Fearing the Evaluative Context of Personnel Selection:
How bad can it get?

Proefschrift aangeboden tot het verkrijgen van de graad van Doctor in de Psychologie

door

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Aan mijn ouders

Aan mijn man, Arif

Aan mijn kinderen, Idris en Ilke
Inspiration

I keep my paint brush with me
   Wherever I may go,
In case I need to cover up
So the real me doesn't show.
I'm so afraid to show you me,
Afraid of what you'll do - that
You might laugh or say mean things.
I'm afraid I might lose you.

I'd like to remove all my paint coats
   To show you the real, true me,
But I want you to try and understand,
I need you to accept what you see.
So if you'll be patient and close your eyes,
I'll strip off all my coats real slow.
Please understand how much it hurts
To let the real me show.

Now my coats are all stripped off.
   I feel naked, bare and cold,
And if you still love me with all that you see,
You are my friend, pure as gold.
I need to save my paint brush, though,
   And hold it in my hand,
I want to keep it handy
In case someone doesn't understand.
So please protect me, my dear friend
   And thanks for loving me true,
But please let me keep my paint brush with me
   Until I love me, too.

By Bettie B. Youngs
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Angst voor de evaluatieve context van personeelsselectie en mogelijke gevolgen.
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Tientallen jaren heeft onderzoek in personeelsselectie zich bekommerd om het perspectief van de sollicitant. Eén luik binnen dit onderzoek richt zich op attitudes van sollicitanten tegenover het testgebeuren, zoals testmotivatie en testangst.

Dit doctoraat handelt specifiek over testangst van sollicitanten. Testangst is een veel besproken topic binnen de onderwijspsychologie. Testangst heeft echter relatief weinig aandacht gekregen in onderzoek bij sollicitanten. Bovendien wordt dit onderzoek gekenmerkt door een aantal belangrijke tekortkomingen. Enerzijds bieden studies in een onderwijscontext evidentie voor een sterkere relatie van de cognitieve (zorgelijke gedachten) versus de affectieve (fysiologische reacties) component van testangst met testprestatie. Toch richt onderzoek naar testangst van sollicitanten zich vooral op de affectieve component. Anderzijds, eerder dan gebruik te maken van domeinspecifieke vragenlijsten, wordt er in selectiecontext vaak gebruik gemaakt van algemene angstmetingen of metingen overgenomen uit de onderwijscontext.

Als antwoord op deze tekortkomingen wordt in dit doctoraat een nieuw meetinstrument voorgesteld, afgestemd op de selectiecontext en gericht op de cognitieve component van testangst bij sollicitanten. Bovendien wordt deze cognitieve component verder uitgewerkt en wordt een onderscheid gemaakt tussen zelf-gerefereerde cognities en ander-gerefereerde cognities. Sollicitanten die vooral zelf-gerefereerde angst (ZRA) ervaren, vrezen het negatieve oordeel van zichzelf bij falen. Sollicitanten die vooral ander-gerefereerde angst (ARA) ervaren, vrezen het negatieve oordeel van een betekenisvolle andere bij falen.

De resultaten van vier empirische studies tonen aan dat beide vormen van angst betrouwbaar kunnen onderscheiden worden in een selectiecontext. Evidentie vanuit een onderwijscontext toont dat ZRA ontstaat vanuit een op zichzelf gerichte vorm van perfectionisme en leidt tot het stellen van vermijdgerichte leerdoelen terwijl ARA ontstaat vanuit een sociaal voorgeschreven vorm van perfectionisme en leidt tot het stellen van vermijdgerichte competitiedoeleinden. Bovendien heeft ZRA geen effect op de testprestatie terwijl ARA negatief verbonden is met testprestatie, zowel in een onderwijscontext als in een selectiecontext. Een longitudinale studie bij sollicitanten toont verder aan dat sollicitanten die vooral ARA ervaren, het gevoel hebben met minder warmte en respect behandeld te zijn door de selecteur en dat dit verklaard kan worden door een algemene negatieve gemoedsgesteldheid die optreedt in combinatie met ARA.

