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PROGRESSION THROUGH THE RANKS: ASSESSING EMPLOYEE REACTIONS TO HIGH-STAKES EMPLOYMENT TESTING

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Employee reactions to promotional examinations were investigated in 2 studies ($N = 498$ & 182, respectively) of police officers. Anxiety, motivation, and justice perceptions were examined as possible predictors of promotional exam performance and intentions to recommend the exam to others. Reactions to a promotional examination were significantly and differentially related to those criteria. Motivation predicted performance whereas justice perceptions predicted recommendation intentions. In Study 2, the role of cognitive processing was also investigated. Results indicated that candidate reactions predicted exam performance through cognitive processing mechanisms. Exam motivation facilitated cognitive processing, which resulted in higher levels of exam performance. In contrast, exam anxiety exhibited both facilitative and debilitative cognitive processing effects.

Many employees join organizations with aspirations of quickly climbing the corporate ladder and joining the upper echelon. In most organizations, however, the reality consists of extensive internal competition for a limited number of positions, especially in organizations that have adopted "flat" organizational structures. This is a concern for employees, given evidence that they tend to define career success in terms of upward mobility (Ferris, Buckley, & Allen, 1992). Likewise, it is important for organizations to ensure that positions with increasing levels of responsibility are filled by the most qualified candidates. Thus, implementing sound selection procedures (e.g., valid tests & interviews) to identify the most qualified candidates for promotion is an essential organizational process.

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However, attention must also be devoted to ensuring that those procedures do not inadvertently dissuade strong candidates from seeking positions of greater responsibility or create resentment among those members who are unsuccessful in attaining a promotion.

When highly motivated candidates are turned down for a promotion, the consequences are likely to be detrimental. Disgruntled employees may refrain from entering future competitions and may actively attempt to dissuade others from entering the promotional process. Disgruntled candidates have also been known to discourage potential external applicants from joining the organization (Hausknecht, Day, & Thomas, 2004) and may terminate their own membership. Given that the ultimate objective of a promotional system is to sustain or increase levels of organizational performance, selection procedures must be designed to ensure that predictions of higher-level performance are both veridical and perceived to be fair. Thus, predicting, understanding, and influencing employee reactions to promotional processes are important goals for practitioners and organizational scholars alike (Chan & Schmitt, 2004; Ryan & Ployhart, 2000).

Relatively little is known about candidate reactions to promotional systems. This study advances knowledge of this area in five ways. First, past research has focused almost exclusively on job applicant reactions to selection processes (e.g., Hausknecht et al., 2004; Truxillo, Bauer, Campion, & Paronto, 2002). We extend that literature by examining employee reactions to promotional exams. Second, empirical investigations of applicant reactions are somewhat fragmented with studies focusing on only one or two reactions of interest (e.g., Ambrose & Cropanzano, 2003; Gilliland, 1994). We integrate insights from the anxiety, motivation, and justice literatures to assess distinct reactions from these domains in two samples of promotional exam candidates. This step is critical to understanding the full range of reactions to organizational testing processes. Third, studies that have examined candidate reactions to testing for promotion have typically focused on organizational attitudes, such as recommendation intentions (e.g., Ambrose & Cropanzano, 2003; Bagdadli, Roberson, & Paoletti, 2006). We extend that literature by focusing on the relations between candidate reactions to the promotional process and actual promotional test performance. Fourth, many past studies on applicant reactions have been conducted in the laboratory using student samples (e.g., Bauer, Truxillo, Paronto, Weekley, & Campion, 2004; Chan, Schmitt, Sacco, & DeShon, 1998). Although these studies provide increased levels of control, they invite questions about the generalizability of findings to organizational settings. We report two studies conducted in field settings with actual candidates for promotion as respondents. Finally, few studies have examined the mechanisms underlying relations between applicant reactions and test performance. Understanding these processes

is important for clarifying how employee reactions operate and, thus, helping organizations identify determinants of test performance that can be targeted for intervention. In our second study, we integrate theoretical insights from cognitive processing models and investigate the role that cognition plays in reaction–performance relations.

To provide a theoretical and conceptual framework for our hypotheses, this introduction is organized into two main sections. First, we provide an overview of existing research on promotional systems, which highlights the paucity of empirical investigations in the area of candidate reactions. Second, we describe our current research—its theoretical foundations, hypotheses, and the research context. We draw on cognitive load theory to explicate the potential influence of employee reactions on exam performance. Next we discuss the influence of employee reactions on exam recommendation intentions. Affective events theory is used to elucidate the relations between candidate anxiety and motivation as predictors and recommendation intentions as a criterion. We then draw upon fairness heuristic theory as a framework for understanding the relations between candidate justice perceptions and recommendation intentions. Finally, we provide background information on the applied context of our research before turning attention to our empirical investigations.

Past Research on Promotional Systems

The extant research on promotional systems has focused on three main areas. The first concerns contamination that affects promotional decisions. Findings generally indicate that promotional decisions are influenced by candidate demographics (e.g., Lyness & Schrader, 2006), impression management tactics (e.g., McFarland, Ryan, & Kriska, 2003), and the personality traits of the candidates and decision makers (e.g., Tharenou, 2001). The second area has examined the consequences of promotional decisions. Positive promotional decisions are associated with higher levels of organizational commitment (e.g., Bagdadli et al., 2006), as well as lower levels of turnover (e.g., Carson, Carson, Griffeth, & Steel, 1994) and peer envy on the part of the promotee (Schaubroeck & Lam, 2004). A third area has focused on the criterion-related validity of the selection tools used to make promotional decisions. Promotional decisions have been shown to be predicted by performance appraisal (Catano, Darr, & Campbell, 2007) and assessment center ratings (Gaugler, Rosenthal, Thorton, & Bentson, 1987).

The research streams described above have failed to consider employee affect regarding the promotional process in terms of anxiety, motivation, and perceptions of justice. This is problematic, as promotional exams influence career progression in many occupations (e.g., police officers, healthcare practitioners, & engineers; Gaugler et al., 1987). Employees

may experience negative reactions to such promotional processes, which can have unfortunate consequences. In particular, unfavorable reactions (e.g., high levels of anxiety and/or low levels of motivation and justice) may have a detrimental effect on test performance and may result in a score that does not reflect an individual's true level of ability (Hausknecht et al., 2004). For example, high levels of anxiety may result in low levels of exam performance, despite the fact that the candidate may demonstrate superior levels of on-the-job performance if promoted. Similarly, a candidate who is not highly motivated to do well on a knowledge test may actually be an effective performer at a higher rank. In support of these propositions, test-taking anxiety has been shown to correlate negatively with both test (Arvey, Strickland, Drauden, & Martin, 1990; Schmit & Ryan, 1992) and interview performance (McCarthy & Goffin, 2004). Several researchers have also found a positive relation between test-taking motivation and test performance (Chan, Schmitt, DeShon, Clause, & Delbridge, 1997; Sanchez, Truxillo, & Bauer, 2000). Ultimately, if unfavorable reactions result in a less accurate assessment of a person's knowledge, skills, or abilities, they may result in the promotion of less promising candidates. This possibility has been supported in a selection context, where Schmit and Ryan (1992) found that test-taking attitudes moderated the validity of cognitive ability and personality-based selection instruments.

An additional consideration in promotional contexts is whether employee reactions are related to candidates' intentions to recommend the promotional process to others. This is important, as maximizing the size and quality of the applicant pool is a key concern for organizations (Collins & Han, 2004; Jelley, 2007). In selection contexts, this is achieved, in part, by striving to ensure that applicants experience positive reactions to the selection process, thereby forming positive impressions of the organization and, subsequently, recommending the organization as a potential employer to others (Hausknecht et al., 2004). Promotional candidates, however, are already members of the organization and enter the promotional process with preexisting impressions of the organization (Ryan & Ployhart, 2000). Therefore, their reactions to the promotional process should, in general, exert a greater influence over recommendation intentions than organizational perceptions. These recommendation intentions are important from the perspective of the organization, as employees who have developed negative impressions may opt out of the promotional process, thereby narrowing the applicant pool. This is particularly true in large organizations, where employees often take standardized exams as one of the first steps in a multiple hurdle process (Gaugler et al., 1987). Candidates' willingness to recommend the promotional process is also important from the perspective of assessment developers. Disgruntled candidates may pressure an organization to change the promotional process. Organizations

are likely to attend to such concerns, particularly if senior officials view human resource practices as matters of administrative style rather than technical issues (Johns, 1993).

Although recent years have witnessed an emerging body of research on candidate reactions to promotional processes, the limited number of studies that have been conducted focus almost exclusively on the perceived justice of the promotional process and its presumed consequences. For example, perceptions of justice with respect to the promotional system have been correlated with job satisfaction, organizational commitment, and job performance (e.g., Ambrose & Cropanzano, 2003; Farmer, Beehr, & Love, 2003). Other studies have examined antecedents of justice, which include the purpose of the assessment procedure (e.g., selection vs. promotion; Kravitz, Stinson, & Chavez, 1996) and the gender of the candidate and decision maker (e.g., Saal & Moore, 1993).

