to know what you can bring … You absolutely need to find a plus and I do think that with the help of all the activities I do I packaged myself to really get there with something to bring … and to say 'well I have all that in addition to my degree'.

> *Man, 20, undergraduate student in business*: Yes we have to distinguish ourselves, because we are in a world of sharks! […] Well distinguish … I would not say distinguish … I would say we have to do more. Distinguishing is doing things not like the others, but actually we are all with the same perspective and we still want to do more than others in order to get a job. So we do all these activities exactly for that.

Students' attributions about their peers

In addition to being active in ECAs themselves, students believed this was also the case for their peers. Most assumed that other students were participating in ECAs. They were aware of the kind of activities they were active in, even if they did not appear to be very preoccupied by their peers' involvement. Sports and student associations were believed to be the most popular activities.

We compared why participants thought other students were participating in ECAs with their own reasons for participating. We observed both

similarities and differences. We then tested if the differences were statistically significant using Chi-square tests. On the one hand, the two main reasons they cited were well-being and interest or passion, which were also two of the most often cited reasons for themselves. On the other hand, instrumentalised or player-oriented motives were more frequently cited by students when they talked about the reasons attributed to their peers' than when they talked about their own motives. For instance, 32% of students believed their peers participated in ECAs for the résumé, while only 14% declared participating for the résumé themselves, χ^2 (1, $N = 125$) = 5.83; $p < .05$. Similarly they believed their peers were participating to make new friends more often than themselves (30.3 vs. 15.3%), χ^2 (1, $N = 125$) = 3.96; $p < .05$, but less often to continue something started as a child (9.1 vs. 44.1%), χ^2 (1, $N = 125$) = 20.01; $p < .01$ or to help others (1.5 vs. 10.2%), χ^2 (1, $N = 125$) = 4.33; $p < .05$.

We further looked at students' interpretations of their peers' motives. Some clearly considered doing ECAs for the résumé as being part of the competitive game among students. They were aware of the importance of the relative dimension of employability to gain positional advantages. They had a somehow negative view of their peers using player strategies, but they accepted them as a reasonable response to the increasing pressure on graduates entering the job market:

> *Man, 21, undergraduate student in business*: I'd say that not long ago it was more because of personal motives. But today it's more for the résumé I think. It's maybe sad, but let's say that's normal too because we don't want to get overtaken by someone else.

Others noticed instrumentalised behaviours from their peers, but did not really understand nor support it. They had trouble believing students could get involved in activities just to add something to their résumés:

> *Man, 24, undergraduate student in law*: … that's why so many people get involved in [students'] associations even if most of them are just morons … because well they know it will look good on the résumé.

> *Woman, 26, graduate student in business*: it's true there are others who are doing it because well it looks good to have an activity in the résumé … in community work there are a lot of people doing it who just hate it! It's incredible … I can't even understand how they can do community work … it's really to look good on the résumé.

> *Man, 32, graduate student in business*: I think it's not instrumental … I mean I hope so. I don't know if I'm naïve but if people are doing that in an instrumental way … well I feel sad for them … Doing something for later … I mean we already have enough to worry about every day without anticipating that and thinking *I have to do that for four years from now.*

Students' beliefs about employers' interpretation of ECAs

When asked about how ECAs could be interpreted by employers, a majority of students believed that they were positively interpreted and taken into account by employers, and that being active in ECAs could increase chances to get a job. Overall most students had a precise idea of how ECAs would be interpreted by employers, which is consistent with a player-oriented strategy. Furthermore, students had various beliefs about employers' reasoning for interpreting these activities. A first type of interpretation that applicants made was to associate specific activities with specific competencies or personality traits. Such interpretation was made by a large majority of students. These activities were therefore seen as information allowing employers to know more about applicants. For instance, they assumed that collective activities (e.g. team sports, associations) would be seen as signals associated with competencies like collaboration or teamwork. Therefore, students mainly believed that employers would infer soft currencies, such as the ability to deal with stress or conflicts, teamwork and interpersonal skills from their ECAs. But they also saw such activities as a way for employers to know more about their *self*. These beliefs thus constitute evidence of students' awareness of the importance of personal capital in today's labour market:

> *Woman, 23, graduate student in business*: Well I know that … if you're playing tennis … well they say *oh you're pretty individualistic* … if you're in team sports they say *oh you're more a team player*.

> *Woman, 26, undergraduate student in law*: They see your character … if you're more selfish if you're more collectivistic … they see if you're able to join a group or if you're more individualistic … things like that.

> *Man, 27, undergraduate student in business*: The high-level tennis player will demonstrate ability to deal with stress, pressure … they already know that. And the guy who is involved in an association will be brought to manage conflicts in a group or things like that.

A second type of interpretation was to consider participating in ECA as a signal of time management abilities. Getting involved in ECA takes time, which cannot be spent studying. Therefore employers were assumed to judge students who spend time doing such activities while succeeding in their studies as being able to manage their time effectively, ECAs being a way for employers to infer additional soft currencies. Below are two illustrative examples:

> *Woman, 21, graduate student in business*: It shows that we were able to manage several things in parallel without jeopardizing our studies.

> *Woman, 22, graduate student in business*: If someone has I don't know how much ECAs they will think that this person is very good at organizing things

> . . . to be able to manage his studies in addition to all these activities . . . He certainly must be good at what he does . . . So it's an asset I think.

A third type of interpretation was related to competition in the labour market. Students following this line of reasoning assumed that employers often have to select among applicants with similar qualifications and that ECAs could be used in a second step to distinguish them. Those students were clearly aware of the competition existing in the labour market and considered ECAs as one way to stand out from the crowd and influence employers' decisions:

> *Woman, 25, graduate student in business*: [. . .] because in the end when one presents a university degree . . . well the degrees are the same as 25 other applicants, I don't know. So apart from that, with similar competencies, I believe the employer will look at what has been done outside [of studies].

> *Men, 23, undergraduate students in business*: [. . .] people will all get the same résumé overall. It is not with studies that one can differentiate, it's with what one does besides that one can differentiate . . . it is there that one must influence people to make them interested in calling us for an interview.

> *Men, 24, graduate student in business*: I think that when choosing among two equivalent résumés, someone who has just only his studies and then maybe an internship . . . someone who has done other activities, will have other responsibilities aside from that . . . he will have a lot more chances to get hired.

Finally, some students believed that employers may interpret ECAs in relation to their own activities or interests. ECAs are therefore a potential source of similarity with a recruiter. Such students considered that shared interests can create a first bond between a recruiter and an applicant and maybe affect hiring chances later on. Such beliefs are related to the notion of *social fit* (Brown and Hesketh 2004), because recruiters have a tendency to look for applicants that correspond to their own image to reduce uncertainty related to the hiring decision (i.e. a similarity bias, see for instance Baskett 1973). The following excerpts exemplify this belief:

> *Man, 24, graduate student in business*: Well when I had an interview with [accounting company] the person who interviewed me was the legal and tax director and he was in a rock band and when he saw that I was into music it was an additional plus. And the other person who was interviewing me was in the same ski club as me so it's clear it created kind of a special bond.

> *Man, 26, undergraduate student in business*: Employers can be sensitive to them [ECAs]. For instance, if the employer likes tennis I think he will appreciate to see my résumé because I'm playing. Unconsciously that could maybe help.

Students' use of ECAs in the recruitment process

Above we described what importance students allocate to ECAs in their résumés. Additionally, we asked them about the use of ECAs in a later step of the selection process: the job interview. Some students had never experienced a job interview in their life. Yet, a majority of students (55%) told us that they already had been questioned about ECAs by a recruiter or talked about them during a job interview. These students went a step further in applying a player strategy and used ECAs in face-to-face interactions with employers' representatives. As with their perceptions of employers' interpretations, students vary in the way they presented their activities. The examples below illustrate how students included ECAs as examples of competencies or practical experiences in their narratives of employability:

> *Man, 22, undergraduate student in business*: I explained precisely what was my role in these associations [. . .] because I organized parties, for instance for a friend's association which is a charity association. So I had to organize everything from the beginning to the end, so programming, preparing flyers, booking the room, that kind of stuff. So those are pretty big responsibilities and it's also something cool to put up front.

> *Woman, 29, graduate student in business*: I talked about sports, it was team sports at the time [. . .] Then I said that it helped me develop my endurance and my concentration, to overcome my limits you see, to show discipline.

> *Woman, 23, undergraduate student in business*: They [the recruiters] asked me to describe a situation I experienced when I was able to change things and reach an objective with a team. So typically here, during the three 1 h-interviews, every time I used the association, because it was the only experience I had that could work. [. . .] For me, without the association and the scouts I would never have had that internship. And I would never have had the aptitudes now to work there.

Others talked about ECAs to demonstrate their character or personality, so that employers can have a clearer picture of who they really are. They use ECAs as an instrument to present the *self* aspect of personal capital:

> *Man, 24, graduate student in social sciences*: [. . .] it allowed me show a little bit my personality and maybe to make them know me as the person who was doing this extracurricular activity.

> *Man, 24, graduate student in law*: From time to time I kind of talked about the fact that I was an athlete and that it marked my character, in the sense of combativeness and that kind of thing.

> *Man, 24, graduate student in business*: Once a recruiter asked me about an accomplishment I was particularly proud of in my life, something like that. So I could take an example of something I did when organizing events [. . .]

> So in that sense it was more to say that we did that thing aside of our studies, that it was organizing a big event and that we are proud of it! Why? Because it was a challenge.

Students' associations: the way to play the game?

The results related to our five RQs presented above showed that both purist and player strategies were represented in our sample. Most students used a mix of player and purist strategies. For instance, some students had a very player perspective regarding one aspect (e.g. having a precise idea of the interpretations of ECAs by employers) and a more purist perspective regarding another (e.g. not prioritising ECAs in their résumés). Therefore our results suggest that students are aware of increasing competition in the labour market and realise that ECAs could be a source of positional advantage and a way to build their narrative of employability. But many of them did not exploit the full potential of ECAs.

However, behaviours related to a player strategy appeared to be related to the type of activity rather than individual differences (e.g. age, gender, area of studies). For instance, students explained their peers' participation in associations by opportunistic motives:

> *Man, 27, undergraduate student in business*: For those who are in association I think it is pretty important as they told me … I think it's an important point to put in the résumé. That's the reason that made them do that … why they got involved.

> *Man, 23, graduate student in business*: … and associations, it's mainly to distinguish themselves a little bit, to add lines on résumés, especially for students who don't have other things to put there.

Therefore, for each type of activity, we checked if students active in this particular activity had different motives for participating in ECAs or had different beliefs regarding the impact of ECAs on their chances to get a job as compared to students not participating in this activity, using Chi-square tests. Results showed no difference for sports, artistic activities or community activities. But students participating in associative activities were the ones using their ECAs in a more instrumental way. For instance, 41% of students who were members of associations got involved in their activities 'for the résumé', as compared to only 2% of non-members, χ^2 (1, $N = 59$) = 15.54, $p < .01$. Similarly, 53% of members got involved for 'gaining experience and creating networks', as compared to 12% of non-members, χ^2 (1, $N = 59$) = 11.26, $p < .01$. Moreover, 94% of members had responsibilities in their ECAs as compared to only 31% of non members, χ^2 (1, $N = 59$) = 19.32; $p < .01$. Also, 94% of members were convinced that participation in ECAs could help them getting a job, as compared to only 67% of non-members, χ^2 (1, $N = 59$) = 4.73, $p < .05$.

Conclusions

We investigated students' use of ECAs as a potential solution to distinguish themselves from competition and gain a positional advantage in the labour market. Results suggest that students are aware of the increasing competition in the labour market. As shown in previous research (e.g. Tomlinson 2008), most students believe that their degree is not sufficient to ensure them a job after graduation and recognised the need for distinction. Even if other alternatives were suggested (e.g. internships, learning foreign languages), students often cited participating in ECAs as an appropriate way to achieve such distinction. They believed ECAs could be a way to inform employers about soft currencies they possess (e.g. soft skills, teamwork) in addition to hard currencies (e.g. education credentials), but also about their self (e.g. their personality or their values), that is, the full package of personal capital (Brown and Hesketh 2004), They also realised that employability requires a mix of hard and soft currencies and that ECAs can help demonstrate them.

Moreover, we found that that most students use a mix of both player and purist strategies (Brown and Hesketh 2004) in relation to ECAs. Consistent with a purist strategy, most of them got involved in ECAs out of personal reasons (e.g. interest or passion, continuing something started as a child), without having in mind that these activities could add value and distinction to their credentials. Moreover they did not instrumentalise their ECAs, which were only presented in a small portion of their résumés under a 'hobbies' section. Only a few students, mainly those involved in associative activities, got involved in ECAs because of the potential value such activities could have on their résumés. Nevertheless, consistent with a player strategy, most students were aware of their competitors' use of such activities and often had a precise idea about how employers may interpret them. Therefore in the specific domain of ECAs, the distribution of player and purist strategies is less clear than in Brown and Hesketh's (2004) research, where they were able to classify one-third of applicants as using a player strategy, one-third as using a purist strategy and one-third as using a mixed strategy. Here most students could be seen as using a mixed strategy because they generally had a player perspective regarding some aspects of ECAs but a purist perspective regarding others. Also, most students did not openly declare doing ECAs for the résumé, citing less instrumental motives, but were aware that that their activities could help them demonstrate soft currencies. Such conclusions correspond to Brown and Hesketh's (2004, 130) findings, who explained that they were 'not suggesting that the players undertook ECAs purely because it would look good on their CVs. Many social activities involve mixed motives'. Player strategies have important implications for employers. Employers evaluate participation in ECAs positively, as suggested by previous research (e.g. Barber et al. 1999; Feldman

Barr and McNeilly 2002), because they believe ECAs are signals of individuals' competencies or personality (e.g. Cole et al. 2009). If students start participating only for their résumés, then the informational value of such signals may decrease because participation in ECAs would not be related to individual characteristics anymore.

Our results are based on a sample mainly composed of business students. They may therefore not be generalisable to other fields of study, especially those where competition in the labour market is less intense. Furthermore, we have little evidence about how students' use of ECAs may evolve in the years to come, but our data suggest that students apparently recognise the need to add distinctions to their credentials and see ECAs as a way to do this. Thus, students may increasingly use ECAs to develop individualised narratives demonstrating their employability (see Tomlinson 2007). They may choose to allocate more time and effort to such activities and give them more importance in their résumés. Future research could investigate this phenomenon, for instance by developing longitudinal studies about student's involvement in ECAs or inclusion of ECAs in résumés. As an alternative to ECAs, students may also use waged work to demonstrate their employability. Other studies may thus investigate how students use waged work in relation to the labour market. The value of getting involved in ECAs is inversely proportional to the number of students doing it. Adapting Brown and Hesketh's (2004) citation presented above, we could say that if all students are active in sports, associations or community work, then these activities have less distinctive value. Therefore future research may also study how employers' perceptions of applicants' ECAs evolve over time and how they react to the instrumentalisation of such activities. Furthermore if more students become active in the traditional ECAs presented above, it increases the pressure on player-oriented students who have to counteradapt to stay ahead of competitors (Bangerter, Roulin, and König in press), an adaptive behaviour well-known in economics (Frank 2006). Students may thus engage in a competition for more original or exotic activities (see, for instance, the examples in Morris 2007). Such a situation would ultimately give students no additional distinctiveness as compared to their competitors and decrease usefulness of ECAs as a signal for employers.

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References

Bangerter, A., N. Roulin, and C.J. König. in press. Personnel selection as a signaling game. *Journal of Applied Psychology.*

Ball, S.J. 2003. *Class strategies and the education market*. Abingdon: Routledge-Falmer.

Barber, A.E., M.J. Wesson, Q. Roberson, and M.S. Taylor. 1999. A tale of two job markets: Organizational size and its effects on hiring practices and job search behavior. *Personnel Psychology* 52, no. 4: 841–67.

Baskett, G.D. 1973. Interview decisions as determined by competency and attitude similarity. *Journal of Applied Psychology* 57: 343–5.

Bloch, R. 2007. Natürlich möchte man es auch gern im lebenslauf stehen haben . . . – bedeutungen des praktikums für studierende [naturally people want to have that in the résumés too. . . – the meaning of internships for students]. *Beiträge zur Hochschulforschung* 4: 82–106.

Bourdieu, P. 1984. *Distinction: A social critique of the judgement of taste*. Trans. Richard Nice. Cambridge, MA: Harvard University Press.

Bourdieu, P. 1986. The forms of capital. In *Handbook of theory of research for the sociology of education*, ed. J.F. Richardson, 241–58. Westport, CT: Greenword Press.

Brown, P. 2000. The globalisation of positional competition? *Sociology* 34, no. 4: 633–53.

Brown, D.K. 2001. The social sources of educational credentialism: Status cultures, labor markets, and organizations. *Sociology of Education* 74: 19–34.

Brown, B.K., and M.A. Campion. 1994. Biodata phenomenology: Recruiters' perceptions and use of biographical information and résumé screening. *Journal of Applied Psychology* 79: 897–908.

Brown, P., and A. Hesketh. 2004. *The mismanagement of talent: Employability and jobs in the knowledge economy.* Oxford: Oxford University Press.

Brown, P., A. Hesketh, and S. Williams. 2003. Employability in a knowledge-driven economy. *Journal of Education and Work* 16: 107–26.

Brown, P., H. Lauder, and D. Ashton. 2011. *The global auction*. Oxford: Oxford University Press.

Buon, T., and B. Compton. 1990. Credentials, credentialism and employee selection. *Asia Pacific Journal of Human Resources* 28, no. 4: 126–32.

Chia, Y.M. 2005. Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education* 14: 75–93.

Cole, M.S., H.S. Feild, and W.F. Giles. 2003. Using recruiter assessments of applicants' resume content to predict applicant mental ability and big five personality dimensions. *International Journal of Selection and Assessment* 11: 78–88.

Cole, M.S., H.S. Feild, W.F. Giles, and S.G. Harris. 2009. Recruiters' inferences of applicant personality based on résumé screening: Do paper people have a personality? *Journal of Business and Psychology* 24, no. 1: 5–18.

Cole, M.S., R.S. Rubin, H.S. Feild, and W.F. Giles. 2007. Recruiters' perceptions and use of applicant résumé information: Screening the recent graduate. *Applied Psychology: An International Review* 56, no. 2: 319–43.

Collins, R. 2002. Credential inflation and the future of universities. In *The future of the city of intellect: The changing American university*, ed. Steven G. Brint, 23–46. Stanford, CA: Stanford University Press.