In een vijfde studie wordt de zelf/ander dimensie gerelateerd aan het onderzoek naar Impression Management. Resultaten van een experiment suggereren dat tactieken die erop gericht zijn om zichzelf positief voor te stellen (op zichzelf gericht) tot betere beoordelingen leiden in een selectie-interview dan tactieken die erop gericht zijn zichzelf geliefd te maken door de selecteur te vleien of te complimenteren (gericht op de ander). Nog beter zou zijn beide tactieken te combineren.
Since several decades, personnel selection scholars have investigated the applicants’ perspective in the personnel selection context. This research has mainly focused on justice perceptions of applicants. However, also test-taking attitudes such as test motivation and test anxiety have been studied, especially with respect to test performance. The present dissertation aligns with this tradition by focusing on applicants’ test anxiety. Compared to the vast amount of research on test anxiety in an educational context, research on applicants’ test anxiety is rather scarce and suffers from some important limitations. First, research in an educational context clearly shows a stronger relationship of the cognitive component versus the affective component with test performance. Nonetheless, research on applicants’ anxiety mainly taps the affective component. Second, rather than using domain-specific measures, general measures or measures adopted from an educational context are applied.

Therefore, the current dissertation proposes a new measure of applicant’s anxiety, tailored to the personnel selection context and tapping the cognitive component of anxiety. More, this cognitive component of anxiety is unravelled in two distinct components, labelled self-referenced anxiety (SRA) and other-referenced anxiety (ORA). Applicants high on SRA are characterized by a fear of a negative judgment of oneself in the case of failure, while applicants high on ORA mainly fear the evaluative judgment of a significant other. The results of the empirical studies in this dissertation showed that both types of anxiety can be reliably distinguished in a real personnel selection context. Evidence gathered in an educational context showed that SRA and ORA are respectively related to self-oriented versus socially prescribed perfectionism and mastery-avoidance versus performance-avoidance goals. It was further found that SRA is unrelated to test performance while ORA is negatively related to test performance, both in student sample and an applicant sample. A mediating role of behavioral regulation styles was suggested but not confirmed. A longitudinal study in a real personnel selection context additionally showed that ORA, but not SRA, was negatively related to perceptions of interpersonal justice and that this relationship was mediated by negative affect.

In a final chapter, the self/other dimension was detached from the anxiety construct and related to the study on Impression Management. In this somewhat different setting, the results of an experimental study showed that the combination of self-focused and other-focused tactics was most successful with respect to interviewer ratings. However, in line with research on anxiety, using self-focused tactics alone was more successful than using other-focused tactics alone. However, the differences between the conditions were small and often not significant.

Strengths and limitations of this dissertation were discussed, along with implications for future research and practical recommendations.
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Aan het einde van dit doctoraat zou ik graag even de tijd willen nemen om een aantal mensen te bedanken, die me begeleid en ondersteund hebben in deze onderneming.

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Chapter 1

Introduction: Theoretical Background and Hypotheses

Previous dissertations conducted at the Research Group on Work, Organizational and Personnel Psychology have focused on pre-test expectations of applicants with respect to the selection procedure (see Derous, 2001; Schreurs, 2007). The present dissertation continues on this track by focusing on failure outcome expectancies, a central concept of test anxiety, within the context of personnel selection. The present chapter describes the theoretical framework for this dissertation and formulates the hypotheses that are investigated. Since we wanted to provide a complete overview of the theoretical background in this introduction, parts of it will be retaken in the respective chapters.
1.1. The Applicant in the Personnel Selection Context

From the early 1900s until recently, most research on personnel selection and assessment considers personnel selection as a one-way, top-down approach from the organization to the applicant. The purpose of the selection process is to gather information and to make a correct decision on who to hire. However, the last two decades, academic interest in the applicant perspective has grown rapidly and has been developed in largely two different ways. First, there is a focus on perceptions of procedures, decisions and the way the recruiter acts in the selection procedure, leading mainly to research on applicant fairness perceptions (e.g., Bauer et al., 2001; Ployhart & Ryan, 1997; Truxillo, Bauer, & Sanchez, 2001). Second, a parallel stream of research has developed around perceptions of the applicants’ own cognitions and emotions while experiencing these procedures and decisions, leading to research on test-taker attitudes such as applicants’ motivation, test-taking self-efficacy, and test anxiety (e.g., Arvey, Strikland, Drauden, & Martin, 1990).