The Current Research

As noted previously, research on employee reactions to promotional processes is relatively sparse. Moreover, research on applicant reactions to selection tests is divided largely between those studies that have examined applicant motivation and anxiety (e.g., Schmit & Ryan, 1997) and those that have examined applicant justice perceptions (e.g., Truxillo et al., 2002). Ryan and Ployhart (2000) called for an integration of these two research streams. In this study, we aim to answer that call by examining how anxiety, justice, and motivation are interrelated perceptions and how all three are antecedents of promotional exam performance and intentions to recommend the exam to others. We also investigate the role of cognitive processing in the relations between employee reactions and exam performance.

Employee Reactions and Exam Performance

Evidence that applicant reactions influence selection test performance is accumulating (Hausknecht et al., 2004). Studies have shown that anxiety typically reduces test performance (Hembree, 1988; Seipp, 1991). However, the nature and magnitude of these relations have yet to be tested in the context of promotional exams.

Two forms of anxiety are typically studied in evaluative contexts: behavioral and performance anxiety. Behavioral anxiety reflects autonomic arousal (e.g., fast heartbeat, sweaty palms) experienced as a result of the testing situation; performance anxiety reflects concern over the outcome of the test (Spielberger & Vagg, 1995). Research has demonstrated that these two facets, although positively related, are conceptually and

empirically distinct (McCarthy & Goffin, 2005; Seipp, 1991). Research on applicant reactions has focused almost exclusively on performance anxiety. However, meta-analytic findings suggest that both forms of anxiety are important affective reactions to consider as they display negative relations with test performance (Hausknecht et al., 2004; Hembree, 1988). These findings are consistent with the *cognitive load model.* The cognitive load model states that people have finite amounts of processing power and that anxiety impairs this processing power by interfering with their ability to attend to and process performance-relevant information (Barlow, 2002; Kanfer & Ackerman, 1989). Consistent with this model, anxiety has been shown to impair task performance by interfering with reasoning abilities, semantic memory retrieval processes (Zeidner, 1998), and working memory performance (Shackman et al., 2006). Based on this theory and previous empirical research, the following hypotheses were tested:

Hypothesis 1a: Employee behavioral anxiety is negatively related to promotional exam performance.

Hypothesis 1b: Employee performance anxiety is negatively related to promotional exam performance.

Motivation can affect selection test scores by influencing an applicant's desire to exert the amount of effort that is required to perform well (Ryan, 2001). These effects are due, in part, to the fact that motivated individuals are highly task focused (Latham, 2007). Numerous studies have shown that motivation, in addition to ability, has a positive effect on an individual's performance (Bandura, 1989; Latham, 2007). A meta-analysis revealed a positive relationship between job applicant motivation and performance on selection instruments, with an average corrected correlation of .22 in applied samples and .19 in hypothetical research scenarios (Hausknecht et al., 2004). Based on the existing literature, we offer the following hypothesis that, to our knowledge, has not been tested previously in a promotional context.

Hypothesis 2: Employee motivation is positively related to promotional exam performance.

Two forms of perceived justice are relevant to promotional contexts: procedural justice (Lind & Tyler, 1988) and interactional justice (Bies & Moag, 1986). Procedural justice refers to whether the actual procedure (i.e., the test for promotion) is viewed as fair, whereas interactional justice refers to whether the interpersonal treatment that employees receive is viewed as fair (Greenberg, 1993). In selection contexts, perceptions of procedural justice have been shown to correlate positively with test performance (Haushknecht et al., 2004). Gilliland's (1993) model of applicant reactions, is commonly used to explain these findings, as it predicts

that procedural and interactional justice influence applicant attitudes (e.g., toward the organization), intentions (e.g., to recommend the selection process to others), and behaviors (e.g., performance).

Research has yet to explore relations between justice perceptions and exam performance in promotional contexts. This is a critical issue because candidates who feel that promotional processes are unfair are likely to experience reduced motivation, which may ultimately lower their performance in the process, their predicted job performance scores, and their chances of being promoted. Candidates may feel that devoting effort to test performance is futile because a perceived unfair test will not allow them to adequately demonstrate their qualifications for promotion. In support of this proposition, several studies have found that procedural justice is related to test-taking motivation (e.g., Arvey et al., 1990; Bauer et al., 2006; Sanchez et al., 2000). Further, Chan et al. (1997), as well as Ployhart, Ziegert, and McFarland (2003), found that the relation between test fairness and performance was mediated by motivation.

Fewer studies have examined the relation between interactional justice and test performance, but those that have been conducted are, again, based on applicant samples. In general, findings suggest that there is a positive association between these two variables (e.g., Ryan, Sacco, McFarland, & Kriska, 2000; Truxillo, Steiner, & Gilliand, 2004). Moreover, the magnitudes of the reported relations are similar to those reported for procedural justice and exam performance (Hausknecht et al., 2004). We propose that the same mechanism that is operating for procedural justice and test performance can explain the relations between interactional justice and test performance. Specifically, candidates who feel that they have been treated unfairly may feel disrespected, and their subsequent motivation will be reduced. This will ultimately lower their test performance. Hence, the following hypotheses were tested:

Hypothesis 3a: Employee procedural justice perceptions are positively related to promotional exam performance.

Hypothesis 3b: Employee interactional justice perceptions are positively related to promotional exam performance.

Employee Reactions and Recommendation Intentions

Performance on promotional exams was one important criterion in the present research. We have also described previously why recommendation intentions is an important criterion to consider. In this section, we review research and theory in support of our contention that employee reactions are related to recommendation intentions in a promotional context. In

the case of anxiety and motivation, affective events theory (Weiss & Cropanzano, 1996) provides important insight into these relations.

Affective events theory states that work events are the proximal causes of affective reactions, which, in turn, influence work attitudes and behaviors (Weiss & Cropanzano, 1996). Job events are characterized as relatively unpredictable and/or infrequent occurrences, the latter of which can be used to describe promotional exams. In turn, affective reactions are conceptualized as an individual's emotional reactions to the events that happen at work. Feelings of anxiety and motivation that an employee may experience when faced with the challenge of a promotional exam fit within this category. The theory holds that these fleeting events can influence an employee's subsequent attitudes and behaviors, such as recommendation intentions. Empirical investigations have found support for this theory, demonstrating that affective states can influence organizational citizenship (Ilies, Scott, & Judge, 2006), workplace deviance (Judge, Scott, & Ilies, 2006), and withdrawal (George & Jones, 1996) behaviors. Further, meta-analytic findings reveal that affective states are related to job satisfaction and depersonalization (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Applied to the promotional context, this theory supports the prediction that feelings of anxiety and motivation in the promotional context will be related to an employee's intentions to recommend the exam to others.

This proposition is partially supported by two studies in the applicant reactions literature in which researchers found positive relations between motivation and recommendation intentions (Bauer et al., 2006; Bell, Weichman, & Ryan, 2006). Past research has not examined the extent to which candidate levels of anxiety are related to recommendation intentions, nor has it examined these questions in a promotional context. Based on the aforementioned theory and research, the following hypotheses were tested:

Hypothesis 4a: Employee behavioral anxiety is negatively related to recommendation intentions.

Hypothesis 4b: Employee performance anxiety is negatively related to recommendation intentions.

Hypothesis 5: Employee motivation is positively related to recommendation intentions.

In the case of procedural and interactional justice, fairness heuristic theory (Lind, 2001) provides an important framework for predicting relations between perceptions of justice and recommendation intentions. Fairness heuristic theory is cognitive in nature and asserts that people seek out fairness information in order to determine the extent to which they are valued (Lind & Tyler, 1988). In a work context, the theory predicts that

employees will feel valued by the organization when the work procedures they encounter are perceived as fair.

Fairness heuristic theory proposes three phases of fairness (Lind, 2001). The first phase is concerned with times when fairness becomes salient, namely in situations where individuals may feel uneasy about their relations with authority. Employees going through the promotional process fit this description, as their future level of authority, compensation, and organizational status is at stake. In the second phase, fairness judgments are formed. In promotional contexts, these judgments can occur when employees are faced with a promotional exam. Characteristics of the exam and its administration will lead to candidate judgments about procedural justice. The third and final phase concerns how the individual uses these fairness perceptions. Lind (2001) asserts that fairness perceptions are used as heuristics to guide general judgments about the system. Whereas fair procedures communicate respect and value toward candidates, unfair procedures communicate disrespect (Tyler & Lind, 1992). Applied to promotional contexts, fairness heuristics theory predicts that perceptions of procedural justice with respect to the promotional exam will be used to guide judgments about the promotional process and will be related to subsequent intentions to recommend the exam process to others.

Fairness heuristic theory (Lind, 2001) also predicts that perceptions of interactional justice will be used as heuristics to guide judgments about the promotional system. Specifically, the theory predicts that the manner in which exam administrators treat candidates will influence perceptions of interactional justice. Whereas fair treatment communicates respect and value toward candidates, unfair treatment communicates disrespect (Tyler & Lind, 1992). Thus, fairness heuristic theory predicts that in the context of a promotional exam, perceptions of interactional justice will be used to guide judgments about the promotional process and will be related to subsequent intentions to recommend the exam process to others.

In support of these propositions, applicant perceptions of procedural and interactional justice have been shown to correlate positively with recommendation intentions in personnel selection contexts (Hausknecht et al., 2004). To our knowledge, these relations have yet to be examined in a promotional context. Thus, based on the aforementioned theory and research, the following hypotheses were tested:

Hypothesis 6a: Employee procedural justice perceptions are positively related to exam recommendation intentions.

Hypothesis 6b: Employee interactional justice perceptions are positively related to exam recommendation intentions.