Collins, R. 1981. Crises and declines in credentialing systems. In *Sociology since midcentury*, ed. Randall Collins, 191–215. New York, NY: Academic Press.

Davies, S., and F.M. Hammack. 2005. The channeling of student competition in higher education: Comparing Canada and the US. *The Journal of Higher Education* 76, no. 1: 89–106.

Derous, E., and A.M. Ryan. 2008. When earning is beneficial for learning: The relation of employment and leisure activities to academic outcomes. *Journal of Vocational Behavior* 73: 118–31.

Feldman Barr, T., and K.M. McNeilly. 2002. The value of students' classroom experiences from the eyes of the recruiter: Information, implications, and recommendations for marketing educators. *Journal of Marketing Education* 24, no. 2: 168.

Fleiss, J.L., B. Levin, and M. Cho Paik. 2003. *Statistical methods for rates and proportions*. New York, NY: Wiley.

Frank, R.H. 2006. *Microeconomics and behavior*. New York, NY: McGraw-Hill.

Fugate, M., A.J. Kinicki, and B.E. Ashforth. 2004. Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior* 65: 14–38.

Hesketh, A.J. 2000. Recruiting an elite? Employers' perceptions of graduate education and training *Journal of Education and Work* 13, no. 3: 245–71.

Hurtz, G.M., and J.J. Donovan. 2000. Personality and job performance: The big five revisited. *Journal of Applied Psychology* 85, no. 6: 869–79.

Hustinx, L., F. Handy, R.A. Cnaan, J.L. Brudney, A.B. Pessi, and N. Yamauchi. 2010. Social and cultural origins of motivations to volunteer. *International Sociology* 25, no. 3: 349–82.

Kaufman, J., and J. Gabler. 2004. Cultural capital and the extracurricular activities of girls and boys in the college attainment process. *Poetics* 32: 145–68.

Lepori, B. 2007. Patterns of diversity in the Swiss higher education system. In *Universities and strategic knowledge creation: Specialization and performance in Europe*, ed. Andrea Bonaccorsi, 209–40. Cheltenham: Edward Elgar.

Mahoney, J.L., B.D. Cairns, and T.W. Farmer. 2003. Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology* 95, no. 2: 409–18.

Marsh, H.W. 1992. Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology* 84, no. 4: 553–62.

Merino, R. 2007. Pathways from school to work: Can the competences acquired in leisure activities improve the construction of pathways? *Journal of Education and Work* 20, no. 2: 139–59.

Moreau, M.-P., and C. Leathwood. 2006. Graduates' employment and the discourse of employability: A critical analysis. *Journal of Education and Work* 19: 305–24.

Morris, S. 2007. A stand-out Cv: So much to do, so little time. *The Independent*, October 18.

Nemanick, R.C.J., and E.M. Clark. 2002. The differential effects of extracurricular activities on attributions in résumé evaluation. *International Journal of Selection and Assessment* 10: 206–17.

Perellon, J.-F. 2003. The creation of a vocational sector in Swiss higher education: Balancing trends of system differentiation and integration. *European Journal of Education* 38, no. 4: 357–70.

Rubin, R.S., W.H. Bommer, and T.T. Baldwin. 2002. Using extracurricular activities as an indicator of interpersonal skills: Prudent evaluation or recruiting malpractice? *Human Resource Management* 41: 441–54.

Sattinger, M. 1998. Statistical discrimination with employment criteria. *International Economic Review* 39, no. 1: 205–37.
SFSO. 2010. Perspectives de la formation: Scénarios 2010–2019 pour les hautes écoles [Education perspectives: 2010–2019 scenarios for higher education]. In *Statistiques de la Suisse*. Swiss Federal Statistical Office.
Spence, M. 1973. Job market signaling. *The Quarterly Journal of Economics* 87: 355–73.
Tchibozo, G. 2008. Extra-curricular activity and the transition from higher education to work: A survey of graduates in the United Kingdom. *Higher Education Quarterly* 61, no. 1: 37–56.
Tomlinson, M. 2007. Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work* 20: 285–304.
Tomlinson, M. 2008. Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education* 29: 49–61.
Trow, M. 2006. Reflections on the transition from elite to mass to universal access: Forms and phases of higher education in modern societies since World War II. In *International handbook of higher education*, ed. J.J.F. Forest and P.G. Altbach, 243–80. Netherlands: Springer.
Van Der Heijde, C.M., and B.I.J.M. Van Der Heijden. 2006. A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management* 45: 449–76.
Wilton, N. 2008. Business graduates and management jobs: An employability match made in heaven? *Journal of Education and Work* 21: 143–58.
Winston, G.C. 2004. Differentiation among US colleges and universities. *Review of Industrial Organization* 24: 331–54.

Appendix IV

Roulin, N., & Bangerter, A. (resubmitted). What are the motives behind students' involvement in extracurricular activities? *International Journal of Psychology*.

Extracurricular Activities in Young Applicants' Résumés: What Are the Motives Behind Their Involvement?

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Abstract

Research showed that young applicants increasingly enter the labor market with similar education and job-related experience. They may thus use non-job-related experiences, like participation in extracurricular activities (ECAs) during their studies, to demonstrate personal characteristics and competencies to recruiters, but also to add distinction and value to their credentials. The purpose of this study was to investigate to what extent students' involvement in ECAs is due to internal (e.g., passion) or external (e.g., résumé-building) motives, and what factors influence these motives. Results suggest that students engage in ECAs mainly out of internal motives. But external motives are stronger for activities started closer to the labor market and for students in associative or volunteering activities or holding leadership positions. Organizations and recruiters may want to consider that students tend not only to engage in ECAs purely out of internal motives, but also to add value to their credentials and match employers' expectations.

Keywords: Extracurricular activities; résumé screening; motivation; labor market.

Extracurricular Activities in Young Applicants' Résumés: What Are the Motives Behind Their Involvement?

Résumé screening is the commonest selection method (Cole, Feild, Giles, & Harris, 2009). It allows recruiters to form first impressions of applicants' qualities and determine if they possess the knowledge, skills, abilities, and other personal characteristics (KSAOs; Fugate, Kinicki, & Ashforth, 2004) required for the position. Generally, recruiters assess Person-Job fit using the "KSA" part (e.g., competencies, skills, experiences) while they assess Person-Organization fit using the "O" part (e.g., personality, values, motivation) (Kristof-Brown, 2000). Applicants have to acquire the KSAOs valued by potential employers and demonstrate how they meet organizations' needs in the three main sections of their résumés: education credentials, job-related experiences, and non-job-related experiences (Cole et al., 2009; Nemanick & Clark, 2002).

Here, we focus on non-job-related experiences, and more particularly on extracurricular activities (ECAs) as representing an innovative way for applicants, especially young graduates, to demonstrate KSAOs to organizations. Few studies have undertaken a comprehensive and systematic study of the relationship students have with ECAs. This paper is organized as follows: We first describe the three sources of information related to KSAOs in résumés. We then focus on non-job-related experiences, more specifically on ECAs. Finally, we describe our study investigating students' motives to participate in ECAs.

Three Sources of Information in Applicants' Résumés

Education Credentials and Job-related Experiences

Education is valued by recruiters in résumés, especially for less experienced applicants (Cole, Rubin, Feild, & Giles, 2007; Hutchinson, 1984). Applicants' educational credentials include information such as degrees earned, college major, grades, relevant courses, or school/university prestige (Cole et al., 2009; Howard, 1986). Recruiters may use such

information to infer KSAs, because they expect education to provide graduates with skills or abilities (Hesketh, 2000). For instance, good grades may signal math and communication abilities (B. K. Brown & Campion, 1994). Furthermore, mentioning more relevant coursework and higher grades in one's résumé increase the chances to be invited for an interview (Thoms, McMasters, Roberts, & Dombkowsky, 1999). Yet today's labor market is characterized by mass higher education (P. Brown, Hesketh, & Williams, 2003; Tomlinson, 2008), with more and more graduates entering the market (P. Brown & Hesketh, 2004). The value of educational credentials is therefore decreasing, because it is more difficult for employers to use this information to choose among applicants. Educational credentials are thus not sufficient for applicants to distinguish themselves from others (Tomlinson, 2008).

Recruiters also look for job experience in applicants' résumés (Cole et al., 2007; Hutchinson, 1984), inferring KSAOs from previous job positions held, responsibilities encountered, and past employers' reputation. For instance, relevant experience signals competence (Knouse, 1994). Such inferences are less straightforward with young graduates, who have limited job experience. But recruiters can look for competencies using experiences from part-time jobs or internships (B. K. Brown & Campion, 1994).

Non-job-related Experiences

Non-job-related experiences include hobbies and interests, community service or, for young graduates, extracurricular activities (ECAs). Participating in ECAs is part of the life of many students during their education (Marsh, 1992; Rubin, Bommer, & Baldwin, 2002). ECA participation has a positive effect on academic and post-academic outcomes (Mahoney, Cairns, & Farmer, 2003; Marsh, 1992).

ECAs are good indicators of individuals' KSAs. Managers who participate in more ECAs develop skills such as decision-making, creativity, interpersonal skills, or resistance to stress (Howard, 1986). People who participate in more ECAs report higher communication,

initiative, and decision making skills (Rubin et al., 2002). Young graduates may use ECA participation to compensate for limited work experience and thus demonstrate KSAs that would not be otherwise visible on their résumé (B. K. Brown & Campion, 1994; P. Brown & Hesketh, 2004; Nemanick & Clark, 2002). For instance, recruiters can infer leadership competencies from an applicant who was a club's vice-president (Nemanick & Clark, 2002) or interpersonal skills from volunteering (Hustinx et al., 2010). Recruiters also infer the "O" part (e.g., applicant's character or personality) from ECAs (Cole et al., 2009). For instance, a fraternity member can be perceived as being extraverted (Cole et al., 2009) and volunteers can be perceived as being good citizens (Handy et al., 2010).

Organizations value ECAs when screening applicants (Feldman Barr & McNeilly, 2002). Résumés containing more ECAs and more leadership positions in these activities receive better evaluations and more invitations for interviews (Cole et al., 2007; Nemanick & Clark, 2002), as well as more job offers (Chia, 2005). Participation in ECAs increases graduates' chances to find jobs corresponding to their qualifications (Merino, 2007). Therefore students participate in ECAs and probably intend to use such experiences later, when applying for jobs. At the same time, recruiters use ECAs as indicators of KSAOs in applicants' résumés. Yet, very few studies have undertaken a comprehensive and systematic study of students' motives to engage in ECAs.

Motives to engage in ECAs

Self-Determination Theory (SDT) suggests that people perform an action either because it is interesting or enjoyable (i.e. intrinsic/internal motivation) or because it may lead to positive outcomes (i.e. extrinsic/external motivation) (Ryan & Deci, 2000). Students may thus engage in ECAs because they are interested or passionate about them (i.e. out of internal motives), but also because they perceive these activities as valuable for their future career and they can instrumentalize them to meet people or build their résumés (i.e. out of more external

motives). Previous studies of the motives of students participating in specific ECAs (e.g., sports or artistic activities) have mainly highlighted internal motives (Barnett, 2006). Also, students' involvement in volunteering was mainly motivated by internal factors, such as value-driven reasons (Handy et al., 2010; Hustinx et al., 2010). More generally, ECAs are activities students perform voluntarily as a complement to (compulsory) education activities. Therefore, SDT (Ryan & Deci, 2000) would suggest that students should mainly engage in various ECAs out of internal motives.

Hypothesis 1: Overall, students will report stronger internal than external motives to engage in ECAs.

Yet, some factors may lead students to have stronger external motives to engage in ECAs. SDT suggests that external pressures could increase external motivation (Ryan & Deci, 2000). For instance, students report more external motives to engage in ECAs when they have the possibility of getting credit (Merino, 2007). Students also engage in volunteering more for résumé-building reasons in job markets where employers use such activities to infer productivity, such as Canada and the U.S. (Hustinx et al., 2010). Anecdotes also suggest that some students deliberately undertake ECAs to demonstrate competencies employers are looking for (P. Brown & Hesketh, 2004). In a recent study, some students openly reported external motives to engage in ECAs (e.g., networking or résumé-building; Roulin & Bangerter, in press). But there was little indication about what factors may influence such behaviors.

One explanation may be the time when students first got involved in the activity. On the one hand, activities started earlier (e.g. a sport started as a child) are likely to be mainly motivated by internal reasons (e.g., interest). On the other hand, as students come closer to the labor market, they may start to perceive competitive pressure (P. Brown & Hesketh, 2004). They may recognize that they need to do something to increase their chances to get a job

(Tomlinson, 2008), and realize how ECAs could help them demonstrate KSAOs. Therefore, later involvement in activities is likely to be motivated more by external motives (e.g., résumé-building or networking).

Hypothesis 2a: Students will report stronger external motives to engage in ECAs for activities they started later than for activities they started earlier.

Another explanation for differences in motivation could be leadership positions applicants hold in ECAs. Leadership positions on résumés are especially valued by employers (Nemanick & Clark, 2002; Rubin et al., 2002), probably because they interpret such information as indicators of leadership or interpersonal abilities. Some students may be aware of such attributions and choose to adopt leadership roles in their activities because of potential positive external rewards (i.e., making a good impression on recruiters).

Hypothesis 2b Students holding leadership positions will report engaging in ECAs more out of external motives than those who do not hold leadership positions.

Students' motives may also differ from one type of activity to another. Sports and artistic activities are generally depicted as being mainly internally motivated (Barnett, 2006). For instance, involvement in sports has been explained by competition-seeking or health motives (e.g., Recours, Souville, & Griffet, 2004). On the other hand, involvement in volunteering may be at least partially influenced by external (i.e. career-oriented) motives (Clary et al., 1998; Handy et al., 2010). Students' associations and volunteering activities often operate in organizational structures and often include roles and responsibilities for their members, and a hierarchy with leadership positions. Such activities resemble actual business activities more than sports or artistic activities. Some students may thus engage in such activities because they expect them to be rewarded on the job market.

Hypothesis 2c: External motives to engage in ECAs will be stronger for students involved in associative-volunteering activities than for those involved in sports or artistic activities.

Moreover, involvement in ECAs has been related to having more KSAOs (e.g., leadership abilities, interpersonal skills; Howard, 1986; Rubin et al., 2002). But involvement in different activities may also lead to developing different skills (Rubin et al., 2002). For instance, volunteering for the Red Cross and singing gospel may not develop similar skills. Students may recognize that associative and volunteering activities resemble business activities more and perceive them to allow developing more KSAOs than sports or artistic ones.

Hypothesis 3: Students perceive associative or volunteering activities to allow acquiring more business-related KSAOs than sports or artistic activities.

In the next sections, we present data from a questionnaire study testing these hypotheses with business and law students from a Swiss university.

Method

Sample and Procedure

Our sample comprised 197 students from a university in French-speaking Switzerland. Participants voluntarily completed a questionnaire after class. Mean age was 21.82 years (*SD* = 1.65), 101 were women, 116 were Bachelor students, 77 were Master students, and 4 did not provide their current level of education, 105 were law students and 92 business students. Twenty-four percent of participants expected graduation within one year, 38% within two years, and 38% in more than two years. Fifty-two percent were working at part-time jobs during their studies (6.5 hours a week on average, *SD* = 4.19).

Measures

Participation in ECAs. Students indicated whether or not they were involved in any ECA. If they did, they provided detailed information about up to three ECAs. They indicated the type of ECA among four possibilities: *individual sports* (e.g., swimming), *team sports* (e.g., basketball), *students' associations or volunteering* (e.g., association of economics students), and *artistic activities* (e.g., dancing). They also indicated number of years in the activity, hours spent per week, and whether or not they held leadership positions.

Activity order. If students were involved in more than one activity, information for ECAs they started first was coded as "early ECAs" and information for activity/activities started later "later ECAs" (see Table 1).

Motives for ECA participation. For each activity they mentioned, participants indicated their motives for participating from a list of six motives developed from previous research (Clary et al., 1998; Hustinx et al., 2010; Roulin & Bangerter, in press): *by interest or passion*, *to do something else than studies*, *to meet people*, *to help others*, *to acquire practical experience*, and *because it will look good on my résumé*. All motives were evaluated on 5-point rating scales, going from "completely disagree" to "completely agree". An exploratory factor analysis with principal component analysis and varimax rotation on the 6 motives revealed two factors. The first factor included the last 4 motives, explained 37.3% of the variance, and was labeled "*external motives*" (Cronbach's alpha = .76). The second factor included the first two motives and explained an additional 24.2% of the variance, but because of low reliability (Cronbach's alpha = .45), we only kept *by interest or passion* and we called this 1-item factor "*internal motives*".

Perceived KSAO acquisition through ECAs. All participants (even those who were not active in ECAs) reported the degree to which four types of activities (individual sports, team sports, students' associations or volunteering, and artistic activities) could improve five

skills (initiative, creativity, leadership, organization, interpersonal skills) on 5-point rating scales, going from “completely disagree” to “completely agree”.

Results

Overall, only 19.8% of students reported not being involved in any ECA. Of the others, 23.4% reported one activity, 34.5% two activities, and 22.3% three activities. Most students were involved in individual sports (58.4%), but fewer were involved in artistic activities (28.9%), team sports (23.4%), and associations or volunteering (21.8%). Descriptive data can be found in Table 1.

Table 1.

Mean, Standard Deviation, and Correlations Among Main Study Variables for Earlier and Later ECAs

		M	*SD*	1	2	3	4
ECA started earlier							
1	Years doing ECA	9.42	5.33	-			
2	Hours spent in ECA	3.97	2.98	.23**	-		
3	Leadership position	.18	.38	.12	.16	-	
4	Internal motives	4.67	.38	.28**	.22**	.08	-
5	External motives	2.42	.88	.10	.22**	.31**	.21**
ECA(s) started later							
1	Years doing ECA(s)	3.48	2.79	-			
2	Hours spent in ECA(s)	3.21	2.49	.14	-		
3	Leadership position(s)	.36	.48	-.13	.21*	-	
4	Internal motives	4.27	.85	.25**	.13	.05	-
5	External motives	2.62	1.04	-.13	.19	.62**	.19*

Note: $N = 157$ for earlier ECAs and $N = 110$ for later ECA(s), * $p < .05$. ** $p < .01$.