The present dissertation is mostly situated in the second thrust to the applicant reactions literature by developing a new measure on applicants’ test anxiety and investigating its relationship with both proximal (i.e., perfectionism, self-consciousness, achievement goals) and more distal constructs (i.e., test performance, justice perceptions).

1.2. Test-Taker Attitudes

The main focus of this dissertation is situated within the research tradition on test-taker attitudes (i.e., motivation, test anxiety, belief in tests) and how they affect applicants’ performance in the selection process. Besides human ability, also social-emotional and motivational aspects are expected to influence one’s performance on a cognitive ability test (Derous, Born, & De Witte, 2004).

In general, this research tradition largely builds upon a measure of test attitudes for use in selection contexts, the Test Attitude Scale (TAS) developed by Arvey et al. (1990). From the different attitudes that are measured in this questionnaire, test-taking motivation accounts for most of the variance and of all test-taking predispositions, motivation has received most attention in later research (Chan, Schmitt, DeShon, Clause, & Delbridge, 1997; Derous et al., 2004; Sanchez, Truxillo, & Bauer, 2000; Schmit & Ryan, 1992).
Besides test motivation, also test anxiety has been the focus of previous research (Arvey et al., 1990; McCarthy & Goffin, 2005; Ployhart, Ziegert, & McFarland, 2003; Schmit & Ryan, 1992, 1997). However, there exist some important gaps in this literature on test anxiety. First, a lot of studies on applicants’ anxiety have used either general measures of anxiety or measures tailored to the educational context and failed to use an anxiety measure adapted to the selection context. However, studies that do not suffer from this limitation, mainly used the comparative anxiety scale of the TAS (Arvey et al., 1990). Although laudable, this scale mainly taps the affective state of the applicant during test taking whereas anxiety research calls for a more cognitive orientation (Wine, 1971). Also, test anxiety is measured only after applicants had taken a test (as a test-taking attitude), possibly inducing a self-serving bias (Chan, Schmitt, Sacco, & DeShon, 1998).

The present dissertation aims to fill these gaps by proposing a new measure of applicants’ test anxiety and exploring the nomological network around it.

1.3. A New Measure of Applicants’ Test Anxiety

Chan and Schmitt (2004) call for a construct-oriented approach to study applicant reactions to selection procedures in order to increase our understanding of applicant reactions and their correlates. Such an approach urges for a clear explication of the nature of the phenomenon one is interested in. So, before introducing the new measure on test anxiety, we first explain the construct under study.

In line with the test anxiety conceptualization of Liebert and Morris (1967), it has been generally accepted that test anxiety consists of two components, namely a cognitive component and a physiological component. The cognitive component (i.e., worry) is primarily conceived of as cognitive concern about the consequences of failing whereas the physiological component (i.e., emotionality) refers to autonomic arousal which can manifest itself as muscle tension, elevated heart rate, sweating, feeling sick and shaking (APA, 1995).

Research on test anxiety has mainly focused on the cognitive component of test anxiety because of a closer relationship of this component with test performance (Seipp, 1991). For example, Wine (1971) argues that the performance of high-anxious individuals is impaired by task-irrelevant thoughts which deploy attention away from the task, leading to a cognitive-attentional view on test anxiety. Following this tradition, Hollandsworth, Glazeski, Kirkland,
Jones, and Van Norman (1979) distinguish between thoughts that impair performance (i.e., task-debilitating cognitions) and those that improve performance (i.e., task-facilitating cognitions). According to these authors, high anxious individuals do not mainly differ from low anxious individuals in their level of arousal but rather in their cognitive reactions. Indeed, Zatz and Chassin (1985) found that high test-anxious subjects reported more task-debilitating cognitions and that these cognitions were related to debilitated performance. Also Dweck and Wortman (1982) provide a strong basis for giving cognitions a central role in the test-anxiety experience by emphasizing that performance decrements are caused by the cognitions about the failure and not the failure experience itself. And finally, Zeidner (1998) states that there exists a body of research evidencing that cognitive expressions of anxiety are the most salient responses of test-anxious persons to evaluative-threat situations.