Research Context

The first goal of this research was to assess the contributions of five employee reactions in the prediction of promotional exam performance and recommendation intentions. This was accomplished in two studies of police officers completing promotional exams. This context is relevant both to our scholarly research interests and to pragmatic concerns, as complaints about promotional processes are common in policing organizations (Canadian Police Sector Council, 2001; Tsidulko, 2006), and standardized knowledge tests are often a component of the overall process (Gaugler et al., 1987). The second goal of the study was to assess the cognitive processes underlying the relations between employee reactions and exam performance. The latter was investigated in Study 2 with an independent sample of police officers taking a promotional exam.

To accomplish these objectives, the authors partnered with the Ontario Police College (OPC), a police training institution that is operated by the province of Ontario, Canada. OPC develops and administers promotional exams that most police services in Ontario elect to use as one component of their promotional process. Depending on police service policy, officers can apply for their first promotion after a minimum period of service. The first promotional exam that officers are eligible to take in their careers is the Constable to Sergeant exam (Level 1). The second exam is for sergeants who wish to apply for the rank of staff sergeant (Level 2). Finally, the highest level for which OPC sets a knowledge-based exam is for the staff sergeant to inspector level (Level 3). These exams are administered on a single date at multiple sites.

Study 1

Method

Participants

The participants were 490 police officers undergoing standardized, knowledge-based, promotional exams. The majority of participants were White (89% of 450 responses) and male (78% of 486 responses). The average participant was approximately 40 years old with 16 years of policing experience and had completed or was in the process of completing a postsecondary degree. Included were 304 constables applying to be sergeants, 167 sergeants applying to be staff sergeants, and 18 staff sergeants applying to be inspectors. One participant did not indicate his or her exam level. In total, 1,801 individuals completed an OPC promotional exam and were invited to participate in the study, yielding a response rate of

approximately 27%. This response rate is common for Web-based survey research (Kaplowitz, Hadlock, & Levine, 2004) and is similar to rates that have been reported for field studies on applicant reactions (e.g., Truxillo & Bauer, 1999).

We conducted a series of analyses to examine sample representativeness. Findings revealed that respondents did not differ significantly from the population of exam candidates with respect to gender. Additional information on the demographic composition of the exam candidate population was unavailable. However, analyses comparing respondents to the general population of police officers in Ontario (Statistics Canada, 2002) revealed no significant differences with respect to age, ethnicity, and education. In terms of performance, the sample of respondents exhibited slightly higher scores on the promotional exam (79%; $M = 515.97$) than the entire exam population (77%; $M = 500.00$; $t_{(2208)} = 4.57$, $p < .01$). Although statistically significant, this difference is small in magnitude ($d = 0.19$; Cohen, 1992).

Procedure

Candidates were invited to participate in a Web-based survey following their promotional exams. They were provided with assurances of confidentiality and informed that their participation would not affect their chances of promotion. Approximately 2 weeks following the exams, the police services reminded their exam candidates about the survey. On the final page of the questionnaire, respondents gave their consent to the release of their exam scores for research purposes (86%, $N = 420$). At the time the survey was completed, candidates were unaware of their actual exam scores but did report how well they thought they had performed on the exam. The availability of an independent, perceptual measure of performance was an important methodological advantage of this study. Moreover, collecting data before actual test scores were known eliminated the possibility that candidates' actual scores on the exam would artificially influence their self-reported levels of anxiety, motivation, and justice.

Obtaining candidates' self-ratings of exam performance enabled a stronger assessment of the directionality of relations between candidate reactions and exam performance than would be evident from only reaction–performance correlations. Our hypotheses are based on the premise that candidate reactions to the exams have an influence on exam performance. However, it is also possible that candidate exam performance influences applicant reactions. When applicants perceive they have performed poorly on a selection test they are likely to act in a self-serving manner by reporting more negative test reactions, such as low levels of test justice (Chan & Schmitt, 2004). Similarly, if a candidate believes that he or she performed

well on the exam, the individual may be more likely to attribute this to internal factors, namely high levels of motivation and/or low levels of anxiety. Thus, obtaining information on candidate self-ratings of performance enabled an assessment of the extent to which substantive candidate reactions predict exam performance, with the effects of self-rated exam performance controlled. This provided a more rigorous test of the predictive validity of the candidate reactions, as it eliminated the possibility that variance derived from beliefs about performance influenced reactions to the exam. It also advances past research, as candidate self-ratings of performance are infrequently assessed in the applicant reactions literature (Chan & Schmitt, 2004).

Self-ratings of performance may also be related to candidate intentions to recommend the examination to others. Specifically, candidates who felt they had performed well may be more likely to recommend the examination to others, regardless of whether they felt anxious, motivated, or justly treated. Thus, the extent to which candidate reactions predict recommendation intentions *irrespective* of perceived examination performance is an important consideration. Although this relation has not been examined previously, past research has demonstrated that candidate reactions can have significant effects on attitudes and behaviors (Hausknecht et al., 2004). Therefore, self-rated performance was also used as a control in our analyses assessing the relations between candidate reactions and recommendation intentions.

Measures

The questionnaire assessed a variety of constructs, including demographic characteristics (e.g., sex, age, & ethnic heritage) and employee reactions to the exams (i.e., feelings of motivation, anxiety, & justice). Self-rated exam performance, exam level, and exam experience were also assessed and were subsequently used as control variables in the analyses. Details of the measures are provided later.

With the exception of the demographic variables and actual exam performance, all of the remaining items were assessed using a five-point Likert-type rating scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Psychometric properties of the selected scales have been found to be strong in past research, and each scale exhibited adequate internal consistency reliabilities in this study. Items for each scale can be found in the Appendix.

Employee reactions. Five scales assessed employee reactions to the promotional exams. Five items from the Behavioral ($\alpha = .69$) and four items from the Performance ($\alpha = .76$) Anxiety subscales of the Measure of Anxiety in Selection Interviews (MASI; McCarthy & Goffin, 2004) were

adapted to assess test-taking anxiety. Test-taking motivation was measured using four items from the Motivation subscale of the Test Attitude Survey (Arvey et al., 1990; $\alpha = .75$). Procedural (six items; $\alpha = .92$) and interactional (six items; $\alpha = .90$) justice were assessed using the Structural and Social higher-order factors of the Selection Procedural Justice Scale (Bauer et al., 2001). The structural (procedural justice) factor reflected justice perceptions that relate to the promotional exam process. The social (interactional justice) factor reflected perceived communication with and treatment of the officers during the exam process.

Actual exam performance. Candidate performance on OPC's standardized, multiple-choice promotional exams was an important criterion variable in this research. The promotional exam assesses the subject areas of community policing, supervision/management, the Ontario *Police Services Act*, and provincial and federal law. The content and number of items pertaining to each subject area varies by exam level—constable to sergeant, sergeant to staff sergeant, or staff sergeant to inspector—and is based on role demands (see Jelley, 2007). Each exam consists of more than 100 items (average $\alpha = .80$). To ensure that scores were comparable across the three levels, standardized scores ($M = 500$, $SD = 100$), computed within each exam level, were adopted for this study.

Recommendation intentions. The promotional context of this study meant that all candidates were existing members whose views had the potential to affect their police service's choice to use the OPC's promotional exam in the future. Thus, intention to recommend the exam to other employees was an important variable and was assessed using four items from Smither, Reilly, Millsap, Pearlman, and Stoffey (1993; $\alpha = .86$).

Control variables. To provide a conservative test of our hypotheses, we statistically controlled for candidate age, education, exam experience, self-rated exam performance, and exam level. With respect to exam experience, participants were asked to indicate their experience taking multiple-choice exams using a three-item scale developed for this study ($\alpha = .91$). With respect to self-rated exam performance, participants were asked to provide self-ratings of their exam performance using a four-item scale developed for this study ($\alpha = .85$). We also statistically controlled for exam level. Subgroup analyses revealed no significant differences among the three levels on most of the variables examined in this study, including actual exam performance. Not surprisingly, however, officers at higher ranks were found to be older, to have a higher level of education, and to have more experience taking multiple-choice exams than officers at lower levels. Candidates at higher ranks were also found to have slightly lower levels of performance anxiety and slightly higher levels of self-rated performance. No significant differences on the remaining study variables were found.

Results

Employee Reactions, Exam Performance, and Recommendation Intentions

Table 1 presents the means, standard deviations, and intercorrelations of the study variables. To test our hypotheses, we conducted a series of multiple regression analyses that assessed the impact of the combined set of employee reactions on each criterion variable (see Table 2). In light of issues surrounding the interpretation of regression coefficients (Tabachnick & Fidell, 2005), semipartial correlations (sr^2) were also computed. They yielded a pattern of results that was virtually identical to the coefficients that are reported in Table 2.