We simultanously tested Hypotheses 1, 2a, and 2b using a 2x2x2 ANOVA, with the type of motives (internal vs. external) and activity order (ECAs started earlier vs. ECAs started later) as within-subject variables, leadership position (leadership vs. no leadership position) as a between-subject variable and level of motivation as the dependent variable. This

analysis was based on students who reported engaging in at least two activities ($N = 110$). Results are depicted in Figure 1. Results showed a main effect of the type of motives, $F(1,108) = 661.48$, $p < .001$, partial $\eta^2 = .86$. Overall, students reported stronger internal ($M = 4.46$, $SD = .79$) than external ($M = 2.50$, $SD = .96$) motives to engage in ECAs, supporting Hypothesis 1. There was no main effect of activity order, $F(1,109) = .51$, $p = .48$, partial $\eta^2 = .01$, but a main effect of leadership position, $F(1,108) = 16.87$, $p < .001$, partial $\eta^2 = .14$. There was a type of motives by activity order interaction, $F(1,108) = 18.87$, $p < .001$, partial $\eta^2 = .15$. External motives were higher for later ($M = 2.62$, $SD = 1.04$) than earlier ($M = 2.38$, $SD = .88$) ECAs, while internal motives were higher for earlier ($M = 4.66$, $SD = .73$) than later ($M = 4.27$, $SD = .85$) ECAs, supporting Hypothesis 2a. We also found a leadership position by type of motives interaction, $F(1,108) = 11.30$, $p < .01$, partial $\eta^2 = .10$. External motives were higher for students holding leadership positions ($M = 2.83$, $SD = 1.02$) than for those not holding such positions ($M = 2.20$, $SD = .78$), while the difference was smaller for internal motives ($M = 4.53$, $SD = .66$ vs. $M = 4.41$, $SD = .88$), supporting Hypothesis 2b. In addition, we found a leadership position by activity order interaction, $F(1,108) = 5.72$, $p < .05$, partial $\eta^2 = .05$. Finally, there was no three-way interaction, $F(1,108) = .99$, $p = .32$, partial $\eta^2 = .01$.

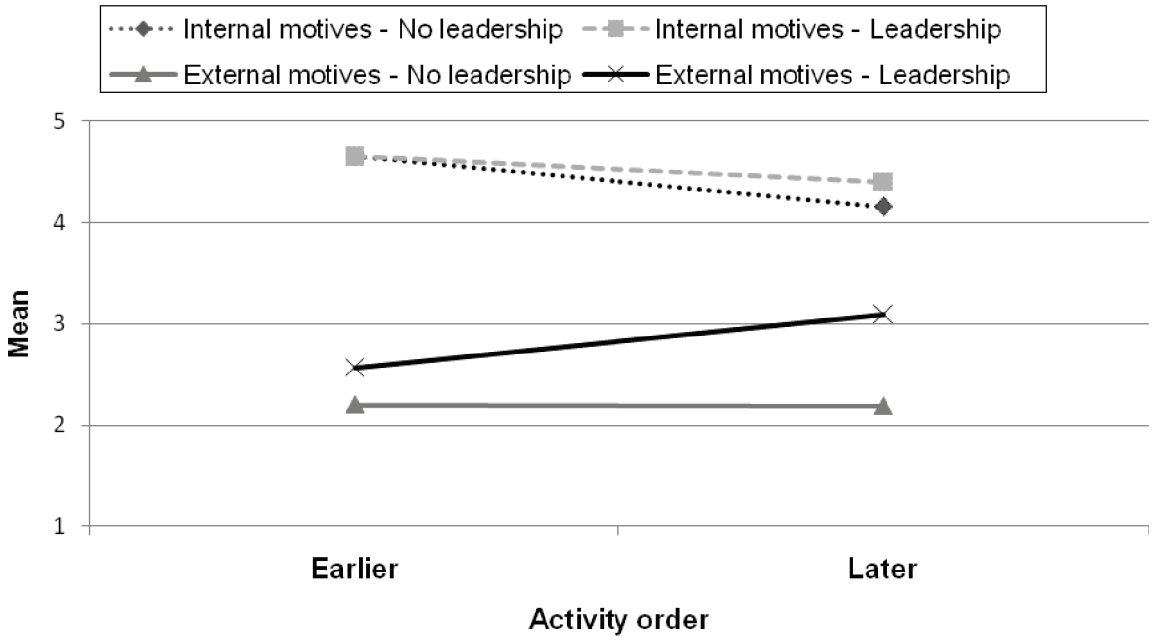

Figure 1. Mean level of internal and external motives to engage in ECAs for earlier and later activities for students with and without leadership positions.

We used a linear mixed-model ANOVA to test Hypothesis 2c, exploring potential differences in internal and external motives for different types of ECAs (individual sports, team sports, association or volunteering, artistic, see Figure 2). Our multilevel model included activities (level 1) clustered within participants (level 2). Results showed an effect of activity type on internal motives, $F(3,285) = 7.56$, $p < .001$. Pairwise comparisons with Bonferroni adjustments revealed that students engaged in association or volunteering activities with similar levels of internal motives as individual sports ($p = 1.00$), but lower levels than team sports ($p < .01$) and artistic activities ($p < .01$). Results also showed an effect of activity type on external motives, $F(3,285) = 62.78$, $p < .001$. Pairwise comparisons revealed that students engaged in association or volunteering activities for external motives more than individual sports ($p < .001$), team sports ($p < .001$), and artistic activities ($p < .001$). Hypothesis 2c was thus supported.

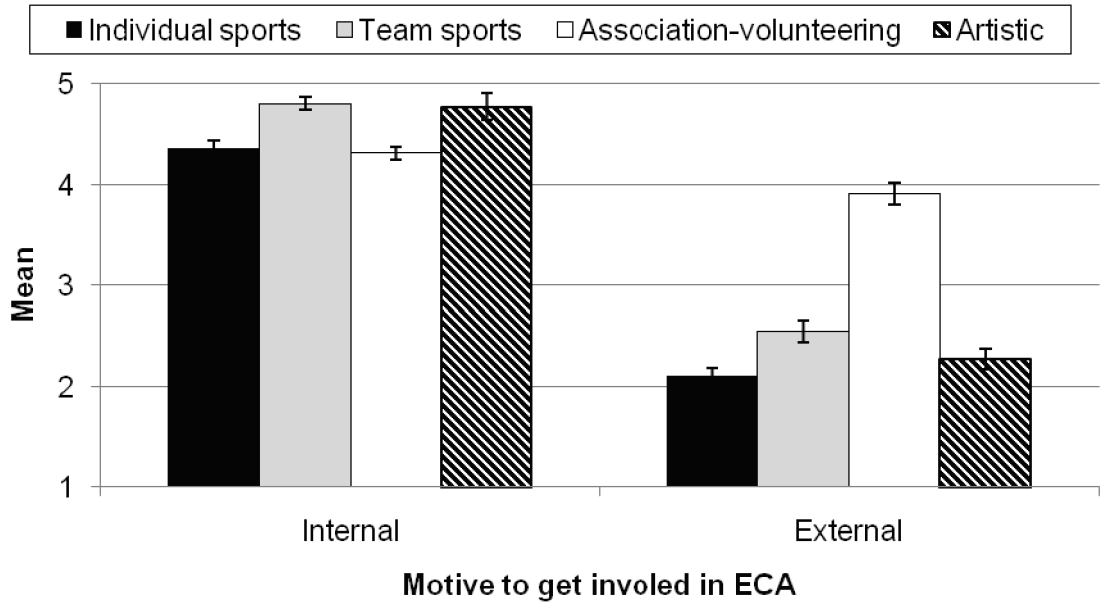

Figure 2. Mean scores for each type of motive to get involved in ECA for each type of activity, calculated across all activities students were involved in. Error bars indicate one standard error.

We tested Hypothesis 3 (perceived acquisition of KSAOs through associative-volunteering as compared to other types of activities) using repeated-measures ANOVAs for the 5 types of competencies (see Figure 3). Pairwise comparisons with Bonferroni adjustments were used to compare each type of activity. Results suggest an effect of activity type on the acquisition of initiative skills, $F(3,174) = 40.95$, $p < .001$. Students perceived associative and volunteering activities to help acquiring initiative more than individual sports ($p < .001$), team sports ($p < .05$), and artistic activities ($p < .001$). There was also an effect of activity type on the acquisition of creativity skills, $F(3,176) = 118.78$, $p < .001$. Students perceived artistic activities to help acquiring creativity more than associative and volunteering activities ($p < .001$). But they perceived associative and volunteering activities to help acquiring creativity more than individual sports ($p < .001$) and team sports ($p < .001$). Activity type had also an effect on leadership skills, $F(3,175) = 181.68$, $p < .001$. Students perceived team sports to help acquiring leadership skills more than associative and volunteering activities ($p < .01$). But they perceived associative and volunteering activities to help acquiring leadership skills more than individual sports ($p < .001$) and artistic activities ($p < .001$). Results showed an effect of activity type on organization skills, $F(3,175) = 36.38$, $p < .001$. Students perceived associative and volunteering activities to help acquiring organization skills more than individual sports ($p < .001$), team sports ($p < .05$), and artistic activities ($p < .001$). Finally, activity type had an effect on interpersonal skills, $F(3,177) = 32.10$, $p < .001$. Students perceived associative and volunteering activities to help acquiring as much interpersonal skills than team sports ($p = 1$), but more than individual sports ($p < .001$) or artistic activities ($p < .001$). Together, these results partly support Hypothesis 3.

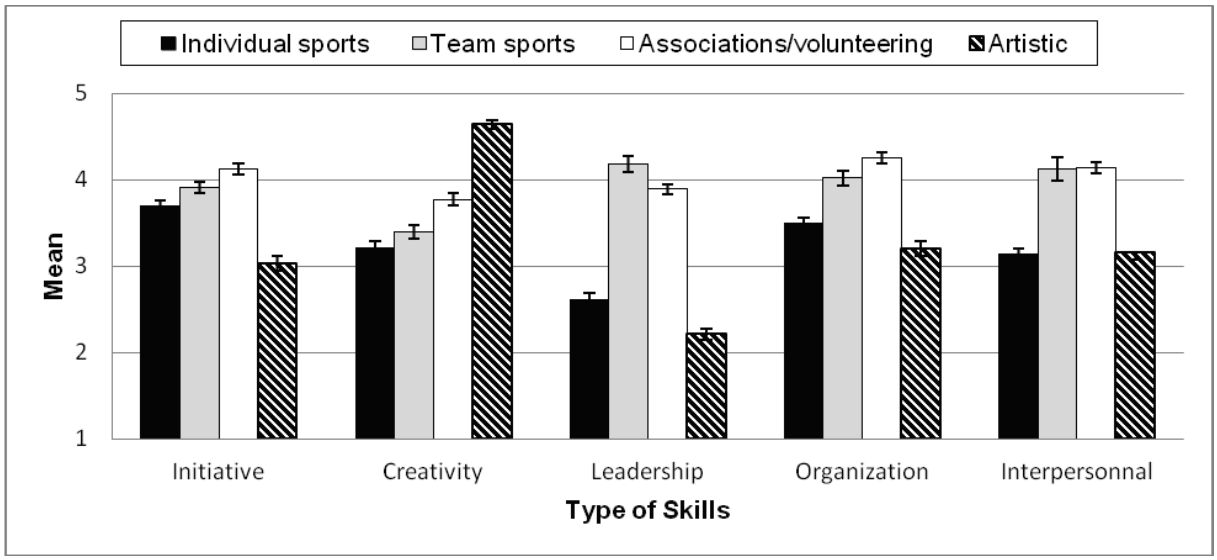

Figure 3. Mean level of perceived KSAO acquisition for four different types of ECAs. *N*s = 182 to 190. Error bars indicate one standard error.

Discussion

When perusing résumés of today's young applicants, recruiters often find similar education credentials and job-related experiences, making traditional screening an increasingly difficult task (Thoms et al., 1999). They may thus start to focus on other features of résumés to distinguish among applicants, such as ECAs (P. Brown & Hesketh, 2004; Rubin et al., 2002). Yet, we still know little about what KSAOs applicants really develop during ECAs, what makes them getting involved in these activities, and how they use such activities in relation to the labor market.

We found that students participate in ECAs mainly out of internal motives, but that some are also influenced by external motives (e.g., résumé-building motives). Such results correspond to previous findings with volunteering activities (e.g., Handy et al., 2010; Hustinx et al., 2010) suggesting that participation involves a combination of motives. Moreover, students' motives may evolve over time. Students generally reported engaging in their earlier activity during early adolescence (i.e. they were involved in the activity for more than 9 years on average), when the labor market was probably yet not a main concern for them. For these

activities, internal motives were central. Students reported engaging in later activities for around 3.5 years on average, and thus closer to entering the labor market. In this later situation, students have to deal with the increasing pressure of finding a job after graduation. Students may develop various strategies to manage this pressure (P. Brown & Hesketh, 2004), and one strategy could involve using ECAs to demonstrate their qualities (e.g., soft skills or leadership abilities) to future employers (P. Brown & Hesketh, 2004; Tomlinson, 2008). Our data showed that external motives (e.g., résumé-building) are stronger for activities started closer to entering the labor market. This difference may thus be due to (some) students applying such an ECA-based strategy in response to increasing market pressure. Yet, students may also differ in their overall orientation towards the job market (Tomlinson, 2007). Future research should examine job market orientation as a potential moderator of the relationship between job market pressure and external motivation to engage in ECAs.

Furthermore, the ECA-based strategy seems to be mainly adopted by students holding leadership positions in their activities. These students reported stronger external motives, especially for activities started later. Students may be aware that employers are actually looking for more than a list of activities, i.e., active participation (Feldman Barr & McNeilly, 2002). However, our results are cross-sectional and these interpretations are subject to caution. Longitudinal studies should be conducted to examine more precisely how people's motives evolve.

Moreover, students involved in associative or volunteering activities reported stronger external motives than students involved in other types of activities. These results are consistent with recent findings (Handy et al., 2010; Hustinx et al., 2010; Roulin & Bangerter, in press). Thus, some students do apply an ECA-based strategy to add value to their credentials in response to the increasing labor market pressure (P. Brown & Hesketh, 2004; Tomlinson, 2008). But those students may primarily choose to invest their time and energy in

associative or volunteering activities, that is, types of ECAs particularly valued by recruiters (Chia, 2005; Nemanick & Clark, 2002).

Finally, students perceive that different types of activities may help acquiring different KSAOs. For instance, artistic activities were perceived to develop creativity, but not leadership skills. On the other hand, team sports were perceived to develop leadership skills, but less creativity. Associative or volunteering activities represent a good trade-off for students, who perceive them as a good way to help developing numerous skills (i.e. initiative, creativity, leadership abilities, organization abilities, and interpersonal skills). For students' involvement in ECAs to constitute an efficient signal, students and recruiters should agree on what skills are acquired through what type of ECAs. Students' perceptions regarding the value of associative or volunteering activities seem to correspond to recruiters', who see applicants engaged in these activities as having more leadership or interpersonal skills (B. K. Brown & Campion, 1994). Yet, we only measured perceptions of skill acquisition and not actual acquisition. Past research showed that students can acquire valuable skills through ECAs, but did not distinguish between activity types (Howard, 1986) or focused on one specific type of ability or skill (Rubin et al., 2002). Our results therefore call for additional research to investigate what KSAOs are actually acquired through participation in various ECAs.

This study has practical implications for recruiters who try to infer KSAOs from applicants' ECAs when screening résumés. Students may develop useful abilities and skills (or more generally the "KSA" part) in ECAs, independently of the type of motives leading to their involvement. Recruiters may thus safely use ECAs in résumés to infer KSAs and assess Person-Job fit. But, personality, values or motivation (i.e. the "O" part) that recruiters generally infer from ECAs (Cole et al., 2009; Handy et al., 2010) may not correspond to the true characteristics of students involved for external motives. For instance, some people who

volunteers more for the résumé than to help others may not be especially altruistic people. Therefore, recruiters should be careful when assessing Person-Organization fit using ECAs. They should realize that labor market pressure is a key component of applicants' involvement in ECAs and integrate this factor in their evaluation process. Also, they should evaluate differently applicants involved in different types of activities or having different roles within the activity.

This study has some additional limitations. First, our results are based on a small sample of students from a French-speaking Swiss university. Different results may have been found in other countries, for instance where ECAs are valued differently by employers (Hustinx et al., 2010). Future research should try to replicate these findings in other settings. Also, our sample is composed of business and law students. Our results may therefore not generalize to other fields of study, especially those where competition on the labor market is less intense. Further studies may want to explore other samples.

Our study shows that students' motives to engage in ECAs may evolve as they come closer to the labor market, and that they respond to the increasing competitive pressure by engaging in activities recruiters value (i.e. associative or volunteering activities, leadership positions). Organizations and recruiters may want to consider that students tend not only to engage in ECAs purely out of passion or interest, but also to add value to their credentials and match employers' expectations.

References

Barnett, L. A. (2006). Accounting for leisure preferences from within: The relative contributions of gender, race or ethnicity, personality, affective style, and motivational orientation. *Journal of Leisure Research, 38*, 445-474.

Brown, B. K., & Campion, M. A. (1994). Biodata phenomenology: Recruiters' perceptions and use of biographical information and résumé screening. *Journal of Applied Psychology, 79*, 897-908.

Brown, P., & Hesketh, A. (2004). *The mismanagement of talent: Employability and jobs in the knowledge economy*. Oxford, UK: Oxford University Press.

Brown, P., Hesketh, A., & Williams, S. (2003). Employability in a knowledge-driven economy. *Journal of Education and Work, 16*, 107-126.

Chia, Y. M. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education, 14*, 75 - 93.

Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J., et al. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology, 74*, 1516-1530.

Cole, M. S., Feild, H. S., Giles, W. F., & Harris, S. G. (2009). Recruiters' inferences of applicant personality based on résumé screening: Do paper people have a personality? *Journal of Business and Psychology, 24*, 5-18.

Cole, M. S., Rubin, R. S., Feild, H. S., & Giles, W. F. (2007). Recruiters' perceptions and use of applicant résumé information: Screening the recent graduate. *Applied Psychology: An International Review, 56*, 319-343.

Feldman Barr, T., & McNeilly, K. M. (2002). The value of students' classroom experiences from the eyes of the recruiter: Information, implications, and recommendations for marketing educators. *Journal of Marketing Education, 24*, 168.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*, 14-38.

Handy, F., Cnaan, R. A., Hustinx, L., Kang, C., Brudney, J. L., Haski-Leventhal, D., et al. (2010). A cross-cultural examination of student volunteering: Is it all about résumé building? *Nonprofit and Voluntary Sector Quarterly, 39*, 498-523.

Hesketh, A. J. (2000). Recruiting an Elite? Employers' perceptions of graduate education and training. *Journal of Education and Work, 13*, 245 - 271.

Howard, H. (1986). College experiences and managerial performance. *Journal of Applied Psychology, 71*, 530-552.