Although research on the cognitive component of anxiety has been informative, there remains some ambiguity with respect to the conceptualization of it. Since the worry component was defined very broadly by Liebert and Morris (1967), different researchers have used different labels in order to characterize these self-related cognitions of anxious persons (e.g., self-doubt, low self-esteem, negative interpretation of self-information, self-blame, concern about evaluation, fear of negative evaluation). Hagtvet, Man, and Sharma (2001) notify that these cognitions have been mainly analyzed from an individualistic point of view, neglecting the social-evaluative context of “significant others”. In their search for the generalizability of the test anxiety construct, these authors argue that failure outcome expectancies, which are central to the cognitive experiences of test anxious persons, are represented by two facets, namely the “Concern Facet” and the “Referent Facet”. The Concern Facet refers to what issues the potential evaluator is perceived to be concerned about while the Referent Facet refers to who is perceived to be the potential evaluator of failure outcomes. Current theory and research continues to analyze self-related cognitions from an individualistic perspective. Hagtvet et al. extend this perspective by embedding the failure outcome expectancies in the context of the “self” and “significant others”. They state that the concept of failure outcome expectancies may explicitly take advantage of being implemented in a social evaluative context since “self” and “others” are central elements representing evaluative concerns of test anxious individuals. Also other authors implicitly refer to the self and other dimension in their definitions of anxiety. Already in 1975, Heckhausen stressed that failure is not only a personal affair, but also a social one. Miceli and Castelfranchi (2005) stated that “every time image or self-image
is involved, one may suppose a feeling of anxiety related to the threat of a negative *social* appraisal or *self*-appraisal” (p. 291).

This new conceptualization of the worry component has already been tested successfully within school settings (Hagtvet, 1989). However, also with respect to the selection context, which can be considered a strong evaluative context, framing failure outcome expectancies within the context of the “self” and “others” seems particularly relevant. In the selection context, the “other” is present, be it physically through the assessor or a panel of assessors (e.g., assessment center) or through imagination. For example, significant others such as family and friends might be present through imagination since the selection outcome (i.e., passing or failing) is visible to others even outside the selection context. This makes the perception of others “observing” you vivid (Buss, 1980). Furthermore, in the selection context as in any situation, also “oneself” is always present as a critical evaluator.

The first aim of this dissertation is to develop a new questionnaire, named the Applicants’ Self-versus Other-Referenced Anxiety Questionnaire (SOAQ), to measure applicants’ test anxiety based on the previous conceptualization of test anxiety by Hagtvet et al. (2001). The SOAQ is characterized by (a) being tailored to the personnel selection context and (b) assessing anxiety prior to test-taking.

**A) A Measure Tailored to the Personnel Selection Context**

Applicants’ anxiety can be measured through the use of generic versus more domain-specific items. Chan and Schmitt (2004) argue that the use of domain-specific measures is likely to be more informative than the use of generic measures and to provide more useful insights into specific aspects of the selection procedure. However, these authors draw attention to two pitfalls when applying domain-specific measures. First, Chan and Schmitt caution that these specific measures should direct the applicants’ attention towards that aspect of the selection situation for which applicants are likely to have focused reactions in order not to artifactually create applicant reactions. Second, these authors further argue that when using a domain-specific measure, it is important that the construct under study is sufficiently state-like as opposed to trait-like. Each of these points will be discussed in the following sections.
Domain-specific measurement

In this dissertation, a measure of test anxiety is proposed that is domain-specific in three gradually increasing layers of specificity. First, as opposed to more general anxiety measures or anxiety measures tailored to the educational context, this new anxiety measure is specifically tailored to the personnel selection context. Second, items in this anxiety measure do not refer to the whole selection procedure but specifically refer to the selection test that is to follow. And thirdly, the items in this new anxiety measure explicitly focus on applicants’ expectations with respect to the outcome of the selection test.

Naturally occurring thoughts

Applying a self-report measure on anxiety to applicants in a personnel selection context might to some extent lead to artificially created levels of anxiety. However, other research methods convincingly showed that cognitive thoughts of anxious applicants in an achievement context naturally occur. The most powerful evidence for this argument has been found with alternative methods to assess the level of test anxiety, namely think aloud protocols and thought listing methods. These methods are free of any priming effects since they do not direct the attention of the respondent but let the respondents write down freely all the thoughts that cross their minds in a certain moment in time. In applying this method, Derakshan and Eysenck (2005) found that high-anxious individuals as opposed to low-anxious individuals, reported more self-referent negative thoughts, in line with what is usually found with self-report methods to assess anxiety.