Hypothesis 1 predicted that employee (a) behavioral anxiety and (b) performance anxiety would be negatively related to exam performance. As illustrated in Table 2, no support for this hypothesis was found (behavioral anxiety, $\beta = .12$, $p = .06$; performance anxiety, $\beta = -.12$, $p = .10$; additional tests of curvilinear relations between anxiety and performance were also nonsignificant). Hypothesis 2 predicted that employee motivation would be positively related to exam performance. This hypothesis was supported, with motivation emerging as a significant predictor ($\beta = .19$, $p < .001$) of exam performance. Hypothesis 3 predicted that employee (a) interactional and (b) procedural justice perceptions would be positively related to exam performance. No support for this hypothesis was found (interactional justice, $\beta = .00$, $p = .95$; procedural justice, $\beta = -.10$; $p = .06$). Hypothesis 4 predicted that employee (a) behavioral anxiety and (b) performance anxiety would be negatively related to recommendation intentions. No support for this hypothesis was found (behavioral anxiety, $\beta = .03$, $p = .56$; performance anxiety, $\beta = -.11$, $p = .06$). Hypothesis 5 predicted that employee motivation would be positively related to recommendation intentions. A finding opposite to the prediction was revealed—motivation was negatively related to recommendation intentions ($\beta = -.18$, $p < .001$). Hypothesis 6 predicted that employee (a) interactional and (b) procedural justice perceptions would be positively related to recommendation intentions. Support for this hypothesis was obtained (interactional, $\beta = .28$, $p < .001$; procedural, $\beta = .28$, $p < .001$).

When considered together, findings indicated that the five candidate reactions differentially predicted exam performance and recommendation intentions. The regression analyses were significant with squared multiple correlations of .10 for exam performance and .36 for recommendation intentions. The magnitudes of these analyses were conceptualized in a manner consistent with Cohen (1992; small = .10–.29, medium = .30–.49, & large = .50–1.00). Thus, employee reactions to promotional exams accounted for a medium proportion of the variance in exam performance

TABLE 1
Means, Standard Deviations, and Correlations (Study 1)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Behavioral anxiety	2.07	.56											
2. Performance anxiety	2.29	.72	.63**										
3. Motivation	4.26	.65	.12**	.23**									
4. Interactional justice	4.06	.48	−.12**	−.10*	.22**								
5. Procedural justice	2.04	.76	.04	−.04	.13**	.13**							
6. Actual exam performance[a]	515.97	89.22	.04	−.03	.17**	.03	−.05						
7. Recommendation intentions	3.71	.87	−.13**	−.24**	−.07	.33**	.41**	−.04					
8. Age	40.06	5.37	−.01	−.04	−.04	.03	.02	−.21**	.11*				
9. Education level[b]	3.11	1.69	−.03	−.04	.05	−.02	−.03	.13*	−.07	−.12*			
10. Exam experience	3.49	.93	−.19**	−.20**	.00	.03	−.02	.07	−.02	−.08	.27**		
11. Exam level[c]	1.43	.57	−.08*	−.12**	.03	−.09	.00	−.03	.00	.35**	−.10*	.13**	
12. Self-rated exam performance	3.11	.71	−.21**	−.38**	.17**	.05	.38**	.08	.37*	.08	−.03	.14**	.16**

Note. *N* ranged from 412 to 490.

[a]Actual exam performance = standardized score on the promotional examination ($M = 500$, $SD = 100$, standardized relative to those who took the same level of exam).

[b]Highest level of education attained (1 = *high school*, 2 = *some college*, 3 = *completed college*, 4 = *some university*, 5 = *completed university*, 6 = *some graduate school*, 7 = *completed graduate school*).

[c]Exam level (1 = *constable to sergeant*, 2 = *sergeant to staff sergeant*, 3 = *staff sergeant to inspector*).

*$p < .05$

**$p < .01$

TABLE 2
Employee Reactions as Predictors of Exam Performance and Recommendation Intentions (Study 1)

	Criterion variables							
	Exam performance				Recommendation intentions			
	β	SE_β	R^2	ΔR^2	β	SE_β	R^2	ΔR^2
Step 1: Control variables			.07***				.17***	
Age	−.21***	.86			.08	.01		
Education level	.13*	2.78			−.01	.03		
Exam experience	.01	4.91			−.06	.04		
Exam level	.05	8.36			−.09	.08		
Self-rated exam performance	.08	6.24			.41***	.06		
Step 2: Add employee reactions			.10***	.04**			.36***	.19***
Behavioral anxiety	.12	9.77			.03	.08		
Performance anxiety	−.12	8.47			−.11	.07		
Motivation	.19***	7.67			−.18***	.06		
Interactional justice	.00	9.78			.28***	.08		
Procedural justice	−.10	6.02			.28***	.05		

Note. Sample size ranged from 420 to 490.
*$p < .05$
**$p < .01$
***$p < .001$

and a large proportion of the variance in recommendation intentions. Moreover, the significant change in R^2 values indicates that these reactions had an effect that was *independent* of how well candidates felt they had performed on the exam.

Discussion

Study 1 demonstrated that employee reactions to promotional exams had significant relations with key organizational criteria. In particular, motivation predicted exam performance and perceptions of justice predicted exam recommendation intentions. Contrary to Hypothesis 1, behavioral and performance anxiety were not related to exam performance. The failure to find a relation between the two forms of anxiety and exam performance is, however, consistent with the complex pattern of associations found in the broader literature on anxiety and performance. Indeed, findings with respect to anxiety are somewhat equivocal, with studies reporting that anxiety is positively related to performance (e.g., Jones & Swain, 1992; Raffety, Smith, & Ptacek, 1997), negatively related to performance (e.g., Hopko, Hunt, & Armento, 2005; McCarthy & Goffin, 2005),

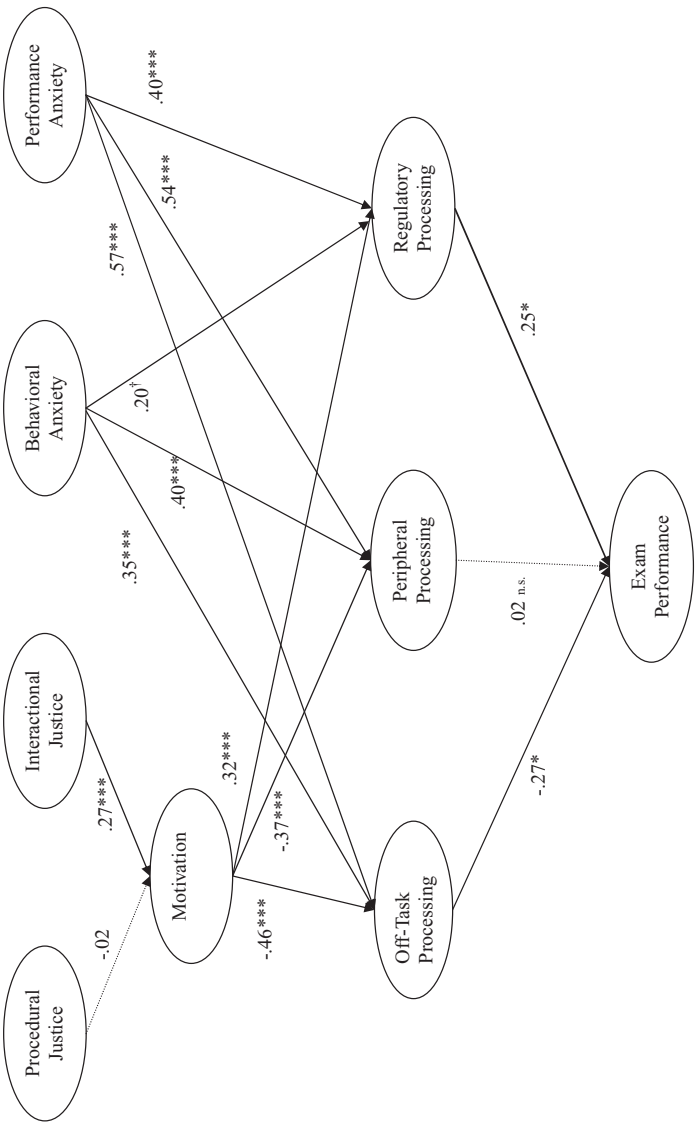
or exhibits no relation with performance (Donaldson & Blanchard, 1995; Saks, 1996). In order to more fully understand whether and how anxiety is related to performance, we reexamined the anxiety–performance relations in a separate sample of promotional exam candidates and included measures of possible processes through which anxiety may have either facilitative or debilitative effects.

Study 2

In our second study, we cross-validated the findings of Study 1. We also examined cognitive processes underlying relations between employee reactions and exam performance. Four cognitive processing theories may advance an understanding of the observed relations: interference theory (Wine, 1980), the elaboration likelihood model (ELM; Petty & Cacioppo, 1986), integrative resource theory (Kanfer & Ackerman, 1989), and processing efficiency theory (PET; Eysenck & Calvo, 1992). These theories share the prediction that motivation and anxiety influence individual performance through the allocation of attentional resources (see Figure 1).

Interference theory (Wine, 1980) states that highly anxious individuals spend more time attending to task-irrelevant events. Task-irrelevant thoughts consume processing resources for highly anxious individuals, which cause them to devote less attention to the task at hand. Similarly, the ELM of persuasive communication (Petty & Cacioppo, 1986) distinguishes between central and peripheral processing. Individuals engaged in central processing attempt to understand and evaluate the main content of a message they are receiving. In contrast, individuals engaged in peripheral processing attend to the tangential aspects of a message, such as a speaker's personality characteristics. In direct contrast to central processing, peripheral processing is said to occur when an individual lacks the motivation and/or ability to process information. In selection and promotion contexts, a high level of anxiety and a low level of motivation may reduce an individual's ability to process information. This is likely to elicit peripheral processing and to decrease performance (Powell, 1991).