Hustinx, L., Handy, F., Cnaan, R. A., Brudney, J. L., Pessi, A. B., & Yamauchi, N. (2010). Social and cultural origins of motivations to volunteer. *International Sociology, 25*, 349-382.

Hutchinson, K. L. (1984). Personnel administrators' preferences for résumé content: A survey and review of empirically based conclusions. *Journal of Business Communication, 21*, 5-14.

Knouse, S. (1994). Impressions of the resume: The effects of applicant education, experience, and impression management. *Journal of Business and Psychology, 9*, 33-45.

Kristof-Brown, A. L. (2000). Perceived applicant fit: Distinguishing between recruiters' perceptions of person-job and person-organization fit. *Personnel Psychology, 53*, 643-671.

Mahoney, J. L., Cairns, B. D., & Farmer, T. W. (2003). Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology, 95*, 409-418.

Marsh, H. W. (1992). Extracurricular activities: beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*, 553-562.

Merino, R. (2007). Pathways from school to work: can the competences acquired in leisure activities improve the construction of pathways? *Journal of Education and Work, 20*, 139-159.

Nemanick, R. C. J., & Clark, E. M. (2002). The differential effects of extracurricular activities on attributions in résumé evaluation. *International Journal of Selection and Assessment, 10*, 206-217.

Recours, R. A., Souville, M., & Griffet, J. (2004). Expressed motives for informal and club/association-based sports participation. *Journal of Leisure Research, 36*, 1-22.

Roulin, N., & Bangerter, A. (in press). Students' use of extracurricular activities to appear distinctive in competitive job markets. *Journal of Education and Work*.

Rubin, R. S., Bommer, W. H., & Baldwin, T. T. (2002). Using extracurricular activities as an indicator of interpersonal skills: Prudent evaluation or recruiting malpractice? *Human Resource Management, 41*, 441-454.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.

Thoms, P., McMasters, R., Roberts, M. R., & Dombkowsky, D. A. (1999). Resume characteristics as predictors of an invitation to interview. *Journal of Business and Psychology, 13*, 339-356.

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work, 20*, 285-304.

Tomlinson, M. (2008). Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education 29*, 49-61.

Appendix V

Roulin, N., Bangerter, A., & Yerly, E. (2011). The uniqueness effect in selection interviews, *Journal of Personnel Psychology, 10,* 43-47.

Research Note

The Uniqueness Effect in Selection Interviews

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Abstract. Today's job market is competitive, leading applicants to try and "stand out from the crowd." The job interview is an ideal situation for doing so, for instance by preparing original or *unique* answers to traditional interview questions. This study tested empirically how an applicant providing a unique answer was evaluated relative to applicants providing qualitatively equivalent but nonunique answers. Applicants providing unique answers obtained higher evaluations and improved their chances to get a job offer. Our results suggest that interviewers may be influenced by the uniqueness of applicants' answers, irrespective of applicants' true abilities to perform on the job.

Keywords: personnel selection, job interview

Contrast effects are well known in personnel selection (Hakel, Ohnesorge, & Dunnette, 1970; Maurer & Lee, 2000; Wexley, Yukl, Kovacs, & Sanders, 1972). Here we explore a related phenomenon, the *uniqueness effect*. Independently of applicants' quality and order of evaluation in the selection process, uniqueness can offer applicants an advantage over their rivals in an increasingly standardized and competitive job market (Brown & Hesketh, 2004). We show how applicants providing unique answers to interview questions get better outcomes than those who do not.

Judgments of Applicant Quality and Contrast Effects

Recruiters' evaluations of applicants are typically based on applicants' academic achievements and job experience (Singer & Bruhns, 1991), but also on knowledge, skills, abilities, and other characteristics (KSAOs; Fugate, Kinicki, & Ashforth, 2004). Recruiters generally evaluate applicant's ability in terms of person-job fit and values in terms of person-organization fit (Adkins, Russel, & Werbel, 1994). But irrelevant factors like gender, attractiveness, or race (Marlowe, Schneider, & Nelson, 1996; Sacco, Scheu, Ryan, & Schmitt, 2003; Tews, Stafford, & Zhu, 2009) can influence evaluations during interviews. Recruiters also prefer applicants who resemble them or their profile of the ideal applicant (Adkins et al., 1994). Evaluation of applicants is also influenced by the quality of preceding applicants (the so-called contrast effect). Average individuals are evaluated more favorably when met after unpleasant than pleasant ones (Rowe, 1967). Resumes of average applicants are better evaluated when they follow those of poor rather than good applicants (Hakel et al., 1970). In selection interviews (Wexley et al., 1972), average applicants get significantly higher ratings when preceded by poor rather than good applicants.

Being Unique in Competitive Job Markets

With the development of mass higher education, more people enter the job market with university degrees (Moreau & Leathwood, 2006). A degree is by itself often insufficient to match employers' expectancies. It is applicants' responsibility to demonstrate the KSAOs valued by prospective employers (Fugate et al., 2004). Applicants thus need to distinguish themselves from other job seekers (Brown & Hesketh, 2004), an aspect that may lead to a uniqueness effect. Uniqueness, or individuation (Maslach, 1974), is "a positive striving for differentness relative to other people" (Snyder & Fromkin, 1977, p. 518). Unique individuals are treated differently from conventional ones and benefit from this uniqueness when it is positive. They are easily identified by other people to receive prestige, aid, or love (Maslach, 1974). People differ in their uniqueness motivation. People with a high need to be unique are more willing to create a particular social image and stand out from the crowd (Maslach, Stapp, & Santee, 1985). But uniqueness motivation may also be higher in situations where individuals see themselves as highly similar to others (Imhoff & Erb, 2009; Snyder & Fromkin, 1977).

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The Uniqueness Effect in Personnel Selection

In selection situations, applicants are motivated to distinguish themselves from others because they know they will not only be judged on their absolute qualities, but also their relative qualities compared to others (Brown & Hesketh, 2004; Tomlinson, 2007). Few studies have explored the strategies applicants use to distinguish themselves, and we are aware of none examining how recruiters' decisions are influenced by uniqueness.

Adapting Snyder and Fromkin (1977), we define the uniqueness effect in personnel selection as *the effect of an applicant's distinctive characteristics or answers on recruiters' evaluations and decisions in the selection process*. Uniqueness is thus different from contrast effects because it is independent of applicants' answer quality and their sequential positioning relative to others.

During interviews, applicants try to display their knowledge, skills, abilities, and other characteristics while providing original answers. To do this, they can prepare themselves for interviews, for instance, by reading advice books providing ready-to-use answers to interview questions (Palmer, Campion, & Green, 1999). Take the example of the traditional question *what is your main weakness?* Several books suggest answers that are not real weaknesses, like being "impatient" or "a perfectionist" (Gerstmann, 2002). Applicants may go to interviews with prepared answers (Martin & Pope, 2008) and, ironically, end up providing similar answers to each other. In such a situation, providing a different answer can be a valuable strategy to stand out from the crowd. Note that this uniqueness effect may hold independently of the quality of the answer. Thus a unique but not qualitatively better answer (e.g., *I am impatient* as compared to *I am a perfectionist*) can be salient for interviewers. Moreover, uniqueness may sometimes be related to qualities valued by organizations, like having independent opinions (Snyder & Fromkin, 1977). Therefore uniqueness can cause applicants to be more positively evaluated:

Hypothesis 1 (H1): Applicants providing unique answers to interview questions will be better evaluated than applicants providing nonunique answers.

Interviewers assess applicants during or after interviews, either globally or using rating scales. But hiring decisions take place after all applicants have been interviewed. Interviewers base their decision on their evaluations, the notes they may have taken, and what they remember of each applicant. Each of these elements may favor uniqueness. Therefore, when one applicant has to be chosen for the job, those providing a unique answer may be preferred to nonunique applicants:

Hypothesis 2 (H2): Applicants providing unique answers to interview questions will be offered a job more often than applicants providing nonunique answers.

The uniqueness effect could be moderated by job type. For instance, uniqueness is related to creativity (Gruber & Wallace, 1998). Thus, appearing unique may be more important for stereotypically creative jobs (e.g., marketing) than for stereotypically less creative jobs (e.g., accounting):

Hypothesis 3 (H3): The effect of unique answers to interview questions will be greater for a stereotypically creative job than for a stereotypically less creative job.

We report an experiment testing the effect of applicant uniqueness and job type on recruiters' evaluations and hiring decisions. We operationalized uniqueness as whether an answer is only given by one applicant in a set or by several.

Method

Participants

Participants were 79 business and economics students of Swiss universities. Eighty-five percent were Master students, and 15 percent were senior Bachelor students. Fifty-six percent were men (mean age: 24.7 years).

Procedure

Participants played the role of a recruiter for a 15-min study on personnel selection. They read one of two types of job description, either for a stereotypically creative position (marketing) or a stereotypically less creative one (accounting). Both job descriptions were one page long and contained job responsibilities (e.g., developing communication or advertising strategies or managing costs and financial accounting, respectively). Participants then read purportedly transcribed answers to interview questions from four experienced male applicants who had been purportedly preselected based on their resume. All answers were built based on transcripts of mock interviews with actual job seekers. For each applicant, participants read answers to two questions. As an introduction, they read each applicant's answer to the question *tell me about yourself*. All four applicants provided answers of similar quality. They then read answers to the question *what is your main weakness?* Answers to this question featured our uniqueness manipulation. Three of the applicants gave nonunique answers to this question (e.g., different versions of an answer like *I am impatient*) while the fourth one gave a unique answer (e.g., a version of an answer like *I am a perfectionist*). We counterbalanced the type of the unique answer (i.e., *impatient* in half of the cases and *perfectionist* in the other half) and the position of the unique applicant to exclude confounds due to answer type and order effects. We thus built three possible *I am impatient* answers and three possible *I am a perfectionist* answers.

For instance, one of the *impatient* applicant answers was *Well … my greatest weakness so I'll say that sometimes I have a tendency to be impatient. I'm someone who is active and dynamic and I like when things progress … and when they don't then I lose patience pretty quickly [...].*

Design

The design was a 2 × 2 × 2 factorial plan with uniqueness (unique vs. nonunique applicant) as a within-subjects variable, job type (stereotypically creative vs. noncreative) as a between-subjects variable, and answer type (impatient vs. perfectionist) as a within-subjects control variable.

Dependent Variables

After reading all transcripts, participants evaluated answer quality, job-related competence, and chances of getting hired of each applicant on 6-point Likert scales. These three items were averaged to create a global score ($\alpha = .88$) for each applicant. We then computed a nonunique-applicant evaluation score as the mean of the global scores of the three nonunique applicants. Finally, participants selected one applicant to hire.

Manipulation Check

To measure a uniqueness effect and not a contrast effect, all answer versions have to be of similar quality. We pretested the quality of the four answers to the introductory question and the three *impatient* and *perfectionist* answers to the manipulated question on 12 doctoral students. All answers to the introductory question were of similar quality, $F(3, 44) < 2.46$, *ns*. There were no differences among versions of the *impatient*, $F(2, 33) < 1.20$, *ns* and *perfectionist*, $F(2, 33) < 1.95$, *ns*, answers, nor were there differences between *impatient* ($M = 3.32$) and *perfectionist* ($M = 3.29$) answers, $F(2, 94) = 0.92$, *ns*.

To check that our manipulations of answer type were correctly perceived by study participants, we checked that *impatient* answers were perceived as more impatient than *perfectionist* ones, $M = 5.03$ versus $M = 2.86$, $F(1, 78) = 206.41$, $p < .001$. Similarly we checked that perfectionist answers were perceived as more conscientious than *impatient* ones, $M = 4.93$ versus $M = 3.83$, $F(1, 78) = 87.89$, $p < .001$. Correlations between evaluations of unique applicants and their position showed no order effect, $r = .10$, $N = 79$, *ns*. Evaluations of unique and nonunique applicants were unrelated to participants' age, gender, or education level, rs $< .16$, $N = 79$, *ns*.

Results

Applicants providing unique answers get better evaluations and are chosen more often than applicants providing nonunique answers (Figure 1). These results were consistent across answer types and job types. A 2 × 2 × 2 mixed-model ANOVA was used to test H1 and H3, with the evaluations of the unique and nonunique applicants as a within-subjects factor and answer type and job type as between-subjects factors. Results showed a main effect of uniqueness on evaluations, $F(1, 75) = 8.94$, $p < .01$, and a main effect of job type, $F(1, 75) = 10.0$, $p = .002$, but no main effect of answer type, $F(1, 75) = 1.38$, $p = .25$. Unique applicants ($M = 4.25$) were better evaluated than nonunique applicants ($M = 3.88$). Applicants for creative jobs got lower evaluations ($M = 3.81$) than for noncreative jobs ($M = 4.14$). These results support for H1. Furthermore, there was no interaction between uniqueness and answer type, $F(1, 75) = 1.09$, $p = .30$, no interaction between uniqueness and job type, $F(1, 75) = 0.04$, $p = .84$, and no three-way interaction, $F(1, 75) = 0.01$, $p = .96$. Therefore, H3 was not supported.

The unique applicant was chosen for the job by 48.1% of participants. A binomial test revealed that this was significantly higher than chance (25%), $z = 4.671$, $p < .001$, supporting H2. The unique applicant was chosen more often for noncreative jobs than for creative jobs (57.5% vs. 37.8%),

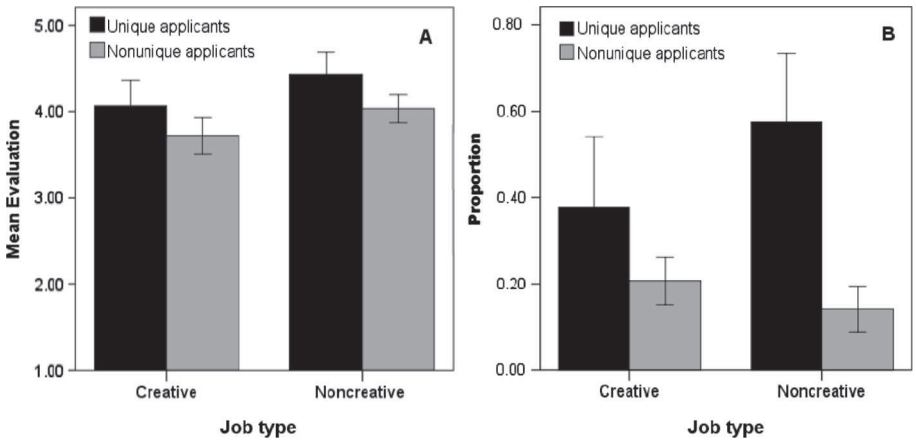

Figure 1. Evaluation (A) and hiring choice (B) for the unique applicant and the mean of nonunique applicants applying for creative and noncreative jobs.

but the difference was not significant, $\chi^2(1, N = 77) = 2.98$, $p = .084$, providing further evidence against H3.

Discussion

Applicants providing unique answers to interview questions get higher evaluations and get a job offer more often than applicants providing nonunique answers. This effect was independent of evaluators' age, gender, or education, the type of unique answer, and job type. Unexpectedly, applicants got better evaluations when applying for noncreative than creative jobs. This result may be due to the fact that evaluators may have had higher expectations for stereotypically creative jobs than for noncreative ones.

Because applicants need to distinguish themselves from each other (Brown & Hesketh, 2004), interviews may become situations where they try to appear unique by preparing original answers. Our results suggest that interviewers may be influenced by the uniqueness of these answers, even if they do not provide information about the applicant's true abilities.

Results were obtained with a student sample evaluating paper applicants. This design is sufficient to demonstrate the uniqueness effect, but limits the external validity of our results (Arvey & Campion, 1982; Moscoso, 2000). Students and experienced interviewers may differ in their way of evaluating applicants' answers (Barr & Hitt, 1986). For instance, student evaluators give more importance to academic qualifications but less to job experience than experienced evaluators (Singer & Bruhns, 1991). Experienced interviewers may thus weight answer uniqueness less than students and focus more on the detailed content of applicants' answers. Similarly, different results may be found in a real interview context. For instance, interviewers may look for other sources of information that were not available here (e.g., gender, age, attractiveness) to differentiate applicants with similar qualifications and minimize the effect of answer uniqueness. Therefore, further studies should test the robustness of the uniqueness effect in real job interviews with professional interviewers. We tested uniqueness based on answers to two traditional questions. Interview characteristics may moderate this effect. For instance, structured interviews, which involve asking the same questions to all participants in the same order (Campion, Palmer, & Campion, 1997), may make unique applicants more salient and trigger uniqueness effects. Conversely, questions about past behavior (Motowidlo et al., 1992) require applicants to provide well-developed answers based on past experiences and thus affect the opportunity to prepare a unique answer. Future research could test the uniqueness effect in structured interviews and using behavioral questions, as well as whether uniqueness also affects outcomes in other selection situations like resume screening. Future research could also explore the mechanisms by which uniqueness affects selection decisions, for example, whether it facilitates encoding of information during the interview or recall after the interview.

References

Adkins, C. L., Russel, G. J., & Werbel, J. D. (1994). Judgments of fit in the selection process: The role of work value congruence. *Personnel Psychology, 47*, 605–623.

Arvey, R. D., & Campion, J. E. (1982). The employment interview: A summary and review of recent research. *Personnel Psychology, 35*, 281–322.

Barr, S. H., & Hitt, M. A. (1986). A comparison of selection decision models in manager versus student samples. *Personnel Psychology, 39*, 599–617.

Brown, P., & Hesketh, A. (2004). *The mismanagement of talent: Employability and jobs in the knowledge economy*. Oxford, UK: Oxford University Press.

Campion, M. A., Palmer, D. K., & Campion, J. E. (1997). A review of structure in the selection interview. *Personnel Psychology, 50*, 655–702.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*, 14–38.

Gerstmann, P. (2002). *Trick job interview questions and answers: How to handle interviews and get the job you want*. London, UK: Peter Gerstmann Associates.

Gruber, H. E., & Wallace, D. B. (1998). The case study method and evolving system approach for understanding unique creative people at work. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 93–115). Cambridge, UK: Cambridge University Press.

Hakel, M. D., Ohnesorge, J. P., & Dunnette, M. D. (1970). Interviewer evaluations of job applicants' resumes as a function of the qualifications of the immediately preceding applicants: An examination of contrast effects. *Journal of Applied Psychology, 54*, 27–30.

Imhoff, R., & Erb, H. P. (2009). What motivates nonconformity? Uniqueness seeking blocks majority influence. *Personality and Social Psychology Bulletin, 35*, 309–320.

Marlowe, C. M., Schneider, S. L., & Nelson, C. E. (1996). Gender and attractiveness biases in hiring decisions: Are more experienced managers less biased? *Journal of Applied Psychology, 81*, 11–21.