Test anxiety as a state

The SOAQ measures “state anxiety”, which is a transitory condition of anxiety experienced in the personnel selection context, and which can be considered a situation-specific form of trait anxiety (Sarason & Sarason, 1990; Spielberger & Vagg, 1995). However, earlier researchers in the area viewed test anxiety as a trait, referring to relatively stable differences in the frequency and intensity with which individuals experience state anxiety in a variety of situations.

In this dissertation and in line with a now widely accepted interactionist perspective, test anxiety is considered to result from a predisposition to experience anxiety and the demands of the situation (e.g., Spielberger & Vagg, 1995). The latter is evidenced by studies showing the influence of time pressure and evaluative feedback (e.g., Feather & Volkmer, 1988), test
format, (e.g., Choi, 1998) and perceived evaluative threat on the levels of test anxiety experienced (Zatz & Chassin, 1985). As such and in response to Chan and Schmitt (2004), we argue that test anxiety is sufficiently state-like in order to assess it with a domain-specific measure and that the study of state anxiety is more informative with respect to state-like outcomes such as test performance and justice perceptions than the study of trait anxiety.

**B) A Pre-Test Measure of Anxiety**

An important measurement issue in the applicant reactions literature is whether applicant reactions should be measured pre-test or post-test. Chan and Schmitt (2004) argued that although all aspects of the TAS (Arvey et al., 1990) are administered post-test, some of these dimensions appear to be logically prior to testing. Chan et al. (1998) further showed that post-measures are biased by self-serving mechanisms, in the sense that there is a tendency for poor test performers to attribute their performance to high anxiety. In order to exclude this self-serving bias and since anxiety was conceptualized as a pre-test expectation about the outcome of the cognitive ability test one was going to take, it is logically measured pre-test.

**1.4. Exploring the Nomological Network of Self- and Other-Referenced Anxiety**

In line with the construct-oriented approach as proposed by Chan and Schmitt (2004), the next step after defining the construct and its operationalisation, is specifying related constructs and how they are similar and different from the new construct. This nomological network is explored in two steps, namely (a) by relating Self-Referenced Anxiety (SRA) and Other-Referenced Anxiety (ORA) to more proximal constructs and (b) by relating them to more distal constructs.

**A) Relationships with More Proximal Constructs**

The conceptual relevance of the self-other dimension is not only present in anxiety research but may also be derived from several motivational and personality theories. In this sense, these other theoretical frameworks might be useful in exploring the nomological network that surrounds these new anxiety constructs. An overview of the more proximal constructs that are considered in this dissertation, is presented in Figure 1-1.
In the following, two motivational theories (i.e., Achievement Goal Framework and Self-Determination Theory) and two personality constructs (i.e., Perfectionism and Self-consciousness) are discussed especially regarding the way they relate to SRA and ORA. In every section, the same structure is retaken. First, an hypothesis is put forward on the relationship between SRA/ORA and the constructs under study. Second, the theoretical framework is presented and third, the rationale for the hypothesis is given.

**Achievement goal framework**

*Hypothesis*: SRA leads to the adoption of mastery-avoidance goals whereas ORA leads to the adoption of performance-avoidance goals.

*Theoretical framework.* A well-researched motivational framework that is useful to explore the nomological network around SRA and ORA is achievement motivation theory (Atkinson & Litwin, 1960; Rand, Lens, & Decock, 1991). Elliot and McGregor (1999) proposed a hierarchical model of achievement motivation. In this model, achievement motives – need for achievement and fear of failure – are considered general, higher order motivational tendencies that energize individuals and orient them toward positive or negative possibilities. Achievement goals are construed as more concrete cognitive representations that direct
individuals toward specific end states. In a latest version of the model, Elliot and McGregor (2001) make a distinction between four types of achievement goals along two dimensions. The first dimension refers to the standard that is used in performance evaluation and leads to the distinction between mastery goals and performance goals. In general, three standards are identified, namely (1) absolute standards, taking the requirements of the task itself as the standard, (2) intrapersonal standards, taking one’s own past attainment or maximum potential attainment as the standard, and (3) normative standards, taking the performance of others as the standard. Since the first two standards share many conceptual and empirical similarities and often seem indistinguishable, they are mostly considered jointly and represent the mastery goals. People who hold performance goals, tend to evaluative their performance against normative standards. The second dimension that is distinguished by Elliot and McGregor (2001) is the approach-avoidance dichotomy and refers to how competence is valenced. Competence can be construed in terms of a positive, desirable possibility, evoking an approach orientation, or a negative, undesirable possibility, evoking an avoidance orientation. On the basis of these two dimensions, Elliot and McGregor (2001) propose a 2x2 achievement goal framework. Figure 1-2 represents the four goals in the two-dimensional framework.