Kanfer and Ackerman's (1989) integrative resource model (IRM) states that an individual's attentional resources may be devoted not only to off-task cognitions but also to self-regulatory thoughts. Self-regulatory processes play a key role in determining performance outcomes. These processes involve monitoring one's behavior and evaluating one's goal progress (Bandura, 1989; Kanfer & Ackerman, 1989). Regulatory processing can increase performance because these thoughts prompt individuals to make appropriate adjustments to the amount of effort they devote to the task. To date, much of the research in this area has focused on



Note. $\chi^2_{(360)} = 608.0$, $p < .01$; RMSEA = .06; CFI = .90. Numbers represent standardized coefficients.
$^{\dagger}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Figure 1: **Candidate Reactions, Cognitive Processes, and Exam Performance.**

self-regulatory processes as proximal mechanisms through which the effects of more distal motivational processes affect task performance. Individuals who are motivated to perform a given task devote their attention toward self-regulatory activities (Bandura, 1989).

The PET incorporates the notion of self-regulatory processing (Eysenck & Calvo, 1992; Eysenck, Derakshan, Santos, & Calvo, 2007). Consistent with the IRM, PET asserts that a self-regulatory system mediates the effects of anxiety on performance. Specifically, it proposes that, in addition to focusing on task-irrelevant events when experiencing high levels of anxiety, individuals will apply self-regulatory resources to monitor their progress on the task at hand. Individuals are therefore able to identify potential problems with respect to task accomplishment and apply corrective strategies to the task, such as exerting extra effort or utilizing coping mechanisms.

The aforementioned theories suggest that high levels of anxiety will lead to off-task and peripheral processing, which will debilitate performance. They also suggest that high levels of anxiety should lead to self-regulatory processing, which will facilitate performance. This complex relation between anxiety and performance is consistent with research and theory in the education and sport psychology literatures on debilitative and facilitative anxiety (e.g., Jones, 1995; Raffety et al., 1997). Facilitative anxiety represents task-relevant effort to complete the task and, thus, enhances performance. Debilitative anxiety represents task irrelevant responses that reduce performance (Alpert & Haber, 1960). These two forms of anxiety are distinguished by the extent to which individuals *feel* that their anxiety facilitates (e.g., "Nervousness while taking an exam helps me do better.") or reduces (e.g., "Nervousness while taking a test hinders me from doing well.") their performance (Alpert & Haber, 1960). This perceptual distinction is problematic, as perceptions of whether anxiety is facilitative or debilitative may be confounded with perceptions of one's own abilities. Thus, this study advances past research by directly examining the possibility that anxiety may show both facilitative and debilitative effects through self-regulatory cognitions, and off-task and peripheral cognitions, respectively.

Taken together, the above theories suggest that performance is enhanced when an individual is able to devote sufficient cognitive resources to the task at hand and is reduced when an individual is unable to do so. High levels of motivation should lead to more self-regulatory processing and less off-task and peripheral processing. This has the ultimate effect of increasing candidate performance. High levels of anxiety, on the other hand, should lead to high levels of self-regulatory processing, as well as off-task and peripheral processing. Thus, it is possible that high anxiety has both facilitative *and* debilitative effects on exam performance.

Figure 1 presents the conceptual model that was used to test the combined set of hypotheses for Study 2. Based on the aforementioned research and theory, the following hypotheses were tested:

Hypothesis 7: Candidate behavioral anxiety is positively related to (a) off-task processing, (b) peripheral processing, and (c) self-regulatory processing.

Hypothesis 8: Candidate performance anxiety is positively related to (a) off-task processing, (b) peripheral processing, and (c) self-regulatory processing.

Hypothesis 9: Candidate motivation is (a) negatively related to off-task processing, (b) negatively related to peripheral processing, and (c) positively related to self-regulatory processing.

Hypothesis 10: Exam performance is negatively predicted by (a) off-task processing and (b) peripheral processing, and is positively predicted by (c) self-regulation.

In contrast to anxiety and motivation, perceptions of justice are unlikely to have a direct influence on cognitive processing variables. Rather, consistent with past research and theory, justice is likely to have an indirect effect on cognitive processing through its influence on motivation. As stated previously, Chan et al. (1997), as well as Ployhart et al. (2003), have found that motivation mediates the relation between procedural justice and test performance in lab settings. This study extends that research to examine whether those findings (a) generalize to field settings with job incumbents and (b) hold for interactional justice.

Hypothesis 11: Candidate motivation is positively predicted by (a) procedural justice perceptions and (b) interactional justice perceptions.

Method

Participants

Participants consisted of 182 police officers who had completed standardized, knowledge-based, promotional exams similar to those described in Study 1. Participants included 112 constable to sergeant candidates (Level 1), 50 sergeant to staff sergeant candidates (Level 2), and 20 staff sergeant to inspector candidates (Level 3). The overall response rate for Study 2 was 20%, but the lower number of participants was mostly a reflection of fewer exam candidates (927). The total number of candidates

taking OPC promotional exams can vary dramatically as a function of relatively large police services' participation in a given administration.

Consistent with Study 1, participants were mostly White (81%) and male (82%). On average, respondents were 39 years old and had 15 years of policing experience. Most (90%) had completed or were in the process of completing a postsecondary degree, and 80% ($N = 146$) consented to the release of their exam scores for research purposes. This sample was also found be similar to the population of exam candidates with respect to gender. There were also no significant differences between this sample and the general population of police officers in Ontario (Statistics Canada, 2002) with respect to age, ethnicity, and education levels. In terms of performance, the study respondents exhibited slightly higher scores on the promotional exam (75%; $M = 539.04$) than the entire exam population (72%; $M = 500.00$; $t_{(1070)} = 4.56$, $p < .01$). Although statistically significant, this difference is small in magnitude ($d = 0.28$; Cohen, 1992).

Measures

The measures used in Study 2 to assess demographic characteristics, exam performance, employee reactions, and recommendation intentions were identical to those included in Study 1. Once again, each scale exhibited an adequate internal consistency reliability estimate (behavioral anxiety $\alpha = .72$, performance anxiety $\alpha = .80$, motivation $\alpha = .82$, interactional justice $\alpha = .90$, procedural justice $\alpha = .91$, actual exam performance average $\alpha = .79$, recommendation intentions $\alpha = .86$, and exam experience $\alpha = .93$).

Cognitive processes thought to occur during promotional exams were assessed using a five-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Specifically, items from the Cognitive Interference Questionnaire (Sarason, Potter, & Sarason, 1986) and Kanfer and Ackerman's (1989) attention measures were used to assess off-task cognitions (three items; $\alpha = .81$). Peripheral cognitions were assessed with four items ($\alpha = .90$). Three other items assessed self-regulatory cognitions ($\alpha = .74$). All items are presented in the Appendix.

As in Study 1, officers' performance on the OPC promotional exam also served as an important criterion variable, and within-level standardized scores were adopted to ensure that scores were comparable across the three exam levels. Subgroup analyses revealed no significant differences among the three levels on most of the variables examined in this study, including exam performance. Consistent with Study 1, however, officers at higher ranks were found to be older and to have more experience taking multiple choice exams than officers at lower levels. There were

also significant differences across levels on self-regulatory processing. Consequently, exam level was statistically controlled in the analyses.

Results

Employee Reactions, Exam Performance, and Recommendation Intentions

Table 3 presents the means, standard deviations, and intercorrelations of the study variables. A series of multiple regression analyses were conducted to assess the impact of the combined set of employee reactions on exam performance and recommendation intentions (see Table 4). Consistent with Study 1, employee age, education level, prior exam experience, and exam level were controlled to provide rigorous tests of our hypotheses. In addition, semipartial correlations (sr^2) yielded a pattern of results that was virtually identical to those in Table 4.

Hypothesis 1 predicted that employee (a) behavioral anxiety and (b) performance anxiety would be negatively related to exam performance. No support for this hypothesis was found (behavioral anxiety, $\beta = .05$, $p = .67$; performance anxiety, $\beta = -.06$, $p = .61$; additional tests of curvilinear relations were also nonsignificant). Hypothesis 2 predicted that employee motivation would be positively related to exam performance. This hypothesis was supported, with motivation emerging as a significant predictor ($\beta = .32$, $p < .001$) of exam performance. Hypothesis 3 predicted that employee (a) interactional and (b) procedural justice perceptions would be positively related to exam performance. No support for this hypothesis was found (interactional justice, $\beta = .14$, $p = .16$; procedural justice, $\beta = -.01$, $p = .92$). Hypothesis 4 predicted that employee (a) behavioral anxiety and (b) performance anxiety would be negatively related to recommendation intentions. No support for this hypothesis was found (behavioral anxiety, $\beta = -.14$, $p = .09$; performance anxiety, $\beta = 10$, $p = .29$). Hypothesis 5 predicted that employee motivation would be positively related to recommendation intentions. A finding opposite to the prediction was revealed—motivation was negatively related to recommendation intentions ($\beta = -.29$, $p < .001$). Hypothesis 6 predicted that employee (a) interactional and (b) procedural justice perceptions would be positively related to recommendation intentions. Support for this hypothesis was obtained (interactional, $\beta = .22$, $p < .05$; procedural, $\beta = .47$, $p < .001$).