Martin, P. D., & Pope, J. (2008). Competency-based interviewing: Has it gone too far? *Industrial and Commercial Training, 40*, 81–86.

Maslach, C. (1974). Social and personal bases of individuation. *Journal of Personality and Social Psychology, 29*, 411–425.

Maslach, C., Stapp, J., & Santee, R. T. (1985). Individuation: Conceptual analysis and assessment. *Journal of Personality and Social Psychology, 49*, 729–738.

Maurer, S. D., & Lee, T. W. (2000). Accuracy of the situational interview in rating multiple candidates. *Journal of Business and Psychology, 15*, 73–96.

Moreau, M.-P., & Leathwood, C. (2006). Graduates' employment and the discourse of employability: A critical analysis. *Journal of Education and Work, 19*, 305–324.

Moscoso, S. (2000). Selection interview: A review of validity evidence, adverse impact and applicant reactions. *International Journal of Selection and Assessment, 8*, 237–247.

Motowidlo, S. J., Carter, G. W., Dunnette, M. D., Tippins, N., Warner, S., Burnett, J. R., & Vaughan, M. J. (1992). Studies of the structured behavioral interview. *Journal of Applied Psychology, 77*, 571–587.

Palmer, D. K., Campion, M. A., & Green, P. C. (1999). Interviewing training for both applicant and interviewer. In R. W. Eder & M. M. Harris (Eds.), *The employment interview handbook* (pp. 337–351). Thousand Oaks, CA: Sage.

Rowe, P. M. (1967). Order effects in assessment decisions. *Journal of Applied Psychology, 51*, 170–173.

Sacco, J. M., Scheu, C. R., Ryan, A. M., & Schmitt, N. (2003). An investigation of race and sex similarity effects in interviews: A multilevel approach to relational demography. *Journal of Applied Psychology, 88*, 852–865.

Singer, M. S., & Bruhns, C. (1991). Relative effect of applicant work experience and academic qualification on selection interview decisions: A study of between-sample generalizability. *Journal of Applied Psychology, 76*, 550–559.

Snyder, C. R., & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology, 86*, 518–527.

Tews, M. J., Stafford, K., & Zhu, J. (2009). Beauty revisited: The impact of attractiveness, ability, and personality in the assessment of employment suitability. *International Journal of Selection and Assessment, 17*, 92–100.

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work, 20*, 285–304.

Wexley, K. N., Yukl, G. A., Kovacs, S. Z., & Sanders, R. E. (1972). Importance of contrast effect in employment interviews. *Journal of Applied Psychology, 56*, 45–48.

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Appendix VI

Roulin, N., Bangerter, A. & Levashina, J. (submitted). Do you see what I see ? Interviewers' perceptions of applicants' impression management in selection interviews. *International Journal of Selection and Assessment*.

Do You See What I See?

Interviewers' Perceptions of Applicant Impression Management in High-Stakes Employment Interviews

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Abstract

Applicants use honest and deceptive impression management (IM) to influence interviewers' evaluations of their performance in employment interviews. Yet, little research has examined interviewers' perceptions of applicant IM behaviors and how these perceptions influence interview outcomes. Results from a field study of 164 high-stakes employment interviews demonstrate that interviewers' perceptions do not converge with self-reported applicant IM, but that interviewers are more accurate in their perception of deceptive (i.e. image creation) than honest (i.e. self-promotion) IM. Perceived honest IM is positively related to interview outcome, but perceived deceptive IM, such as slight image creation, is negatively related to interview outcome. In interviews, what may actually matter is not the impression applicants think they are making, but interviewers' actual impressions.

Do You See What I See? Interviewers' Perceptions of Applicant Impression Management in High-Stakes Employment Interviews

Impression management (IM), or job applicants' attempts to create a particular image in interviewers' minds during employment interviews, has been studied extensively in the last decades (Ellis, West, Ryan, & DeShon, 2002; Kristof-Brown, Barrick, & Franke, 2002; Stevens & Kristof, 1995). The use of IM behaviors affects interviewers' ratings (Kacmar, Delery, & Ferris, 1992; Kristof-Brown et al., 2002), that nearly all job applicants engage in IM (e.g., Ellis et al., 2002; Levashina & Campion, 2007; Turnley & Bolino, 2001), and that different types of interviews encourage some and discourage other types of IM behaviors (Ellis et al., 2002; McFarland, Ryan, & Kriska, 2003). Furthermore, recent research suggests that there are two types of IM: honest and deceptive IM or faking (Gilmore & Ferris, 1989; Levashina & Campion, 2007). Honest IM is used by applicants to truthfully describe their actual job-related abilities, accomplishments, and experiences. In contrast, deceptive IM is used by applicants to embellish their actual job-related credentials or to create credentials that fit with the job requirements.

However, research remains largely limited to applicants' self-reports of IM behaviors and how they impact interviewers' evaluations, with inconsistent results. Some studies suggest that job applicants' honest IM behaviors may have a small (Lievens & Peeters, 2008) or negative impact on interview outcomes (Baron, 1986; Fletcher, 1990), whereas others suggest that applicant IM positively affects interview outcomes (Dawson, Horvath, & Raymark, 2006; Gilmore & Ferris, 1989; Stevens & Kristof, 1995). Similarly, some studies showed a positive impact of deceptive IM behaviors (Levashina & Campion, 2007), while others suggested a negative impact (Swider, Barrick, Harris, & Stoverink, in press). These inconsistencies may be explained by differences in applicants' abilities to effectively use IM (Harris, Kacmar, Zivnuska, & Shaw, 2007) or initial impressions (Swider et al., in press).

Here we propose that these inconsistencies may also be explained by the way interviewers perceive these IM behaviors.

The employment interview is a situation where interviewers want to know the truth about applicants' qualities (Vrij, Granhag, & Porter, 2010). But actually very few studies examined interviewers' perceptions of applicant honest and deceptive IM, and how they interpret and use these perceptions in their ratings. Are interviewers' perceptions of job applicants' IM behaviors accurate? How do interviewers use perceived IM tactics in their ratings and evaluations? Several authors have called for more research to answer these questions (e.g., Levashina & Campion, 2006, 2007; Macan, 2009; Posthuma, Morgeson, & Campion, 2002), but their calls have yet received only little empirical response.

In this study, we aim to examine these questions and contribute to a better understanding the impact of applicant IM. More precisely, we explore (1) the use of honest and deceptive IM by job applicants and interviewers' perceptions of IM use in high-stakes employment interviews, (2) the extent to which interviewers' perceptions of applicants' honest and deceptive IM behaviors are accurate, (3) the influence of interviewers' experience and self-evaluated competence on the accuracy of IM perceptions, and (4) the impact of interviewers' perceptions on interview outcomes. We begin by reviewing relevant empirical and theoretical work on IM behaviors and by developing specific hypotheses that will be tested in the present study.

Impression management behaviors in the employment interview

IM is a "desire to create particular impressions in others' minds" (Leary & Kowalski, 1990, p. 35). Different types of IM tactics may be used in the employment interview (Stevens & Kristof, 1995). Applicants may use non-verbal tactics, such as smiling or frequent eye contact. They may also use verbal tactics, such as assertive and defensive tactics (Bolino, Kacmar, Turnley, & Gilstrap, 2008). Assertive verbal tactics are used to proactively construct images of being good job applicants and include *ingratiation* (i.e. trying to evoke

interpersonal attraction or liking with the interviewer), *opinion conformity* (i.e. endorsing attitudes and values held by the interviewer) and *self-promotion* (i.e. claiming the responsibility for positive results in the past or enhancing ones' competence). Defensive IM tactics are used to reactively repair negative images of applicants and include apologies, excuses, or justifications (Tsai, Huang, Wu, & Lo, 2010).

Applicants may also use deceptive IM tactics and distort their responses in job-desirable ways to resemble the profile of the ideal applicant an organization is looking for (Leary & Kowalski, 1990; Levashina & Campion, 2006). For instance, applicants may use *slight image creation* (i.e. embellishing, tailoring, and fit enhancing), e*xtensive image creation* (i.e. constructing, inventing, and borrowing experiences or accomplishments), *image protection* (i.e. omitting or masking negative experiences) or *deceptive ingratiation* (i.e. expressing insincere beliefs or values that are held by the interviewer or the organization) (Levashina & Campion, 2007). Applicants are more likely to engage in deceptive IM behaviors that are less severe (e.g., embellishing) and less verifiable (Donovan, Dwight, & Hurtz, 2003).

Applicants extensively use honest IM behaviors in employment interviews. One study found that 97.5% of job applicants use at least one honest IM tactic during an interview (Ellis et al., 2002). Stevens and Kristof (1995) found that applicants use an average of 37.25 assertive IM behaviors per interview, with heavier reliance on self-promotion tactics (M = 32.50). Moreover, applicants also use deceptive IM behaviors in employment interviews. For instance, 81% of applicants tell at least one lie in the interview (Weiss & Feldman, 2006), and 90% of undergraduate job applicants engage in different types of deceptive IM (Levashina & Campion, 2007). Yet, these studies on deceptive IM have been done with students (Dwight & Donovan, 2003; Levashina & Campion, 2007; Swider et al., in press; Weiss & Feldman, 2006) or by asking entry-level applicants about their recent application experience (Donovan et al., 2003). Thus, to date, research has neglected to simultaneously examine applicants' use

of honest and deceptive IM in high-stakes employment interviews. The existing research suggests that job applicants are likely to be highly motivated and willing to use different types of impression management, including deceptive IM, to enhance their performance in high-stakes employment interviews and increase their chances of being hired (Barrick, Shaffer, & DeGrassi, 2009; Rosse, Stecher, Miller, & Levin, 1998).

Accuracy of interviewers' perceptions of IM behaviors

Although research shows that job applicants use IM behaviors extensively in interviews, little research has specifically examined interviewer's perceptions of job applicants' IM behaviors. At the same time, interviewers are the targets of applicant IM. Self-reports of IM reflect applicants' intentions to convey certain images during the employment interviews, which may or may not be what interviewers actually perceive and use to evaluate applicants. To date, only one study has asked interviewers to describe their perceptions of applicants' use of honest IM behaviors in employment interviews (Stevens & Kristof, 1995). Based on a sample of 36 applicant-interviewer pairs, they found non-significant low to moderate convergence (measured as a correlation between self and other-reports of IM) across interviewers' perceptions of applicants' IM and applicants' self-reports of IM (r = .23 for self-promotion and r = -.09 for ingratiation). In a later study, Kristof-Brown et al. (2002) decided not to ask interviewers about their perceptions of applicants' IM because they were concerned that interviewers "would not be able to accurately judge IM use when it was used effectively" (p.35).

Similarly, little research has investigated interviewers' perception of deceptive IM. Most empirical research on deception suggests that people can convincingly fake their emotions, attitudes, and personalities (DePaulo, 1992), and perceivers are typically unable to perceive such deception (Barrick & Mount, 1996; Furnham, 1986; McFarland & Ryan, 2000; Sackett & Wanek, 1996; Toris & DePaulo, 1984). In a recent lab study, Reinhard, Scharmch, and Müller (in press) asked interviewers to watch short (approximately 1 minute) statements

of applicants and to classify them as truths or lies, and found that interviewers were correct only 52.4% of time (while chance level is 50%).

Interviewers' perceptions of honest and deceptive IM can be examined along the lines of interpersonal deception theory (IDT; Buller & Burgoon, 1996). IDT has been developed to examine how a sender (e.g., an applicant) uses deception, social influence, and impression management to achieve a goal in face-to-face interactions, such as a conversation or an interview. It examines also how the receiver (e.g., the interviewer) perceives or suspects deception, whether these perceptions lead to accurately perceiving deception, and the consequences of these perceptions. IDT also provides a rationale form examining potential differences in the accuracy of perceptions between self-focused honest and deceptive IM and between self-focused and other-focused deceptive IM.

According to IDT, accurately perceiving applicants' use of self-focused deceptive tactics (e.g., image creation) can be more complex for interviewers than perceiving self-focused honest tactics (e.g., self-promotion). Several reasons can be mentioned for this. First, detecting deception requires more cognitive resources than detecting truthful messages (Buller & Burgoon, 1996). Conducting interpersonal interactions (e.g., an interview) involves a high cognitive effort (Buller & Burgoon, 1996; Nordstrom, Hall, & Bartels, 1998). Interviewers need to detect potential cues of deception while asking questions to applicants, taking notes, and evaluating the quality of applicants' responses. Also they often do not have enough information about applicants to compare suspected deceptive responses to. Second, people generally believe that others are telling the truth (truth bias), probably because it is the simplest heuristic to use under high cognitive load (Millar & Millar, 1997). Third, people are better truth detectors than lie detectors (Bond & DePaulo, 2006; Levine, Park, & McCornack, 1999), and those who are the most accurate at detecting truths are not the most accurate at detecting lies (Bond & DePaulo, 2008). Fourth, cues to deception are often hardly discernable (DePaulo et al., 2003) and people (even experts) often tend to interpret the wrong non-verbal

behaviors (e.g., signs of nervousness) as cues of deception (Vrij et al., 2010). This is especially true when actors have a limited shared history (Buller & Burgoon, 1996) such as in a job interview. Finally, construing someone as being deceptive implies accepting the consequences if one is incorrect (i.e. eliminating a good and honest applicant). We thus expect that:

*Hypothesis 1a**:*** Interviewers will be more accurate in their perceptions of self-focused honest IM tactics that self-focused deceptive IM tactics.

In addition, studies comparing the effect of other-focused and self-focused honest (Kacmar & Carlson, 1999; Kristof-Brown et al., 2002; Stevens & Kristof, 1995) and deceptive (Levashina & Campion, 2007) IM tactics repeatedly showed that the latter are more effective. These differences could be explained by several reasons. First, some types of IM tactics are more visible than others (Funder, 1995, 1999). For instance, other-focused IM tactics (e.g., deceptive ingratiation) are more visible than deceptive self-focused tactics (e.g., image creation). The main purpose of other-focused tactics is to influence the other person, whereas the main purpose of deceptive IM is to conceal the true nature of the tactic. Visibility of the IM tactic could make it easier for interviewers to perceive them. Second, IDT suggests that senders (e.g., applicants) may be less concerned by being detected when deception is other-focused or used to conform to others, resulting in more leakage of deception, than when the deception is self-focused (Buller & Burgoon, 1996). Interviewers may thus be more accurate at perceiving other-focused deceptive IM tactics that are directed toward them (i.e. deceptive ingratiation) than self-focused deceptive IM tactics directed toward applicants(i.e. image creation).

*Hypothesis 1b**:*** Interviewers will perceive other-focused deceptive IM tactics more accurately than self-focused deceptive IM tactics.

Interviewer experience, self-evaluated competence, and accuracy of perceptions

It is also important to examine individual variables such as interviewing experience that may affect the accuracy of interviewers' perceptions of applicants' IM (Macan, 2009). Only a few studies have examined the relationship between interviewing experience and perception of IM. Lievens and Peeters (2008) asked students and professional interviewers to evaluate videotaped applicants. Neither students' nor interviewers' evaluations of applicants' performance was related to IM behaviors (coded by external coders). The authors concluded that experts were not more or less sensitive to IM than novices. Similarly, Tsai et al. (2010) found that interviewers' experience did not change the way they were influenced by applicants' defensive IM tactics. But their participants only had limited interviewing experience (i.e. 19.73 interviews on average). A recent lab study (Reinhard et al., in press) showed that more experienced interviewers were not better than less experienced ones at detecting deception on a videotaped interview of mock applicants.

However, a general theory of experiential learning suggests that experiential learning can improve performance (e.g., Herriott, Levinthal, & March, 1985). Through experience, interviewers can develop decision models to use when selecting applicants (Barr & Hitt, 1986). Experienced interviewers' evaluations of applicants may thus be less biased by irrelevant factors than those of less experienced interviewers (Dipboye & Jackson, 1999; Graves, 1993; Marlowe, Schneider, & Nelson, 1996). Experience is also considered as a prerequisite for accurate perceptions of counterproductive traits (Blackman & Funder, 2002). Similarly, experienced interviewers, who have conducted more interviews in their career, may have learned to identify applicants' IM behaviors over time, and may be more accurate in their perceptions.

IDT suggest that receivers (e.g., interviewers) are better at decoding senders' (e.g., applicants') messages and detecting deception if they have more experience with deception (Buller & Burgoon, 1996). Past research on lie detection supports this claim (Mann, Vrij,

& Bull, 2004). Also, Delery and Kacmar (1998, p. 1663) wrote that "it may be that older, more experienced, or longer tenured interviewers are better able to detect entitlements than younger, less experienced, or less tenured interviewers and, thus, behave in ways which thwart the applicant's use of entitlements". Experienced interviewers may develop specific IM detection competence through time and thus perceive applicants' IM more accurately. Therefore we propose the following 3 hypotheses:

Hypothesis 2a: Interviewers' level of experience will be positively related to self-evaluated competence in detecting IM behaviors.

*Hypothesis 2b**:*** Interviewers' level of experience will be positively related to the accuracy of their perceptions of applicants' IM behaviors.

*Hypothesis 2c**:*** Interviewers' self-evaluated competence in detecting IM behaviors will be positively related to the accuracy of their perceptions of applicants' IM behaviors.

Interviewers' perceptions and interview outcomes

Interviewers are likely to make inferences regarding applicants' qualities based on their honest IM tactics. They expect applicants to be able to "promote their candidacy" (Ralston & Kirkwood, 1999, pp. 202-203), and, thus, engage in honest IM behaviors in interviews. They may also consider such behaviors as "normal" adaptations to the situational demands of the selection context. Not using honest IM tactics may even be perceived by interviewers as inappropriate or as an indication that applicants are not interested in a job (Bozeman & Kacmar, 1997). Because self-focused honest IM tactics makes applicants' abilities more apparent, interviewers may infer that applicants using them possess social skills and view them as a better fit with the job (Kristof-Brown et al., 2002; Lipovsky, 2006; Rosenfeld, 1997). Moreover, they can consider applicants' ability to present themselves well in the selection process as a good predictor of subsequent ability to do so in future interactions in the organizational setting (Griffith, Peterson, Isaacson, Quist, & Gammon, 2009). Recent

findings even suggest that the use of self-promotion in the interview predicts actual job performance (Kleinmann & Klehe, 2011). In addition, self-focused honest IM tactics, such as self-promotion, constitute attempts to attribute past success to one's own actions. Such internal attributions tend to be positively evaluated by observers (Beauvois & Dubois, 2001; Pansu & Gilibert, 2002). Thus, interviewers may evaluate applicants more positively when they use honest self-promotion and describe past job outcomes as being under their personal control than when applicants do not engage in self-promotion or job outcomes are attributed to external and uncontrollable events (Silvester, 1997; Silvester, Anderson-Gough, Anderson, & Mohamed, 2002).