Figure 1-2. *The 2x2 achievement goal framework of Elliot and McGregor (2001).*

<table>
<thead>
<tr>
<th>Valence</th>
<th>Standard</th>
<th>Absolute/ intrapersonal</th>
<th>Normative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (success)</td>
<td>Mastery-approach goal</td>
<td>Performance-approach goal</td>
<td></td>
</tr>
<tr>
<td>Negative (avoiding failure)</td>
<td>Mastery-avoidance goal</td>
<td>Performance-avoidance goal</td>
<td></td>
</tr>
</tbody>
</table>

*A rationale for the hypothesis.* A close inspection of this model and the SRA/ORA constructs, leads to the finding that they show a lot of resemblance. Especially the two-way conceptualization of avoidance goals, based on the way competence is defined, is relevant in its relationship with SRA and ORA. Since people who adapt mastery goals, evaluate their
performance against intrapersonal or absolute standards, these goals can be considered intrapersonal in nature. Otherwise, people who adapt performance goals evaluate their performance against normative standards. Therefore, performance goals are interpersonal in nature. This intra- versus interpersonal character of achievement goals suggest a relationship with respectively the intrapersonal and interpersonal component of test anxiety that was suggested in this study.

**Self-determination theory (SDT)**

*Hypothesis:* SRA is related to identified behavioral regulation whereas ORA is related to external behavioral regulation.

*Theoretical framework.* Like the achievement goal framework, also SDT has differentiated the concept of goal-directed behavior, be it from a very different approach. Instead of focusing on goal characteristics (e.g., valence and standard), SDT differentiates between the content of goals or outcomes and the regulatory processes through which the outcomes are pursued, integrating both on the basis of innate psychological needs (Deci & Ryan, 2000). Especially these regulatory processes will be the focus of this section.

According to SDT, people have the natural inclination to engage in activities that are volitional or self-determined (Deci & Ryan, 1985; Ryan & Deci, 2000). Self-determined behaviors are initiated and regulated through choice and people engage in it for their own sake. Controlled behaviors, on the other hand, are regulated by pressuring contingencies that are overtly external to the individual, such as the promise of a reward or the threat of a punishment, and thus do not represent true choice. Although the most self-determined behavior is “intrinsically motivated behavior”, it is not the only type of self-determined behavior. Extrinsically motivated behaviors vary along a continuum in terms of the degree to which the motivations emanate from the self and thus are self-determined.

With respect to the selection context, participating in a selection test is not, strictly speaking, an act out of free choice and thus not intrinsically motivated. Applicants are “obliged” to participate in it if they do not want to lose their chance to get the job (Schuler, 1993). However, as above-mentioned, this extrinsic motivation to engage in the selection test can vary along a continuum of more or less self-determined, depending on the degree to which this behavior (i.e., participating in a selection test) has been internalized. The most controlled
form of behavior is the *externally regulated* behavior, in which applicants participate in the selection context out of social pressure or to obtain an external reward or to avoid punishment. In the case of *introjected motivation*, the behavior is partially self-integrated. The behavior of the applicant is motivated by internal pressures such as feelings of shame, guilt and anxiety. A more fully integrated form of motivation, is *identified motivation*. Although participating in the selection test remains non-enjoyable, the applicant feels no resistance to doing it. The applicant accepts the fact that (s)he has to pass a selection test in order to be able to get the job and participates willingly (Ryan & Connell, 1989).

*Rationale for the hypothesis.* As it follows logically from the definition, especially introjected motivation has been related to anxiety. For example, Ryan and Connell (1989) found that introjection was positively correlated with anxiety in school and maladaptive coping with failures. However, by considering failure concerns of anxious applicants at both the individual and the social level, it is possible to investigate the relationship of anxiety with the quality of motivation at a more fine-grained level. Anxious applicants whose behaviors are externally regulated, and thus are pressured by others to participate, are probably more likely to experience ORA. On the other hand, anxious applicants who willingly participate in the selection procedure in order to guarantee their chances to get the job, are probably more likely to experience SRA.