Overall, the pattern of relations found in the multiple regression analyses and subsequent support for the hypotheses was consistent with that found in Study 1. Moreover, as a whole, findings of Study 2 again indicated that the five candidate reactions differentially predicted exam performance and recommendation intentions. The regression analyses were significant,

TABLE 3
Means, Standard Deviations, and Correlations (Study 2)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Behavioral anxiety	2.05	.61														
2. Performance anxiety	2.44	.76	.59**													
3. Motivation	4.28	.66	.12	.29**												
4. Interactional justice	4.09	.53	−.32**	−.31**	.21**											
5. Procedural justice	1.83	.69	.09	−.06	−.01	−.02										
6. Actual exam performance[a]	539.04	91.27	.04	.04	.33**	.17*	.06									
7. Recommendation intentions	2.97	.94	−.17*	−.18*	−.24**	.14	.52**	−.03								
8. Age	39.32	5.61	.09	.06	−.01	.04	−.07	−.09	.00							
9. Education level[b]	3.35	1.69	.16*	.03	.06	.02	−.01	.18*	−.02	−.11						
10. Exam experience	3.82	.93	−.20**	−.18*	.02	.31**	−.17*	−.03	−.08	−.04	.10					
11. Exam level[c]	1.50	.69	−.05	−.03	−.07	.12	−.11	−.05	−.08	.47**	.07	.19**				
12. Self-rated exam performance	2.79	.69	−.10	−.29**	−.03	−.09	.28**	.08	.29**	−.04	.07	.04	−.03			
13. Off-task processing	1.82	.67	.41**	.34**	−.27**	−.37**	.17*	−.16*	.12	.06	.12	−.09	.06	.05		
14. Peripheral processing	1.76	.68	.42**	.34**	−.22**	−.35**	.21**	−.08	.08	−.08	.09	−.17*	−.05	.12	.59**	
15. Self-regulatory processing	3.11	.88	.23*	.41**	.25**	.04	.03	.12	−.10	.05	.04	−.03	.06	−.43**	.20**	.23**

Note. *N* ranged from 145 to 182.

[a]Actual exam performance = standardized scores on the promotional examination ($M = 500$, $SD = 100$, standardized relative to those who took the same level of exam).

[b]Highest level of education attained (1 = *high school*, 2 = *some college*, 3 = *completed college*, 4 = *some university*, 5 = *completed university*, 6 = *some graduate school*, 7 = *completed graduate school*).

[c]Exam level (1 = *constable to sergeant*, 2 = *sergeant to staff sergeant*; 3 = *staff sergeant to inspector*).

*$p < .05$

**$p < .01$

TABLE 4
Employee Reactions as Predictors of Key Criterion Variables (Study 2)

	Criterion variables							
	Exam performance				Recommendation intentions			
	β	SE_β	R^2	ΔR^2	β	SE_β	R^2	ΔR^2
Step 1: Control variables			.04				.09*	
Age	−.05	1.56			.02	.01		
Education level	.17	4.86			−.03	.04		
Exam experience	−.00	9.28			−.03	.08		
Exam level	−.01	12.87			−.09	.12		
Self-rated exam performance	.07	12.55			.27***	.10		
Step 2: Add employee reactions			.16**	.13**			.39*	.30**
Behavioral anxiety	.05	16.95			−.14	.13		
Performance anxiety	−.06	14.30			.10	.11		
Motivation	.32***	12.79			−.29***	.10		
Interactional justice	.14	17.68			.22**	.13		
Procedural justice	−.01	12.06			.47***	.10		

Note. Sample size ranged from 140 to 170.
*$p < .05$
**$p < .01$
***$p < .001$

with squared multiple correlations of .16 for exam performance and .39 for recommendation intentions. These findings are medium to large in magnitude (Cohen, 1992) and further highlight the importance of employee reactions to promotional exams. Moreover, incremental validity analyses indicated that these reactions had an effect on exam performance and recommendation intentions that was independent of how well candidates felt they had performed on the exam.

The Role of Cognitive Processes

The role of cognitive processes was examined with structural equation modeling using Amos 5 software (Arbuckle, 2003). Maximum likelihood estimation procedures were used and three indices were employed to assess the fit of the models: the chi-square index, the root mean square error of approximation (RMSEA; Steiger, 1989), and the comparative fit index (CFI; Bentler, 1990). This combination of fit indices ensured the inclusion of an index that considers how much variance is explained in light of how many degrees of freedom are used (i.e., RMSEA), as well as an index that is a direct function of how much variance is explained

by the model (i.e., CFI; Bentler, 1990). For the CFI, values approaching 1 indicate a good fit. In the case of the RMSEA, values approaching 0 indicate good fit. The power of this analysis was found to be strong (exceeding .80; MacCallum, Browne, & Sugawara, 1996).

Before testing our hypothesized structural model, we examined the measurement model by conducting a confirmatory factor analysis on the latent variables. For this model, the items used to measure each construct loaded on their respective factors. Results indicated that the measurement model achieved an acceptable fit to the data ($\chi^2_{(322)} = 455.5$, $p < .01$, RMSEA = .05, CFI = .95). Moreover, item loadings ranged from .43 to .94 ($p < .01$), suggesting that the items represented their intended constructs (Bagozzi & Yi, 1988).

We also examined common method bias effects by adding a method factor to our measurement model and assessing whether this addition led to an improvement in model fit (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Findings indicated that the model that included the common method factor did not improve on the fit that was obtained from the measurement model alone ($\Delta\chi^2 = 3.30$, $p = .07$). This provides some evidence that common method-bias was not a significant factor in this study.

In light of those findings, we proceeded to test our hypothesized model. The complete model yielded an acceptable fit to the data ($\chi^2_{(360)} = 608.0$, $p < .01$, RMSEA = .06, CFI = .90). The model and indices are presented in Figure 1. As illustrated, findings generally provided support for our hypotheses. Hypothesis 7 predicted that candidate behavioral anxiety would be positively related to (a) off-task, (b) peripheral, and (c) self-regulatory processing. Hypotheses 7a and 7b were supported—behavioral anxiety demonstrated significant relations with off-task ($\beta = .35$, $p < .001$) and peripheral ($\beta = .40$, $p < .001$) processing. Marginal support was obtained for Hypothesis 7c—behavioral anxiety exhibited a marginally significant relation with regulatory processing ($\beta = .20$, $p = .07$). Hypothesis 8 predicted that candidate performance anxiety would be positively related to (a) off-task, (b) peripheral, and (c) self-regulatory processing. Full support for this hypothesis was obtained—performance anxiety demonstrated significant relations with off-task ($\beta = .57$, $p < .001$), peripheral ($\beta = .54$, $p < .001$), and regulatory processing ($\beta = .40$, $p < .001$). Hypothesis 9 predicted that candidate motivation would be (a) negatively related to off-task processing, (b) negatively related to peripheral processing, and (c) positively related to self-regulatory processing. Full support for this hypothesis was obtained (off-task, $\beta = -.46$, $p < .001$; peripheral, $\beta = -.37$, $p < .001$; regulatory, $\beta = .32$, $p < .001$). Hypothesis 10 predicted that exam performance would be negatively predicted by (a) off-task and (b) peripheral processing, and positively predicted by (c) self-regulatory processing.

Findings indicated support for Hypothesis 10a—off-task processing was negatively related to exam performance ($\beta = -.27$, $p < .05$)—and Hypothesis 10c—self-regulation was positively related to exam performance ($\beta = .25$, $p < .05$). No support for Hypothesis 10b was found—peripheral processing was not related to exam performance ($\beta = .02$, $p = .50$). Finally, Hypothesis 11 predicted that candidate motivation would be positively predicted by (a) procedural and (b) interactional justice perceptions. No support for Hypothesis 11a was found—procedural justice was not related to candidate motivation ($\beta = -.02$, $p = .82$). In contrast, Hypothesis 11b was supported—interactional justice was significantly related to candidate motivation ($\beta = .27$, $p < .001$).

To examine whether employee reactions exhibited a direct relationship with exam performance, we inserted direct paths from the applicant reactions variables to the performance variable and compared the fit of the revised direct path model with that of the original model (Shrout & Bolger, 2002). The direct path model did not provide a superior fit to the data ($\chi^2_{(355)} = 598.40$, $p < .01$; $\Delta\chi^2_{(5)} = 9.60$, $p = .09$). Thus, anxiety, motivation, and justice had indirect effects on exam performance through self-regulatory and off-task processing.

Discussion

The pattern of relations between candidate reactions as predictors and exam performance and recommendation intentions as criteria were consistent across our two studies. Study 2 also investigated the processes through which employee reactions were related to exam performance and, thereby, helped to clarify the complex nature of these relations. Specifically, an assessment of the cognitive processes that employees engage in when faced with the challenge of a promotional exam revealed that motivation plays a facilitative role, whereas anxiety simultaneously plays both a facilitative and a debilitative role. Moreover, interactional justice was related to increased levels of candidate motivation.

General Discussion

This research expands the literature on test reactions by examining how the perceptions of an understudied population, job incumbents applying for promotion, relate to important criteria. In doing so, it helps to bridge the gap between somewhat separate streams of research on anxiety, motivation, and justice. Study 2 also advances knowledge of the cognitive processes that underlie the relations between employee reactions and exam performance. Finally, by modeling the simultaneous debilitative and

facilitative effects of anxiety, this study makes an important contribution to the equivocal literature on anxiety and performance.