Hypothesis 3a: Interviewers' perceptions of honest IM tactics will be positively related to interview outcomes

In addition, interviewers are likely to make inferences regarding applicants' qualities based on perceived deceptive IM tactics. When interviewers perceived applicants to use slight image creation, extensive image creation, image protection or deceptive ingratiation, they may infer negative qualities about them. For instance, interviewers might believe that applicants using deceptive IM lack integrity, are arrogant, lack job-related experiences, skills and competencies, and are more likely to engage in deviant behaviors if hired (Griffith & McDaniel, 2006; Griffith et al., 2009; Turnley & Bolino, 2001). Liden and Mitchell (1988) suggested that people react positively to sincere ingratiation and negatively to deceptive ingratiation. As such, interviewer may punish applicants for engaging in deception in the employment interview by decreasing interview ratings.

Hypothesis 3b: Interviewers' perceptions of deceptive IM tactics will be negatively related to interview outcomes

Another factor that may influence interviewers' ratings is interviewers' perceptions of applicant transparency. Perception of applicant transparency is the extent to which

interviewers believe they can easily "see through the applicant" and differentiate facts from fiction in applicant answers. If applicants are perceived as being non-transparent, interviewers may become suspicious regarding applicant honestly. IDT suggests that the more receivers are skeptical or suspicious regarding senders' behavior (i.e. uncertain about the truthfulness of the sender's messages), the more they will adjust their attributions of senders' characteristics based on their behavior, and the less positively they will evaluate sender's overall performance at the end of the interaction (Buller & Burgoon, 1996). Interviewers may thus give higher ratings to applicants they perceive as being more transparent, and punish those they perceive as being less transparent.

Hypothesis 3c: Interviewers' perceptions of applicant transparency will be positively related to interview outcomes

We now present a field study with high-stakes selection interviews conducted in recruiting agencies, with professional interviewers interviewing experienced applicants for actual jobs. After interviews, both applicants and interviewers completed measures of honest and deceptive impression management behaviors and interview outcomes. Applicants provided self-reports of tactics they used, while interviewers reported their perceptions of applicant IM.

Method

Sample

The sample was composed of 36 interviewers (21 women, mean age 32 years, mean interviewing experience 4.5 years and mean number of interviews in career 1260) from 10 recruiting agencies in Switzerland and 164 real applicants (98 women, mean age 34 years, mean interviewing experience 14 interviews) interviewing for actual jobs. Each interviewer interviewed between 1 and 7 applicants. Each of the recruiting agencies required interviewers

to follow an interview guide and to fill out the same form for each applicant. The interview guides were different between agencies.

Procedure

First, we contacted recruiting agencies by email or phone and explained the objective of our study. Time and date where data collection would be conducted were then arranged. All agencies we contacted agreed to participate. Applicants were approached and asked to participate immediately after their interview, upon leaving the room where the interview took place. This was done to limit memory decay. Interviewers and applicants were taken to different rooms and completed their questionnaires. Applicants were ensured that their answers would not be reported to interviewers or the recruiting agency. In order to minimize the influence of the study on applicants' evaluations, interviewers completed the questionnaire after their own evaluation forms.

Measures

Honest and deceptive IM behaviors. Honest self-focused IM behaviors (both self-reported and perceived) were measured with a 5-item scale of self-promotion IM tactics. For instance, an applicant would rate a statement like *I described my skills and abilities in an attractive way*, while an interviewer would rate *the applicant described his/her skills and abilities in an attractive way*. All items were adapted from earlier research (e.g., Donovan et al., 2003; Kristof-Brown et al., 2002). All items were translated into French. Four doctoral students performed back-translation on all items. A 5-point-rating scale was used, where 1 = *not at all*, and 5 = *to a great extent*. Reliability coefficients were good (α =.75 for applicants and .89 for interviewers, see Table 1).

Deceptive IM (both self-reported and perceived) was measured with 22 items from the Interview Faking Behavior scale (Levashina & Campion, 2007). Deceptive ingratiation was measured with 4 items (α =.92 for applicants and .93 for interviewers, e.g., *I tried to adjust my answers to the interviewer's values and beliefs* and *the applicant tried to adjust his/her*

answers to my values and beliefs). Image protection was measured with 4 items (2 omitting and 2 masking, α =.78 for applicants and .77 for interviewers, e.g. I *did not reveal requested information that might hurt my chances of getting a job* and *the applicant did not reveal requested information that might hurt his/her chances of getting a job*). Slight image creation was measured with 6 items (4 embellishing, 2 tailoring, α =.87 for applicants and .87 for interviewers, e.g. *I exaggerated my responsibilities on my previous jobs* and *the applicant exaggerated his/her responsibilities on his/her previous jobs*). Finally, extensive image creation was measured with 8 items (4 constructing, 4 inventing, α =.90 for applicants and .89 for interviewers, e.g. *I claimed that I have skills that I do not have* and *the applicant claimed that he/she have skills that he/she do not have*). All items were translated into French. Four doctoral students performed back-translation on all items. A 5-point-rating scale was used, where 1 = *not at all*, and 5 = *to a great extent*.

To investigate whether responses were equivalent between applicants and interviewers, we performed multi-group confirmatory factor analyses for each of the 5 scales in AMOS (Version 19) following the steps recommended by Davidov, Schmidt, and Schwartz (2008). We found support for configural (same items loading on the same constructs for both groups), partial metric (loadings of the same items are constrained to be equal for both groups), and partial scalar (intercepts of the same items are constrained to be equal for both groups) invariance for all types of deceptive IM, except for extensive image creation. We found configural and partial metric invariance, but not partial scalar invariance for extensive image creation. Model fit indices were satisfactory for all scales for partial scalar invariance (*CFI*s ranging from .88 to .99), except for extensive image creation (*CFI* = .84), for which mean comparisons should therefore be interpreted with caution (correlation and regression analyses are not affected by lack of partial scalar invariance).

Accuracy of interviewers' perceptions. Accuracy of interviewer's perceptions of applicants' IM was measured with three approaches: interview-level convergence, interview-level difference, and interviewer-level total accuracy.

The convergence approach has been applied in past research on selection (e.g., Stevens & Kristof, 1995) and self-other agreement (e.g., Atwater, Ostroff, Yammarino, & Fleenor, 1998). It involves computing correlations between interviewers' perceptions of a particular IM behavior and applicants' self-reported use of that IM behavior at the interview level.

The difference approach has also been applied in past research (e.g., McFarland & Ryan, 2000). It involves computing paired-sample *t*-tests between interviewers' perceptions and applicants self-reports for each tactic at the interview level. If we consider applicants' self-reports as the true measure of IM use, this approach highlights potential underestimations or overestimations of different IM tactics by interviewers.

These two approaches provide global indications of accuracy at the interview level, but they do not consider that interviewers conducted interviews with more than one applicant. Measuring the accuracy of perceptions at the interviewer level could lead to different results, because different interviewers conducted a different number of interviews with applicants and some interviewers can systematically be more or less accurate than others. Therefore, we computed a third measure of the accuracy of interviewers' perceptions at the interviewer level. For each of the 5 IM tactics, we computed a total accuracy score (TA). TA is the sum of four indicators of accuracy: elevation, differential elevation, stereotype accuracy and differential accuracy. These indicators are based on Cronbach's (1955) work on accuracy and have since been used in many studies examining the accuracy of people's perceptions or judgments (e.g., Dipboye, Fontenelle, & Garner, 1984; Kenny & Albright, 1987; Melchers, Lienhardt, von Aarburg, & Kleinmann, 2011). Adapting the definition of the indicators to IM perceptions, we compared elevation as the accuracy of interviewers' average perception

across all applicants and all items (i.e. specific behaviors) measuring a specific IM tactic (e.g., self-promotion). Differential elevation refers to accuracy in distinguishing among applicants' use of IM, averaging across items. Stereotype accuracy refers to accuracy with regard to evaluating the different items, averaging across applicants. Finally, differential accuracy refers to accuracy in perceiving differences in applicants' specific patterns of use of IM tactics across items. More details and equations to compute these indicators can be found in Melchers et al. (2011). Accuracy indicators are computed as squared deviations between the interviewers' and applicants' perceptions. Therefore, smaller TA values indicate better accuracy.

Interviewers' self-evaluated competence regarding IM behaviors. Interviewers evaluated their self-reported competence regarding IM behaviors prior to their first interview (2-item scale, α = .70). One item was *please evaluate your level of competence to detect IM tactics used by applicants in interviews to make a good impression*. A 5-point-rating scale was used, where 1 = *less competent than the average interviewer*, and 5 = *more competent than the average interviewer.*

Interviewers' perception of applicant transparency. Interviewers evaluated how easy it was to judge each applicant's honesty after each interview (3-item scale, α = .83). Items were *it was easy for me to differentiate facts from fiction in the applicant responses*, *it was easy for me to judge applicant honesty*, and *it was easy for me to see who the applicant really was*. A 5-point-rating scale was used, where 1 = *completely disagree*, and 5 = *completely agree.*

Interviewers' level of experience. Interviewers provided two measures of experience: the number of years they were active in employee selection and the number of interviews they had conducted in their career.

Interview outcomes. Interviewers completed a 7-item scale measuring overall interview outcome (α =.91). Examples of items were *the applicant was able to convince me that he/she had the required abilities for the position* or *I will recommend this applicant for*

the position. Applicants rated their perception of interview outcome on the same (α =.77). A 5-point-rating scale, where 1 = *not at all*, and 5 = *to a great extent*, was used for all scales.

Control variables. Several control variables were measured. First, social desirability was included to control for deflation of applicants' reported use of honest and deceptive IM in the interview. Applicants completed the short 12-item French version of the Marlowe-Crowne Social Desirability Scale (Valla et al., 1997). An example of an item was *no matter who I'm talking to, I'm always a good listener*. Respondents rated all items as being true or false. The reliability coefficient was low but acceptable (α =.60, see Table 1). Second, political skills was included as a control variable, because applicants possessing higher communication or influence skills may be more successful in using honest IM (Harris et al., 2007) or deception (Buller & Burgoon, 1996). This variable was measured by the 6-item political skill inventory (PSI, Ferris et al., 1999). An example of an item was *I am good at getting others to respond positively to me*. All items were translated into French. Four doctoral students performed back-translation on all items. A 7-point rating scale, where1 = s*trongly disagree* and 7 = *strongly agree* was used. Reliability coefficient was good (α =.70, see Table 1). Finally, applicants' experience with interviews (i.e. number of interviews in career) was included as a control variable because applicants' interview experience may influence their behavior during the interview (Barrick, Swider, & Stewart, 2010). Applicants' gender and age and interviewers' gender and age were also included as control variables.

Results

IM usage and interviewers' perceptions

Descriptive statistics and correlations between main variables at the interview level are presented in Table 1. Furthermore, Table 2 presents the percentage of applicants who engaged in different types of IM (i.e. reported a score higher than 1) and the mean level of use for each type of IM. All applicants engaged in self-promotion, 70% in ingratiation, 40% in image protection, 44% in slight image creation, and 21% in extensive image creation. Furthermore,

applicants engaged mainly in honest self-focused IM (i.e. self-promotion), $M = 3.72$, $SD = .69$, and, to a lesser extent, in deceptive other-focused IM (i.e. deceptive ingratiation), $M = 2.05$, $SD = 1.11$, but engaged less in self-focused deceptive IM behaviors. In addition, applicants' reported use of honest self-focused IM was significantly related to social desirability scores ($r = .23$, $p < .01$), while reported use of the four deceptive IM were not (see Table 1). These results suggest that applicants with a stronger tendency to present themselves according to expectations were also prone to reporting more self-promotion. But, applicants with higher self-reported political skills did not report using more honest or deceptive IM (*r*s between .02 and .12, *ns.*). Applicants' reports of honest self-focused IM use were unrelated to reports of deceptive self-focused IM (*r*s between -.06 and -.02, *ns.*). Table 2 also presents perceptions of interviewers. In all interviewer-applicant pairs except for one, interviewers perceived applicants to engage in self-promotion. In 63% of the pairs, interviewers perceived that applicants engaged in deceptive ingratiation, in 57% in image protection, in 68% in slight image creation, and in 43% in extensive image creation.

[Tables 1 and 2 here]

Accuracy of interviewers' perceptions of IM behaviors

We examined the accuracy of interviewer's perception for the 5 types of IM tactics using the three approaches presented in the method section. Hypothesis 1a stated that accuracy would be higher for honest (i.e. self-promotion) than for deceptive (i.e. image creation) self-focused IM, while Hypothesis 1b stated that accuracy would be higher for deceptive other-focused IM (i.e. deceptive ingratiation) than for deceptive self-focused IM (i.e. image creation). First, we used difference and convergence approaches at the interview level. We computed correlations between interviewers' perceptions of IM use and applicants' self-reported IM use for the 5 types of tactics at the interview level (see numbers in bold in Table 1). All of the 5 correlations were small and none of them approached standard levels of significance. The results of this first approach therefore suggest that interviewers' perceptions

and applicants' self-reports of IM at the interview level do not converge, providing no support for H1a or H1b. We then used the difference approach and computed paired-samples *t*-tests to compare interviewers' perceptions and applicants' self-reports for the various forms of IM (see Table 2). Interviewers' perceptions were lower than applicants' regarding self-promotion, $t(163) = -3.24$, $p < .01$, and ingratiation, $t(163) = -1.91$, $p < .10$. Interviewers' perceptions of image protection did not differ from applicants' self-reported use of image protection, $t(163) = 1.43$, $p = .15$. Finally, interviewers' perceptions were higher than applicants' regarding slight image creation, $t(163) = 4.82$, $p < .01$, and extensive image creation, $t(163) = 3.36$, $p < .01$. The results thus suggest that interviewers' perceptions differ from applicants' self-reports for honest self-focused IM, deceptive other-focused IM, and deceptive self-focused IM. These results thus do not support H1a or H1b.

We then performed a repeated-measure ANOVA to compare total accuracy for the 5 types of IM tactics at the interviewer level. Two interviewers only interviewed one applicant, which does not allow computing TA scores. These analyses are thus based on 34 interviewers. Descriptive results for all types of IM can be found in Table 3. Results suggest an effect of IM type on total accuracy of perceptions, $F(4,30) = 41.68$, $p < .01$, partial $\eta^2 = .85$. Below we report effect sizes (Cohen's *d*s) for the pairwise comparisons with Bonferroni adjustments. Contrary to H1a, we found smaller total accuracy scores (i.e. suggesting better accuracy of perceptions) for slight image creation and extensive image creation than for self-promotion. The effect sizes were .67 ($p < .10$) and 1.68 ($p < .01$), respectively. Therefore, interviewers' perceptions were more accurate for deceptive self-focused IM than for honest self-focused IM tactics. Similarly, and contrary to H1b, we found smaller total accuracy scores for slight image creation and extensive image creation than for ingratiation. The effect sizes were .92 ($p < .01$) and 1.99 ($p < .01$), respectively. Therefore, interviewers' perceptions were more accurate for deceptive self-focused IM than for deceptive other-focused IM tactics.

To sum up, on the one hand, results at the interview level (correlations and t-tests) do not provide support for H1a or H1b. On the other hand, analyses at the interviewer level (ANOVA for total accuracy score) suggested rejecting both H1a and H1b.

Interviewer experience, self-reported competence, and accuracy of perceptions

Correlation analyses were used to test Hypotheses 2a, 2b, and 2c, examining the relationship between interviewing experience (experience in selection and number of interviews conducted in career), self-evaluated competence regarding IM behaviors, and the accuracy (i.e. using the total accuracy score) of interviewers' perceptions of applicants' IM behaviors (see Table 3). Again our analyses are based on the 34 interviewers who interviewed more than one applicant. Results showed that interviewers' self-evaluated competence regarding IM behaviors was positively correlated with their years of experience in selection (r = .37, n = 34, p < .05), but not to the number of interviews in career (r = .26, n = 34, p = .14). More experienced interviewers tend to feel more competent at perceiving IM behaviors prior to interviews, partially supporting Hypothesis 2a. But, results showed no significant relationship between both measures of interviewing experience and the total accuracy of perceptions for the 5 types of IM tactics (rs between -.15 and .22, *ns*). Therefore, more experienced interviewers were not more (or less) accurate in their perceptions of applicants' IM behaviors. Hypothesis 2b was thus rejected. In addition, self-evaluated competence regarding IM behaviors was not related to total accuracy for the 5 types of IM tactics (rs between -.12 and .01, *ns*). Hypothesis 2c was thus also rejected.

[Table 3 here]

Interviewers' perceptions and interview outcomes

Hypotheses 3a, 3b, and 3c stated that interviewers' perceptions of honest IM and perceived applicant transparency would be positively related to interview outcome, while perceptions of deceptive IM would be negatively related to interview outcome. Because of the clustered structure of our data (i.e. interviewers conducting several interviews), we tested

these hypotheses using multilevel linear regression analyses with interview outcome as the dependent variable (Table 2). Our goal was to examine the effect of interviewers' perceptions of IM behaviors over and above factors that have been previously shown to influence interview outcome: applicants' and interviewers' individual characteristics (i.e. age, gender, and interviewing experience), applicants' social desirability and political skills, and applicants' reports of IM. Thus, in Model 1 we entered traditional control variables (i.e. age, gender, and experience) as predictors. In Model 2, we also included applicants' level of social desirability and political skills as additional control variables. In Model 3, we added applicants' self reported use of our 5 IM tactics. In Model 4, we added interviewers' perceived applicant transparency. Finally, our last model (Model 5) included interviewers' perceptions of the 5 IM tactics. The fixed effects for each model, fit indices (-2 log likelihood), and variance explained at the interviewer level (intraclass correlations – ICC) are displayed. Intraclass correlations showed that only a small portion of the variance was explained at the interviewer level (2 to 8%).

Model 2 suggests that applicants' level of social desirability and their political skills did not impact interview outcome. Model 3 suggests that honest self-focused IM (i.e. self-promotion) was the only reported IM behavior related with interview outcome (B = .19, SE = .08, $p < .05$), while reported deceptive IM was not. The more applicants used self-promotion, the better their interview outcome was. Model 4 indicates that interviewers' perceptions of applicant transparency were positively related to interview outcome (B = .34, SE = .07, $p <$ .01) and that this factor explained a significant part of variance in our dependent variable over and above reported IM (suggested by significant Δ-$2LL$). Thus, the more interviewers believed they were able to easily see who the applicants' really were, the better the interview outcomes were. Finally, Model 5 indicates that perceived self-promotion was positively related to interview outcome (B= .54, SE = .06, $p < .01$) while slight image creation that was negatively related to interview outcome (B = -.21, SE = .08, $p < .05$). Other deceptive IM

behaviors were not related to interview outcome. In addition, perceived applicant transparency did remain a significant predictor (B= .21, SE = .06, p < .01), but self-reported self-promotion did not. Together these results provide strong support for Hypotheses 3a and 3c but only partial support for Hypothesis 3b.

[Table 4 here]

Discussion

Main findings and contribution to IM research

This field study simultaneously investigated interviewers' perceptions and applicants' self-reports of honest and deceptive IM in high-stakes employment interviews. To date, the majority of empirical studies on interviews have been conducted in laboratory settings with hypothetical jobs and undergraduate students assuming the role of interviewers or applicants (Posthuma et al., 2002). This study is based on real interviews conducted by experienced interviewers with a relatively large sample of experienced applicants that enhances the ecological validity of our study. Below we discuss how our results extend previous research on IM in the employment interview, we show their practical implications for organizations and interviewers, and suggest several ways future studies may continue to explore this line of research.

First, while the percentage of applicants engaging in honest IM behaviors is similar to previous research findings (e.g., Ellis et al., 2002; Stevens & Kristof, 1995), the base rate of deceptive IM behaviors (i.e. deceptive ingratiation, image protection, and slight and extensive image creation) is lower compared to the previously reported results (e.g., Donovan et al., 2003; Levashina & Campion, 2007). For instance, only 21% of applicants reported engaging in extensive image creation, while this proportion was between 65% and 92% in Levashina and Campion (2007). These differences may be due to the type of applicants (experienced applicants vs. students or recent graduates). For instance, experienced applicants have actual job experience on which they can build their responses, while students or recent graduates

may need to use more deceptive IM tactics to compensate for their lack of experience. Differences can also be due to cultural factors (Swiss vs. US sample). For instance, modesty is more valued in Switzerland, while self-promoting behaviors are more valued in North America (Schmid Mast, Frauendorfer, & Popovic, 2011). Further research (cross-cultural studies) might comprehensively investigate potential cultural differences in IM use and perceptions.

Second, this study is the first to evaluate interviewers' perceptions of honest and deceptive IM. Results of our confirmatory factor analyses suggest that the IFB scale (Levashina & Campion, 2007) is a reliable measure of not only applicants', but also interviewers' perceptions of deceptive IM or in the job interview.

When comparing these two perceptions at the interview level, we found low convergence between interviewers' perceptions of applicant IM and applicant's self-reports of IM. Correlations showed no significant relationship between interviewers' perceptions and applicants' self-reports. *T*-tests showed that interviewers' perceptions differed from applicants' self-reports, except for image protection. Interviewers underestimate applicants' self-promotion and ingratiation and overestimate applicants' use of slight and extensive image creation. Therefore, if we consider data at the interview level, we could conclude that interviewers may not detect applicant IM behaviors as easily as it was previously suggested (Van Iddekinge, Raymark, & Roth, 2005; Williams, Brown, & Hesketh, 2006). Interviewers may perceive more accurately when applicants try to hide information to protect their image. But it seems more difficult for interviewers to see when applicants enhance their competences, try to please interviewers by expressing similar opinions, attitudes or values or exaggerate their experiences or competences.

When examining the accuracy of perceptions at the interviewer level, a slightly different story emerged. More precisely, we found differences in accuracy across different types of IM. Contrary to our predictions, interviewers were more accurate in their perceptions

of self-focused deceptive IM (i.e. image creation), as compared to self-focused honest (i.e. self-promotion) or other-focused deceptive (i.e. ingratiation) IM tactics. One explanation is that some interviewers may actually be able to detect some cues to deception in applicants' verbal or non-verbal behavior (Fletcher, 1990; Rosenfeld, 1997; Van Iddekinge et al., 2005; Williams et al., 2006), and thus detect applicants' exaggerations or inventions. On the other hand, interviewers may have failed to distinguish honest ingratiation (i.e. applicants expressing sincere beliefs or values to please them) from deceptive ingratiation (i.e. applicants expressing insincere beliefs or lying about their values to please them). Moreover, because, self-focused honest IM is expected (e.g., Bozeman & Kacmar, 1997), interviewers may have considered some of applicants' self-promoting behaviors as normal and thus failed to report them as IM tactics. Another explanation comes from the fact that applicants in our sample only seldom used self-focused deceptive IM tactics. Such a pattern of responses with low variance leads to low scores on the differential elevation and differential accuracy indicators, and thus to low total accuracy scores (but see Cronbach, 1955). If applicants had used these tactics more often, total accuracy scores may have increased, implying that interviewers' perceptions may have been less accurate. Our results also highlight the potential impact of the choosing different levels of analysis (i.e. interview level vs. interviewer level) on research findings, especially with clustered data where interviewers conduct various numbers of interviews.

Third, our research is the first to examine the relationship between interviewers' experience, self-evaluated competence and accuracy of IM perception. Correlation results suggest that more experienced interviewers felt more competent at perceiving IM behaviors prior to the interviews. But neither experience nor self-evaluated competence were related to actual accuracy of IM perceptions. Our results are consistent with existing findings suggesting that interviewers may be over-confident regarding their ability to correctly perceive applicants' IM behaviors (Ralston & Kirkwood, 1999) or deception (Robie,

Tuzinski, & Bly, 2006). Experts are often overconfident in their judgments (Dunning, Heath, & Suls, 2004), which may lead to poor decision-making (Camerer & Johnson, 1991). Previous studies have showed that experienced interviewers may be overconfident about their ability to evaluate applicants (Delery & Kacmar, 1998), and accurately predict applicants' future job performance (Dipboye, 1994). This overconfidence sometimes lead interviewers to rely on their intuition (Highhouse, 2002, 2008) because they are convinced that they can easily evaluate applicants, even though research shows that their evaluations are not that reliable (e.g., Conway, Jako, & Goodman, 1995). Another reason for these results may be limited feedback interviewers receive, which may keep them from learning from past experience (Dipboye, 1994). Interviewers tend to remember correct judgments and forget errors they made, because feedback on their judgments is often limited to hires and is delayed in time. Similarly, research on lie detection suggests that perceivers often fail to learn from their mistakes because of lack of adequate feedback (Vrij et al., 2010).

Finally, interview outcomes were influenced by interviewers' perceptions of applicant IM. As expected, self-promotion was highly valued by interviewers, leading to better interview outcomes. Regarding deceptive IM, interviewers' perceptions of slight image creation usage were detrimental to applicants' interview outcome. Applicants' self-reported use of self-promotion was also positively related to interview outcomes. But applicants' self-reported deceptive IM was not related to interview outcomes. Therefore, it seems that applicants' do not benefit nor get punished for actually engaging in deceptive IM. Interview outcomes were largely influenced by interviewers' perceptions of IM. In addition, when interviewers believed they were able to judge applicants, honest applicants received better interview outcomes. Together these results suggest that what may actually matter is not the impression applicants want to make, but interviewers' perceptions of applicants' IM tactics.

Practical implications for organizations and interviewers

These results have important implications for organizations and interviewers. The purpose of IM tactics is to influence interviewers' evaluations. More specifically, applicants can use deceptive IM to appear as a good fit for the job and/or the organization, even if they actually do not possess the required skills, competencies, or practical experience (Levashina & Campion, 2006; Weiss & Feldman, 2006). Organizations run the risk of hiring these applicants instead of more qualified ones. It is therefore clearly their interest to minimize that risk by identifying applicants who use deceptive IM during the interview and eliminating them from the pool of applicants. Yet, interviewers may be prone to overconfidence in their judgments and may thus (wrongly) believe they easily can "see through the applicant". Our findings suggest that it may not be that easy to identify when applicants use deceptive (but also honest) IM. Our findings thus shed some light on improvement opportunities for interviewers. Howard and Ferris (1996) showed that training can help interviewers to identify honest IM tactics. Therefore organizations may develop training interventions to help interviewers' identifying IM tactics. One solution could be to enhance interviewers' knowledge about the different types of IM tactics applicants may use. Another could be to train interviewers to detect deceptive IM based on accumulated evidence from research on lie detection (e.g., Vrij et al., 2010). Moreover, organizations may develop performance feedback systems for interviewers, so that they may benefit from their interviewing experience and improve the accuracy of their perception regarding IM behaviors.

Limitations and directions for future research

This study has limitations. Since interviewers provided data about their perceptions of IM and interview outcome, the results of regression analyses may not be free from problems associated with common method variance, an issue typical of job interview research (Posthuma et al., 2002). Unfortunately, we were not able to obtain additional outcome variables from recruiting agencies (e.g., which applicants were actually recommended or hired for the job), nor were we allowed to videotape interviews to obtain external evaluations

of applicants. Yet, we believe our data collection mirrors what happens in actual interviews, where interviewers collect information and form perceptions of applicants (e.g., about their qualities or their level of honesty) during the interaction, and then assess applicants at the end of the interview based on collected information and formed perceptions (Barrick et al., 2009; Dipboye et al., 1984). Future research may use longitudinal studies and collect data on IM use/perception after the interview, on interview outcomes when the final hiring decision is made, and on applicant performance on the job later on.

Moreover, our results are based on a small sample of interviewers interviewing several applicants in ten recruiting agencies. Interpretation of the correlation and ANOVA results at the interviewer level should therefore be taken with precaution. Also, intraclass correlations obtained in multilevel regressions suggest that that there was no pattern at the interviewer level. Nevertheless, this study should be replicated with a larger sample of interviewers.

The interview format could also have affected the results of the study. Even if interviewers followed an interview guide, they did not have a specific list of questions to ask applicants. Our findings may be affected by the level of interview structure, but we were not able to include recruiting agency in multilevel analyses due to the limited number of agencies. Further research should investigate interviewers' perceptions with situational (Latham & Saari, 1984; Latham & Sue-Chan, 1999; Maurer, 1997) or past behavior interviews (Janz, 1982; Motowidlo et al., 1992).

Future research may also want to investigate how individual differences between the interviewer and the applicant may influence their perceptions. For instance, do different-gender dyads (i.e. a female interviewer interviewing a male applicant or a male interviewer interviewing a female applicant) have lower convergence in their perceptions than same-gender dyads? Research on differential demography has found effects of gender differences on perceived effectiveness in superior-subordinate dyads (Tsui & O'Reilly, 1989) and on organizational attachment (Tsui, Egan, & O'Reilly, 1992). Men may be more accurate in

detection of male applicant IM, whereas women may be more accurate in detection of female applicant IM. Also, do dyads where applicant and interviewer have different cultural backgrounds have lower convergence in their perceptions? People from different cultures may differ in how they perceive and use IM (Middleton & Jones, 2000; Schermerhorn & Bond, 1991; Zaidman & Drory, 2001) or deception (Lewis & George, 2008). For instance, North American cultures value more self-oriented or proactive behaviors such as self-promotion, while European cultures value more modest behaviors (Chhokar, Brodbeck, & House, 2007; Schmid Mast et al., 2011). North American interviewers may erroneously interpret European applicants' modest behaviors as an indication of deception (e.g., hiding things from them), whereas European interviewers may erroneously interpret North American applicants' self-promotion behaviors as being "too good to be true". Also, do dyads with larger age differences between the interviewer and the applicant (i.e. a young interviewer interviewing an older applicant or an older interviewer interviewing a young applicant) have lower convergence in their perceptions? Future research is required to investigate these potential factors.

Furthermore, applicants' and interviewers' perceptions were based on the entire interview. Such a procedure is similar to those used in past research (e.g., Kristof-Brown et al., 2002; Levashina & Campion, 2007), and thus correspond to overall perceptions. However, this design does not allow measuring the accuracy of interviewers' perceptions of IM at specific times during the interview. For instance, an applicant may report that he/she engaged in a specific image protection tactic (e.g., voluntarily not mentioning problems in past jobs) to a considerable extent during the interview. Interviewers may also perceive that this applicant engaged in that tactic to a considerable extent, leading to apparent high convergence (and high accuracy). But the applicant may be referring to one specific section of the interview (e.g., after ten minutes, when the interviewer asked about conflicts in past jobs), while the interviewer may refer to another (e.g., after thirty minutes, when the applicant talked about

delays on a project). Thus convergence (and accuracy) in perceptions may be overestimated by global analyses. Experimental studies should be conducted to obtain more precise measures of the convergence of IM perception in real time and thus address this limitation.

Conclusion

In a recent meta-analysis, Barrick, Shaffer, and DeGrassi (2009, p. 1349) explained that "what they [employers] see in the interview may not be what they get on the job". Our research supports this conclusion by showing that interviewers and applicants do not see IM behaviors in the same way. It suggests that it may be in organizations' best interest to develop specific training programs or to implement interview formats (e.g., more structured interviews or past-behavioral questions, see Bolino et al., 2008; Ellis et al., 2002; Kristof-Brown et al., 2002; Levashina & Campion, 2007) that could help interviewers see things more clearly.

References

Atwater, L. E., Ostroff, C., Yammarino, F. J., & Fleenor, J. W. (1998). Self-other agreement: Does it really matter? *Personnel Psychology, 51*, 577-598.

Baron, R. A. (1986). Self-presentation in job interviews: When there can be "too much of a good thing". *Journal of Applied Social Psychology, 16*, 16-28.

Barr, S. H., & Hitt, M. A. (1986). A Comparison of Selection Decision Models in Manager Versus Student Samples. *Personnel Psychology, 39*, 599-617.

Barrick, M. R., & Mount, M. K. (1996). Effects of impression management and self-deception on the predictive validity of personality constructs. *Journal of Applied Psychology, 81*, 261-272.

Barrick, M. R., Shaffer, J. A., & DeGrassi, S. W. (2009). What you see may not be what you get: Relationships among self-presentation tactics and ratings of interview and job performance. *Journal of Applied Psychology, 94*, 1394-1411.

Barrick, M. R., Swider, B. W., & Stewart, G. L. (2010). Initial evaluations in the interview: Relationships with subsequent interviewer evaluations and employment offers. *Journal of Applied Psychology, 95*, 1163-1172.

Beauvois, J.-L., & Dubois, N. (2001). Normativity and self-presentation: Theoretical bases of self-presentation training for evaluation situations. *Journal of Managerial Psychology, 16*, 490-508.

Blackman, M. C., & Funder, D. C. (2002). Effective interview practices for accurately assessing counterproductive traits. *International Journal of Selection and Assessment, 10*, 109-116.

Bolino, M. C., Kacmar, K. M., Turnley, W. H., & Gilstrap, J. B. (2008). A multi-level review of impression management motives and behaviors. *Journal of Management, 34*, 1080-1109.

Bond, C. F., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Personality and Social Psychology Review, 10*, 214-234.

Bond, C. F., & DePaulo, B. M. (2008). Individual differences in judging deception: Accuracy and bias. *Psychological Bulletin, 134*, 477-492.

Bozeman, D. P., & Kacmar, K. M. (1997). A cybernetic model of impression management processes in organizations. *Organizational Behavior and Human Decision Processes, 69*, 9-30.

Buller, D. B., & Burgoon, J. K. (1996). Interpersonal deception theory. *Communication Theory, 6*, 203-242.

Camerer, C. F., & Johnson, E. J. (1991). The process-performance paradox in expert judgment: How can experts know so much and predict so badly? In K. & A. E. J. Smith (Eds.), *Toward a general theory of expertise: Prospects and limits* (pp. 195-217). Cambridge, UK: Cambridge University Press.

Chhokar, J. S., Brodbeck, F. C., & House, R. J. (2007). *Culture and leadership across the world: The GLOBE book of in-depth studies of 25 societies*. Hillsdale, NJ: Herlbaum.

Conway, J. M., Jako, R. A., & Goodman, D. F. (1995). Meta-analysis of interrater and internal consistency reliability of selection interviews. *Journal of Applied Psychology, 80*, 565-579.

Cronbach, L. (1955). Processes affecting scores on "understanding of others " and "assumed similarity". *Psychological Bulletin, 52*, 177-193.

Davidov, E., Schmidt, P., & Schwartz, S. H. (2008). Bringing values back in: The adequacy of the European Social Survey to measure values in 20 countries. *Public Opinion Quarterly, 72*, 420-445.

Dawson, C., Horvath, M., & Raymark, P. H. (2006). *Impression management and dimensional structured interview performance.* Paper presented at the 21st annual meeting of the Society for Industrial and Organizational Psychology, Dallas, TX.

Delery, J. E., & Kacmar, K. M. (1998). The influence of applicant and interviewer characteristics on the use of impression management. *Journal of Applied Social Psychology, 28*, 1649-1669.

DePaulo, B. M. (1992). Nonverbal behavior and self-presentation. *Psychological Bulletin, 111*, 203-243.

DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin, 129*, 74-118.

Dipboye, R. L. (1994). Structured and unstructured selection interviews: Beyond the job-fit model. *Research in Personnel and Human Resources Management, 12*, 79-123.

Dipboye, R. L., Fontenelle, G. A., & Garner, K. (1984). Effects of previewing the application on interview process and outcomes. *Journal of Applied Psychology, 69*, 118-128.

Dipboye, R. L., & Jackson, S. L. (1999). Interviewer experience and expertise effects. In R. W. E. M. M. Harris (Ed.), *The employment interview handbook* (pp. 259-278). Thousand Oaks, CA: Sage.

Donovan, J. J., Dwight, S. A., & Hurtz, G. M. (2003). An assessment of the prevalence, severity, and verifiability of entry-level applicant faking using the randomized response technique. *Human Performance, 16*, 81-106.

Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest, 5*, 71-106.

Dwight, S. A., & Donovan, J. J. (2003). Do warnings not to fake reduce faking? *Human Performance, 16*, 1-23.

Ellis, A. P. J., West, B. J., Ryan, A. M., & DeShon, R. P. (2002). The use of impression management tactics in structured interviews: A function of question type? *Journal of Applied Psychology, 87*, 1200-1208.

Ferris, G. R., Berkson, H. M., Kaplan, D. M., Gilmore, D. C., Buckley, M. R., Hochwarter, W. A., et al. (1999). *Development and initial validation of the political skill inventory.* Paper presented at the 59th Annual Meeting of the Academy of Management, Chicago, IL.

Fletcher, C. (1990). The relationships between candidate personality, self-presentation strategies, and interviewer assessments in selection interviews: An empirical study. *Human Relations, 43*, 739-749.