Employee Reactions and Exam Performance

Job incumbent motivation was a significant predictor of promotional exam performance in this research, providing support for Hypothesis 2. However, candidate levels of anxiety and justice were not related to exam performance, revealing no support for Hypotheses 1 and 3, respectively. As discussed later, the fact that motivation emerged as a significant predictor may be due to the fact that motivated individuals experience less "mind-wandering" and are more capable of regulating their behavior on evaluative tasks. Motivation has also been found to predict performance outcomes in applicant samples (e.g., Hausknecht et al., 2004). However, the levels of motivation reported by our promotional candidates were significantly lower than those reported in studies of police and firefighter job applicants (e.g., Bell et al., 2006; Ryan, Ployhart, Greguras, & Schmit, 1998; Schmit & Ryan, 1997). This makes intuitive sense given the relative severity of the consequences associated with being selected versus rejected in the two contexts. In selection contexts, unsuccessful applicants may face continued unemployment, whereas in promotional contexts unsuccessful candidates typically continue working in their previous roles.

Findings also indicated that candidate anxiety was not directly related to exam performance—employees experienced anxiety that had both facilitative and debilitative effects. More specifically, anxiety was related to self-regulatory processing, which was facilitative, and to off-task processing, which was debilitative. The net effect was to cancel out the overall relation between anxiety and performance (MacKinnon, Krull, & Lockwood, 2000). This finding is intriguing and has implications that extend beyond the realm of promotional exams and into the areas of education and sport psychology. Previously, those literatures have focused on facilitative and debilitative anxiety as different constructs (e.g., Jones, 1995; Raffety et al., 1997). The results of Study 2 help to advance an understanding of how anxiety can simultaneously have facilitative and debilitative effects on performance, without the need to invoke separate facilitative and debilitative anxiety constructs to explain those effects. This is an important contribution given that a respondent's perceptual distinction between facilitative and debilitative anxiety is likely to be confounded with feelings of self-efficacy. Future research aimed at replicating our findings and extending them to other contexts would be of value.

It is also of interest that the levels of anxiety reported by our candidates were significantly lower than those reported in applicant samples (e.g., Lievens, DeCorte, & Brysse, 2003; McCarthy & Goffin, 2004). Ultimately,

this finding may, again, be due to the more acute consequences of not securing a position in selection contexts. Further, they may reflect the fact that job incumbents possess more knowledge about the organization than job applicants, which may evoke less uncertainty and less anxiety. Future research that directly examines test-taking reactions across selection and promotional contexts seems particularly valuable.

Employee Reactions and Recommendation Intentions

With respect to recommendation intentions, several significant predictors emerged. Contrary to Hypothesis 5, motivation was *negatively* related to recommendation intentions in both studies. This finding is somewhat surprising but may reflect the competitive nature of the promotional process. Employees who are highly motivated to attain promotional positions may advise others against completing required tests in order to reduce the applicant pool and thereby increase their chances of attaining a promotion (Salem, Ellis, & Johnson, 1981; Schaubroeck & Lam, 2004). No support was obtained for Hypothesis 4, as behavioral and performance anxiety were not significantly related to recommendation intentions in either study. It does not appear that anxiety plays a role in shaping recommendation intentions in promotional contexts.

Justice perceptions were the strongest predictors of recommendation intentions in both studies, providing support for Hypothesis 6. Police officers who perceived the exam and their treatment at the test site to be fair indicated they would encourage others to take the exam. These findings are consistent with fairness heuristic theory (Lind & Tyler, 1988) and highlight the value of treating employees well during the promotional process and using assessment tools and procedures that are perceived to be fair. Our results are also consistent with the study by Bell et al. (2006), which found that fairness perceptions predicted recommendation intentions in a job applicant sample. The magnitude of the observed relations, however, was much higher in our sample of promotional candidates than in the sample of applicants observed by Bell and colleagues. This makes intuitive sense because, as internal employees, promotional candidates are likely to know and regularly interact with a large number of potential future candidates—their work colleagues. In contrast, external applicants are less likely to have a network that is as proximal and personally interested in discussions of the assessment and decision-making system.

Finally, it is interesting that the levels of fairness reported by our promotional candidates were significantly lower than those reported in applicant samples (e.g., Bauer et al., 2006; Ployhart & Ryan, 1998). This may be a function of the specific characteristics of the exam process examined

herein (e.g., perceived ambiguities in exam items). Another possibility is that there are systematic differences between external and internal candidates in terms of the threshold used to determine fairness perceptions. Existing organizational members have a more intimate knowledge of the organization than external applicants. They are therefore more likely to have formed an opinion on what constitutes a fair process. In any event, we must exercise some caution in generalizing results from applicant to promotional contexts and vice versa.

The Role of Cognitive Processes

Consistent with our predictions, cognitive processes explained the relations between employee reactions and exam performance. In general, performance and behavioral anxiety correlated positively with self-regulation, peripheral, and off-task processing. These results generally provide support for Hypotheses 7 and 8 (one exception was the marginally significant relation between behavioral anxiety and regulatory processing). In turn, off-task processing correlated negatively (Hypothesis 10a), and self-regulatory processing correlated positively (Hypothesis 10c), with exam performance. Peripheral processing was not related to performance on the exam (contrary to Hypothesis 10b). Taken together, these findings indicate that experiencing high levels of anxiety has a mixed facilitative and debilitative dual-process relationship with exam performance. This is consistent with the *cognitive load* and the *processing efficiency* models of anxiety, which highlight the possibility of both facilitative and debilitative anxiety processes. Hence, in promotional contexts anxiety appears to be a double-edged sword. On the one hand, it provides the arousal level needed to stimulate self-regulatory behaviors, which increases candidates' performance on the task. On the other hand, it stimulates candidates to engage in off-task behaviors, which decreases task performance.

With respect to candidate levels of motivation, findings provided support for Hypothesis 9—motivation correlated negatively with off-task (Hypothesis 9a) and peripheral processing (Hypothesis 9b), and positively with self-regulation (Hypothesis 9c). In turn, off-task processing correlated negatively, and self-regulatory processing correlated positively, with exam performance, supporting Hypotheses 10a and 10c. Thus, experiencing high levels of motivation ultimately has a facilitative, dual-process relationship with exam performance. Findings also indicated that interactional justice was related to an increase in candidate motivation, providing support for Hypothesis 11b. Interactional justice communicates respect and may affirm a candidate's decision to take the promotional exam. For example, the candidate is not left with the impression that test

administrators are questioning their candidacy (i.e., "what is *s/he* doing here?"). Hence, the person is more motivated to exert a level of effort that is required to perform well. In contrast, procedural justice was not significantly related to motivation in Study 2 (Hypothesis 11a). It did, however, exhibit a significant relation in Study 1. Taken together, these results support the proposition that fairness perceptions are related to motivation to do well on the exam. This further substantiates the importance of ensuring that the promotional process is fair and extends past research by demonstrating that fairness is related to motivation in a *field setting* with *job incumbents*. It is possible that individual differences, such as the need for power (McClelland & Burnham, 2003) or career salience (Greenhaus, 1971) may also influence candidate motivation. Future research exploring these possibilities would be advantageous.

Implications

Overall, findings from this study suggest that it is important for organizations to ensure that employees experience positive reactions to the promotional process. Findings with respect to anxiety suggest that anxiety is a complex emotion and that workshops and interventions should be aimed at reducing its debilitative effects and increasing its facilitative effects. The use of cognitive-behavioral techniques that increase self-regulatory processing and reduce off-task processing may be beneficial in this regard. For example, self-instructional training (Meichenbaum, 1985) could be offered to employees to encourage problem-focused coping strategies. This should ultimately serve to reduce off-task processing. The provision of test preparation materials and workshops targeting adaptive coping skills may also be of value.

Our findings with respect to motivation suggest that a high level of motivation is beneficial from the employee's perspective, as it increases the probability of doing well on a standardized promotional exam. From the organization's perspective, however, highly motivated employees are less likely to recommend the promotional process to others. Therefore, organizations should consider formal internal recruitment strategies that are aimed at espousing the benefits of attaining a promotion and that encourage the participation of qualified employees from all groups. Relying on "word of mouth" may be problematic.

The organizational consequences of having highly motivated candidates who are turned down for a promotion are also likely to be detrimental. Future research that examines the implications of highly motivated, but rejected, promotional candidates may reveal that these individuals are prone to turnover, withdrawal, and even sabotage. This is expected to be even

stronger in situations where the candidate felt that the promotional process was unfair (Ambrose & Cropanzano, 2003). Ultimately, the consequences of rejecting an existing employee are likely to be more severe than those observed when rejecting an external job applicant. Future research that directly examines this issue is likely to yield important findings.

With respect to interactional justice, training test administrators to treat all employees in an equitable and respectful manner may prove valuable, given its association with candidate levels of motivation and recommendation intentions (Truxillo et al., 2004). This could be accomplished through a combination of interpersonal skills training and the provision of information on how candidates feel before and during the testing process. Perceptions of procedural justice could be enhanced by ensuring that the format and content of exams are appropriate to the target positions (e.g., job related, face valid; Steiner & Gilliland, 1996). The use of subject matter experts to assist in the design and/or vetting of exam questions may help in this regard. These individuals could, for example, be instructed to examine each item for its job-relevance and clarity in order to make recommendations for item adoptions and amendments.