Funder, D. C. (1995). On the accuracy of personality judgment: A realistic approach. *Psychological Review, 102*, 652-670.

Funder, D. C. (1999). *Personality judgment: A realistic approach to person perception*. San Diego, CA: Academic Press.

Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences, 7*, 385.

Gilmore, D. C., & Ferris, G. R. (1989). The effects of applicant impression management tactics on interviewer judgments. *Journal of Management, 15*, 557-564.

Graves, L. M. (1993). Sources of Individual Differences in Interviewer Effectiveness: A Model and Implications for Future Research. *Journal of Organizational Behavior, 14*, 349-370.

Griffith, R. L., & McDaniel, M. (2006). The nature of deception and applicant faking behavior. In R. L. Griffith & M. H. Peterson (Eds.), *A closer examination of applicant faking behavior* (pp. 1-19). Greenwich, NC: Information Age Publishing.

Griffith, R. L., Peterson, M. H., Isaacson, J., Quist, J., & Gammon, A. (2009). *One of these things is not like the other: A person specific taxonomy of the determinants of applicant responding.* Paper presented at the 24th Annual Conference for the Society for Industrial and Organizational Psychology, New Orleans, LA.

Harris, K. J., Kacmar, K. M., Zivnuska, S., & Shaw, J. D. (2007). The impact of political skill on impression management effectiveness. *Journal of Applied Psychology, 92*, 278-285.

Herriott, S. R., Levinthal, D., & March, J. G. (1985). Learning from experience in organizations. *The American Economic Review, 75*, 298-302.

Highhouse, S. (2002). Assessing the candidate as a whole: A historical and critical analysis of individual psychological assessment for personnel decision making. *Personnel Psychology, 55*, 363-396.

Highhouse, S. (2008). Stubborn reliance on intuition and subjectivity in employee selection. *Industrial and Organizational Psychology, 1*, 333-342.

Janz, T. (1982). Initial comparisons of patterned behavior description interviews versus unstructured interviews. *Journal of Applied Psychology, 67*, 577-580.

Kacmar, K. M., & Carlson, D. S. (1999). Effectiveness of Impression Management Tactics Across Human Resource Situations. *Journal of Applied Social Psychology, 29*, 1293-1311.

Kacmar, K. M., Delery, J. E., & Ferris, G. R. (1992). Differential effectiveness of applicant impression management tactics on employment interview decisions. *Journal of Applied Social Psychology, 22*, 1250.

Kenny, D. A., & Albright, L. (1987). Accuracy in interpersonal perception: A social relations analysis. *Psychological Bulletin, 102*, 390-402.

Kleinmann, M., & Klehe, U. C. (2011). Selling oneself: Construct and criterion-related validity of impression management in structured interviews. *Human Performance, 24*, 29-46.

Kristof-Brown, A. L., Barrick, M. R., & Franke, M. (2002). Applicant impression management: Dispositional influences and consequences for recruiter perceptions of fit and similarity. *Journal of Management, 28*, 27-46.

Latham, G. P., & Saari, L. M. (1984). Do people do what they say? Further studies on the situational interview. *Journal of Applied Psychology, 69*, 569-573.

Latham, G. P., & Sue-Chan, C. (1999). A meta-analysis of the situational interview: An enumerative review of reasons for its validity. *Canadian Psychology, 40*, 56-67.

Leary, M. R., & Kowalski, R., M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin, 107*, 34-47.

Levashina, J., & Campion, M. A. (2006). A model of faking likelihood in the employment interview. *International Journal of Selection and Assessment, 14*, 299-316.

Levashina, J., & Campion, M. A. (2007). Measuring faking in the employment interview: Development and validation of an interview faking behavior scale. *Journal of Applied Psychology, 92*, 1638-1656.

Levine, T. R., Park, H. S., & McCornack, S. A. (1999). Accuracy in detecting truths and lies: Documenting the "veracity effect". *Communication Monographs, 66*, 125-144.

Lewis, C. C., & George, J. F. (2008). Cross-cultural deception in social networking sites and face-to-face communication. *Computers in Human Behavior, 24*, 2945-2964.

Liden, R. C., & Mitchell, T. R. (1988). Ingratiatory behaviors in organizational settings. *Academy of Management Review, 13*, 572-587.

Lievens, F., & Peeters, H. (2008). Interviewers' sensitivity to impression management tactics in structured interviews. *European Journal of Psychological Assessment, 24*, 174-180.

Lipovsky, C. (2006). Candidates' negotiation of their expertise in job interviews. *Journal of Pragmatics, 38*, 1147-1174.

Macan, T. H. (2009). The employment interview: A review of current studies and directions for future research. *Human Resource Management Review, 19*, 203-218.

Mann, S., Vrij, A., & Bull, R. (2004). Detecting true lies: Police officers' ability to detect suspects' lies. *Journal of Applied Psychology, 89*, 137-149.

Marlowe, C. M., Schneider, S. L., & Nelson, C. E. (1996). Gender and attractiveness biases in hiring decisions: Are more experienced managers less biased? *Journal of Applied Psychology, 81*, 11-21.

Maurer, S. D. (1997). The potential of the situational interview: Existing research and unresolved issues. *Human Resource Management Review, 7*, 185-201.

McFarland, L. A., & Ryan, A. M. (2000). Variance in faking across noncognitive measures. *Journal of Applied Psychology, 85*, 812-821.

McFarland, L. A., Ryan, A. M., & Kriska, S. D. (2003). Impression management use and effectiveness across assessment methods. *Journal of Management, 29*, 641-661.

Melchers, K. G., Lienhardt, N., von Aarburg, M., & Kleinmann, M. (2011). Is more structure really better? A comparison of frame-of-reference training and descriptively-anchored rating scales to improve interviewers' rating quality. *Personnel Psychology, 64*, 53-87.

Middleton, K. L., & Jones, J. L. (2000). Socially desirable response sets: The impact of country culture. *Psychology & Marketing, 17*, 149-163.

Millar, M. G., & Millar, K. U. (1997). The effects of cognitive capacity and suspicion on truth bias. *Communication Research, 24*, 556-570.

Motowidlo, S., J., Carter, G. W., Dunnette, M. D., Tippins, N., Warner, S., Burnett, J. R., et al. (1992). Studies of the structured behavioral interview. *Journal of Applied Psychology, 77*, 571-587.

Nordstrom, C. R., Hall, R. J., & Bartels, L. K. (1998). First impressions versus good impressions: The effect of self-regulation on interview evaluations. *The Journal of Psychology, 132*, 477-491.

Pansu, P., & Gilibert, D. (2002). Effect of causal explanations on work-related judgments. *Applied Psychology: An International Review, 51*, 505-526.

Posthuma, R. A., Morgeson, F. P., & Campion, M. A. (2002). Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time. *Personnel Psychology, 55*, 1-81.

Ralston, S. M., & Kirkwood, W. G. (1999). The trouble with applicant impression management. *Journal of Business and Technical Communication, 13*, 190-207.

Reinhard, M.-A., Scharmach, M., & Müller, P. (in press). It's not what you are, it's what you know: Experience, beliefs, and the detection of deception in employment interviews. *Journal of Applied Social Psychology*.

Robie, C., Tuzinski, K. A., & Bly, P. R. (2006). A survey of assessor beliefs and practices related to faking. *Journal of Managerial Psychology, 21*, 669-681.

Rosenfeld, P. (1997). Impression management, fairness, and the employment interview. *Journal of Business Ethics, 16*, 801-808.

Rosse, J. G., Stecher, M. D., Miller, J. L., & Levin, R. A. (1998). The impact of response distortion on preemployment personality testing and hiring decisions. *Journal of Applied Psychology, 83*, 634-644.

Sackett, P. R., & Wanek, J. E. (1996). New developments in the use of measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for personnel selection. *Personnel Psychology, 49*, 787-829.

Schermerhorn, J. R., & Bond, M. H. (1991). Upward and downward influence tactics in managerial networks: A comparative study of Hong Kong Chinese and Americans. *Asia Pacific Journal of Management, 8*, 147.

Schmid Mast, M., Frauendorfer, D., & Popovic, L. (2011). Cultural differences in recruiters' perception and evaluation of self-promoting and modest applicants in job interviews. *Journal of Personnel Psychology, 10*, 70-77.

Silvester, J. (1997). Spoken attributions and candidate success in graduate recruitment interviews. *Journal of Occupational and Organizational Psychology, 70*, 61-73.

Silvester, J., Anderson-Gough, F. M., Anderson, N. R., & Mohamed, A. R. (2002). Locus of control, attributions and impression management in the selection interview. *Journal of Occupational and Organizational Psychology, 75*, 59-76.

Stevens, C. K., & Kristof, A. L. (1995). Making the right impression: A field study of applicant impression management during job interviews. *Journal of Applied Psychology, 80*, 587-606.

Swider, B. W., Barrick, M. R., Harris, T. B., & Stoverink, A. C. (in press). Managing and creating an image in the interview: The role of interviewee initial impressions. *Journal of Applied Psychology*.

Toris, C., & DePaulo, B. M. (1984). Effects of actual deception and suspiciousness of deception on interpersonal perceptions. *Journal of Personality and Social Psychology, 47*, 1063-1073.

Tsai, W.-C., Huang, T.-C., Wu, C.-Y., & Lo, I.-H. (2010). Disentangling the effects of applicant defensive impression management tactics in job interviews. *International Journal of Selection and Assessment, 18*, 131- 140.

Tsui, A. S., Egan, T. D., & O'Reilly, C. A. I. (1992). Being different: Relational demography and organizational attachment. *Admint^rative Science Quarterly, 37*, 549-579.

Tsui, A. S., & O'Reilly, C. A. I. (1989). Beyond simple demographic effects: The importance of relational demography in superior-subordinate dyads. *Academy of Management Journal, 32*, 402-423.

Turnley, W. H., & Bolino, M. C. (2001). Achieving desired images while avoiding undesired images: Exploring the role of self-monitoring in impression management. *Journal of Applied Psychology, 86*, 351-360.

Valla, J.-P., Bergeron, L., Breton, J. J., Gaudet, N., Berthiaume, C., St-Georges, M., et al. (1997). *Enquête québécoise sur la santé mentale des jeunes de 6 à 14 ans : 1992 - Volume 1 : Méthodologie*. Montréal: Hôpital Rivière-des-Prairies et Santé Québec en collaboration avec le Ministère de la Santé et des Services Sociaux.

Van Iddekinge, C. H., Raymark, P. H., & Roth, P. L. (2005). Assessing personality with a structured employment interview: Construct-related validity and susceptibility to response inflation. *Journal of Applied Psychology, 90*, 536-552.

Vrij, A., Granhag, P. A., & Porter, S. (2010). Pitfalls and opportunities in nonverbal and verbal lie detection. *Psychological Science in the Public Interest, 11*, 89-121.

Weiss, B., & Feldman, R. S. (2006). Looking good and lying to do it: Deception as an impression management strategy in job interviews. *Journal of Applied Social Psychology, 36*, 1070-1086.

Williams, D., Brown, P., & Hesketh, A. (2006). *How to get the best graduate job: Insider strategies for success in the graduate job market*. Harlow, UK: Pearson Prentice Hall Business.

Zaidman, N., & Drory, A. (2001). Upward impression management in the work place cross-cultural analysis. *International Journal of Intercultural Relations, 25*, 671-690.

Table 1:

Correlations Between Main Study Variables

Variable	*M (SD)*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Interviewers' perceptions																
1. Self-promotion	3.46 (.88)	(.89)														
2. Deceptive ingratiation	1.84 (.69)	.05	(.93)													
3. Image protection	1.56 (.72)	-.29**	.46**	(.77)												
4. Slight image creation	1.55 (.65)	-.23**	.46**	.69**	(.87)											
5. Extensive image creation	1.24 (.44)	-.29**	.41**	.63**	.68**	(.89)										
6. Interview outcome	3.40 (.85)	.68**	-.01	-.38**	-.38**	-.36**	(.91)									
7. Applicant transparency	3.82 (.74)	.18*	.11	-.19*	-.14†	-.27**	.36**	(.83)								
Applicants' self-reports																
8. Self-promotion	3.72 (.69)	**.14†**	-.06	-.10	-.11	-.06	.18*	.10	(.75)							
9. Deceptive ingratiation	2.05 (1.11)	-.07	**.08**	.00	-.01	.05	-.05	.01	18*	(.92)						
10. Image protection	1.45 (.76)	.03	.15†	**.05**	.04	.00	.04	.08	.08	.55**	(.78)					
11. Slight image creation	1.24 (.51)	-.02	.14†	.03	**-.00**	-.03	.04	.04	-.06	.35**	.55**	(.87)				
12. Extensive image creation	1.09 (.31)	-.03	.02	-.11	-.13	**-.11**	.08	.06	-.02	.18*	.38**	.77**	(.90)			
13. Interview outcome	3.62 (.47)	.09	.01	-.00	-.07	.04	.24**	.08	.29**	.17*	.01	-.00	-.02	(.77)		
14. Social desirability	.69 (.19)	.03	.05	.08	.08	.01	.01	-.03	.23**	.09	-.13	-.01	-.01	.11	(.60)	
15. Political skills	3.95 (.49)	.20**	.09	.12	.05	-.04	.15†	.12	.11	.02	.05	.12	.05	.17*	.13†	(.70)

Note. Self-promotion corresponds to self-focused honest IM. Deceptive ingratiation corresponds to other-focused deceptive IM. Image protection, slight image creation, and extensive image creation correspond to self-focused deceptive IM. Scale reliabilities (Cronbach's alpha) appear on the diagonal in parentheses. $N = 164$. † $p < .10$. * $p < .05$. ** $p < .01$.

Table 2:

Base Rates and Comparison of Self-reported and Perceived IM Behaviors

Type of IM behavior	Percentage of applicants using IM behaviors	Perceived percentage of applicants using IM behaviors	Applicants' self-reported IM *M (SD)*	Interviewer' perceived IM *M (SD)*	*t*
Self-promotion	100.0	99.4	3.72 (.69)	3.46 (.88)	-3.24**
Ingratiation	70.1	63.4	2.05 (1.11)	1.84 (.93)	-1.91†
Image protection	40.2	57.3	1.45 (.76)	1.56 (.72)	1.43
Slight image creation	44.1	67.7	1.24 (.51)	1.55 (.65)	4.82**
Extensive image creation	21.3	42.7	1.09 (.31)	1.24 (.44)	3.36**

Note. Self-promotion corresponds to self-focused honest IM. Deceptive ingratiation corresponds to other-focused deceptive IM. Image protection, slight image creation, and extensive image creation correspond to self-focused deceptive IM. *T*-tests are computed on the differences between the means. N = 164. † $p < .10$. * $p < .05$. ** $p < .01$

Table 3:

Correlations Between Interviewer Experience, Self-evaluated Competence, and Accuracy of Perceptions (Interviewer Level)

Variable	*M (SD)*	Age	Experience in selection	Interviewing experience	Self-evaluated competence	Self-promotion	Ingratiation	Image protection	Slight image creation
Age	31.79 (8.30)	1							
Experience in selection	4.55 (5.57)	.85**	1						
Interviewing experience	1213.18 (1581.56)	.62**	.61**	1					
Self-evaluated competence	3.85 (.67)	.23	.37*	.26	1				
TA Self-promotion	2.10 (1.09)	-.09	-.15	-14	.01	1			
TA Deceptive ingratiation	2.40 (1.12)	.09	.10	.18	-.03	-.07	1		
TA Image protection	1.49 (.1.10)	.27	.18	-.02	.00	.23	.22	1	
TA Slight image creation	1.35 (1.15)	-.02	-.05	.03	-.12	.10	.40*	.54**	1
TA Extensive Image Creation	.62 (.59)	.43*	.22	.07	-.01	.11	.37*	.61**	.68**

Note. TA = Total accuracy score of perceptions. Smaller values indicate better accuracy. Self-promotion corresponds to self-focused honest IM. Deceptive ingratiation corresponds to other-focused deceptive IM. Image protection, slight image creation, and extensive image creation correspond to self-focused deceptive IM. $N = 34$. † $p < .10$. * $p < .05$. ** $p < .01$.

Table 4:

Multilevel Linear Regression Predicting Interview Outcome

Parameter	*Model1*	*Model2*	*Model3*	*Model4*	*Model5*
Controls					
Applicant gender	.00 (.08)	.00 (.08)	-.01 (.08)	-.03 (.08)	-.02 (.06)
Applicant age	-.10 (.08)	-.10 (.08)	-.12 (.08)	-.06 (.08)	-.04 (.06)
Applicant interviewing experience	-.10 (.08)	-.10 (.08)	-.10 (.08)	-.10 (.07)	-.07 (.05)
Interviewer gender	-.13 (.08)	-.13 (.09)	-.11 (.09)	-.08 (.08)	-.12 (.06)
Interviewer age	.02 (.10)	.02 (.10)	.03 (.11)	.06 (.06)	.05 (.08)
Interviewer interviewing experience	-.10 (.10)	-.10 (.10)	-.09 (.10)	-.13 (.10)	-.07 (.07)
Applicant self-reported					
Social desirability		.00 (.08)	-.04 (.08)	-.04 (.08)	-.01 (.06)
Political skills		.11 (.08)	.10 (.08)	.06 (.07)	.00 (.05)
Self-promotion			.19* (.08)	.15* (.07)	.05 (.05)
Deceptive ingratiation			.00 (.09)	.03 (.09)	.11 (.06)
Image protection			-.00 (.11)	-.04 (.10)	-.07 (.07)
Slight image creation			-.05 (.14)	.01 (.13)	-.00 (.09)
Extensive image creation			.09 (.12)	.04 (.11)	.03 (.08)
Interviewer perceptions of					
Applicant transparency				.34** (.07)	.21** (.06)
Self-promotion					.54** (.06)
Deceptive ingratiation					.08 (.06)
Image protection					-.08 (.08)
Slight image creation					-.21* (.08)
Extensive image creation					.01 (.08)
Intraclass correlations	.02	.02	.03	.04	.08
-2Loglikelihood	439.11	433.34	426.71	405.11	297.89
df	9	11	16	17	22
Δ *-2LL*		-5.77	-6.63	-21.60**	-107.22**

Note. Self-promotion corresponds to self-focused honest IM. Deceptive ingratiation corresponds to other-focused deceptive IM. Image protection, slight image creation, and extensive image creation correspond to self-focused deceptive IM. $N = 36$ at the interviewer level and N =164 at the interview/applicants level. Gender: 0 = women, 1 = men; Values are unstandardized estimates (standard errors in brackets); ** $p < .01$, * $p < .05$.