The findings from this study also highlight the importance of considering multiple reactions to selection processes. On the whole, motivation and anxiety were more predictive of performance, whereas justice perceptions were more predictive of recommendation intentions. This is interesting because it is consistent with the fact that research in the realm of anxiety and motivation tends to focus on performance as a criterion, whereas research in the realm of justice tends to focus on organizational perceptions as criteria. Nevertheless, notable relations were observed among anxiety, motivation, and recommendation intentions. For example, participants who reported high motivation were less likely to recommend the exam to others. Thus, important findings can arise when researchers integrate relatively separate research streams.

Finally, the implications of employee reactions may extend beyond exam performance and recommendation intentions. In particular, promotional exam reactions may moderate the relation between exam performance and actual performance on the job. To be specific, predictive validity may be higher when positive test reactions occur. Schmit and Ryan (1992) found that applicant test-taking attitudes (i.e., high motivation, low anxiety) moderated the predictive validity of a cognitive ability and a personality test. Future research that substantiates this finding in the context of promotional exams would be extremely valuable. Future candidate reaction studies may also benefit from considering additional organizational outcomes, such as organizational commitment, workplace deviance, and turnover intentions.

Strengths and Limitations

This research is characterized by several notable strengths, as well as certain limitations. First, it included data from actual police officers undergoing promotional exams. It is encouraging that the findings were cross-validated in two field studies. This increases the generalizability of our findings to organizational settings and helps to bridge the gap between science and practice. Not only do the results advance our academic understanding of candidate reactions, the data collected also provides information that the police college has acted on as it continues to improve the testing experience for candidates. A corresponding limitation, however, was that our sample was predominantly Caucasian males. Although these demographics are representative of the target population of Canadian police officers (Canadian Police Sector Council, 2001), future research should examine whether the results of this study hold for minority group members as well as for other job incumbent populations.

An additional limitation associated with the use of applied data was that participant inclusion in the study was voluntary, and the corresponding response rates were relatively low. Our findings suggested that respondents did not differ from the population of exam candidates with respect to demographics, but they were more likely to score well on the exam. This is somewhat reassuring because it suggests that respondents were not simply disgruntled candidates. However, it is possible that those who responded may have been more motivated. Indeed, mean levels of motivation were found to be relatively high and to be related to exam performance across both studies. Thus, it is possible that range restriction may have attenuated our findings and resulted in underestimates of the true effects. Alternatively, high levels of motivation may be characteristic of police officer samples. Indeed, prior studies of applicants for police and firefighter positions (i.e., Bell et al., 2006; Ryan et al., 1998; Schmit & Ryan, 1997) have reported even higher levels of motivation that those found in this study.

An additional strength of this work is that it extends past research by examining five key applicant reactions and their relations with two key outcome variables: actual exam performance and recommendation intentions. It also examined the mechanisms underlying the relations between applicant reactions and exam performance. This expands the nomological network surrounding candidate reactions and is critical to our understanding of the full range of reactions in organizations. A corresponding limitation involves the use of self-reports for measuring many of the constructs. Common-method variance may exist with respect to the relations between applicant reactions and recommendation intentions, as well as for the cognitive processing variables. We found that the addition of a method factor did not significantly improve the fit of our measurement

model, suggesting that this issue did not pose a significant problem in this study. Nevertheless, the only way to truly test for common-method bias is to compare method-bound and nonmethod-bound data (Podsakoff et al., 2003).

A third strength of this study is that candidate responses were for research purposes only. This is advantageous because it is likely to engender less dissimulation on the part of candidates (McIntyre, Smith, & Hassett, 1984). In addition, all measures were administered *after* the promotional exams were complete. Although previous research has benefited from the use of pretest–posttest designs (e.g., Chan et al., 1998), a pretest was not administered in this study because questioning candidates about their anxiety prior to completing the exam runs the risk of artificially inflating their anxiety levels (McCarthy & Goffin, 2004). Moreover, we were interested in assessing levels of anxiety, motivation, and justice experienced by applicants *during* the promotional exam situation. Having applicants respond after completion of the exam provided a recent frame of reference and helped to ensure a relatively vivid recollection of their reactions to the promotional process. Nevertheless, it is possible that memory effects created by the 2-week-postexam response period may have attenuated candidate reaction levels, particularly anxiety and motivation. Consideration of our data, however, suggests that this was not the case, as candidate reactions were not significantly related to the length of postexam to survey-completion time in either of our studies. Further, when compared to studies that have examined applicant reactions immediately after testing, the levels of motivation reported by our candidates were not significantly different from those found by Becton, Feild, Giles, and Jones-Farmer (2008), and the levels of motivation and anxiety reported by our candidates were slightly higher than those reported by Arvey et al. (1990).

Finally, although administration of the reactions measures after the promotional exam made intuitive sense, it introduced the potential for applicants' perceptions of their performance on the exam to have an effect on their reactions to the testing process. However, we were able to control for self-rated exam performance and found that results remained significant even after employees' perceptions of how well they performed on the exam were controlled. Further support for the influence of candidate reactions on exam performance was provided in Study 2, as findings suggested that cognitive interference mechanisms are a key part of the underlying process. The causal nature of these effects is consistent with theory and research in the test-taking reactions and cognitive processing literatures (e.g., Eysenck et al., 2007; Hausknecht et al., 2004). With respect to the relations between candidate reactions and recommendation intentions, our results support the predictions of affective events theory

and fairness heuristic theory and are logically consistent with the proposition that candidate reactions to the exam will have an effect on subsequent recommendation intentions. That is, it is unlikely that intentions to recommend the exam would affect candidate reactions. Nevertheless, future research that considers experimental designs to examine the effect of exposure to conditions designed to induce varying levels of motivation, anxiety, and justice would be worthwhile.

Conclusion

This study contributes to the growing body of knowledge on employee reactions. By examining a comprehensive set of reactions simultaneously and employing two samples of job incumbents, this research was able to investigate relations among employee reactions, assess the unique contributions of these reactions to key criterion variables, and explicate the role of cognitive processing mechanisms. Findings suggest that employees may benefit from exam preparatory programs that are aimed at increasing employee motivation and self-regulatory processing, in conjunction with training that focuses on reducing the debilitative consequences of anxiety. Further, organizations should strive to ensure that candidates perceive justice both in the content of personnel assessments and in the way they are treated during the assessment process. Toward this end, careful attention should be given to the development of promotional exams and the training of test administrators. In conclusion, it is our hope that this research stimulates additional studies in the realm of candidate reactions to high-stakes promotional testing for the benefit of organizations and individuals attempting to progress through the ranks.

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APPENDIX

Appendix of Items

Behavioral anxiety[a]
While taking the exam, my hands shook.
It was hard for me to avoid fidgeting during the exam.
My heartbeat was faster than usual during the exam.
My mouth got very dry during the exam.
I felt sick to my stomach when writing the exam.
Performance anxiety[a]
During the exam I worried that my exam score would be lower than that of other candidates.
I was overwhelmed by thoughts of doing poorly when I was in the exam room.
During the exam, I was so troubled by thoughts of failing that my performance was reduced.
During the exam, I worried about what would happen if I didn't get the promotion.
Motivation[b]
Doing well on the exam was important to me.
I wanted to do well on the exam.
I wanted to be among the top performers on the exam.
I tried my best on the exam.
Interactional justice[c]
I was satisfied with my treatment at the exam site.
The exam administrators treated applicants with respect during the examination process.
Exam administrators answered procedural questions in a straightforward and sincere manner.

Continued

APPENDIX (continued)

The exam administrators were considerate during the exam.
Exam administrators did not try to hide anything from me during the exam process.
I was treated honestly and openly during the examination process.
Procedural justice[c]
An officer who scored well on this exam will be a good officer at the next rank.
I could really show my skills and abilities through this exam.
This exam gives applicants the opportunity to show what they can really do.
Police services can tell a lot about a candidate's ability to do the job at the next rank from the results of this exam.
I am confident that the exam can predict how well an officer will perform at the next promotional level.
My performance on the examination will be a good indicator of my ability to do well if I am promoted.
Recommendation intentions[d]
I will complain to my friends about the OPC promotional exams.[reverse coded item]
I would recommend that my police service continue using the OPC exams as part of our promotional process.
I have many good things to say about the OPC promotional exams.
I would suggest that my police service stop using OPC promotional exams.[reverse coded item]
Exam experience
I have a great deal of experience with multiple-choice exams.
I have minimal experience writing multiple-choice exams.[reverse coded item]
I have written very few multiple-choice exams in my life.[reverse coded item]
Self-rated exam performance
I think I performed well on the exam.
I expect to be one of the top scorers on this exam.
I think my exam score will be relatively low.[reverse coded item]
I performed poorly on this exam.[reverse coded item]
Off-task processing[e,f]
I thought about members of my family and/or friends.
I thought about something that happened in the past that was unrelated to the exam.
My mind was focusing on things other than the exam.
Peripheral processing[e,f]
I wondered what the exam proctors thought of me.
I thought about what type of people the exam proctors were.
I thought about the set-up of the room.
I thought about the lives of the people around me.
Self-regulatory processing[e,f]
I thought about my level of ability.
I thought about how dissatisfied with my performance I was.
I thought about how well I was doing.

[a]Items adapted from McCarthy and Goffin (2004).
[b]Items adapted from Arvey et al. (1990).
[c]Items adapted from Bauer et al. (2001).
[d]Items adapted from Smither et al. (1993).
[e]Items adapted from Sarason et al. (1986).
[f]Items adapted from Kanfer and Ackerman (1989).