**Perfectionism**

*Hypothesis:* Self-oriented perfectionism is positively related to SRA whereas socially prescribed perfectionism is positively related to ORA.

*Theoretical framework.* Also research on perfectionism has touched this self/other dimension by considering perfectionism as a two-dimensional construct. For example, Hewitt and Flett (1991a) differentiated between an intrapersonal and an interpersonal component of perfectionism. The intrapersonal component of perfectionism is labeled “self-oriented perfectionism” which refers to the setting of excessive and stringent standards on oneself and critically evaluating one’s own behavior vis-à-vis these self-imposed standards. The interpersonal component is comprised of “other-oriented perfectionism”, referring to one’s setting of excessive and stringent standards on others (i.e., expectations of perfection that one has for others), and “socially prescribed perfectionism”, referring to one’s perception of other people’s expectations of being perfect. Whereas the cognitions of other-oriented perfectionists
are other-directed, the cognitions of socially prescribed perfectionists and self-oriented perfectionists are self-directed. Since also the cognitions of anxious persons are always self-related, other-oriented perfectionism will not be further considered. Also previous research has shown no relationship between other-oriented perfectionism and anxiety (Hewitt & Flett, 1991b) while self-oriented and socially prescribed perfectionism have both been positively related to test anxiety. Yet, the relationship with socially prescribed perfectionism has been shown to be stronger and more consistent than the relationship with self-oriented perfectionism (Einstein, Lovibond, & Gaston, 2000; Hayward & Arthur, 1998; Mills & Blankstein, 2000; Onwuegbuzie & Daley, 1999).

Rationale for the hypothesis. Considering anxiety as a two-dimensional construct might shed more light on the precise nature of the relationship with perfectionism. Specifically, from a theoretical point of view, self-oriented perfectionism can be related to SRA since both are intrapersonal in nature. On the other hand, socially prescribed perfectionism is conceptually more allied to ORA since both are interpersonal in nature.

Self-consciousness

Hypothesis: Private self-consciousness is positively related to SRA whereas public self-consciousness is positively related to ORA.

Theoretical framework. An external construct that is also used to explore the nomological network around SRA and ORA is self-consciousness. Fenigstein, Scheier, and Buss (1975) differentiated between private self-consciousness, defined as the degree to which a person attends to one’s inner thoughts and feelings, and public self-consciousness, which refers to a general awareness of oneself as a social object. Both private and public self-consciousness have been related to test anxiety, yielding inconsistent results. For example, Flett, Blankstein, and Boase (1987) found significant positive relations between both private and public self-consciousness and test anxiety. However, earlier research found no relationship for private self-consciousness (Smith, Ingram, & Roth, 1985), only a significant positive relationship for public self-consciousness (Turner, Scheier, Carver, & Ickes, 1978) or no significant relationship for both private and public self-consciousness (Carver & Glass, 1976).

Rationale for the hypothesis. When considering the two-dimensional nature of self-consciousness and test anxiety, private self-consciousness can conceptually be related to SRA
since both are intrapersonal in nature. On the other hand, public self-consciousness is conceptually more allied to ORA since both are interpersonal in nature.

**B) Relationships with More Distal Constructs**

Besides exploring the relationship with more proximal constructs it is equally important to investigate the relationship or SRA and ORA with more distal constructs. As pointed out by Ryan and Ployhart (2000), research on test-taking attitudes stems from attempts to understand what drives performance on cognitive ability tests. Therefore, the new anxiety constructs proposed in this dissertation are primarily related to performance on a cognitive ability test. Further, Ryan and Ployhart call for a better integration of the research on test attitudes and fairness perceptions. Therefore, the new anxiety constructs are also related to justice perceptions of applicants in a real personnel selection context.

**Test performance**

*Hypothesis:* SRA is less negatively related to test performance than ORA.

*Theoretical framework.* The study of the relationship between anxiety and performance can be traced back to the early 1900s, starting with the work of Yerkes and Dodson (1908), who described the effect of arousal on performance as an inverted ‘U’ relationship. According to this theory, a certain degree of arousal or anxiety would be beneficial to performance. Without any fear of evaluation, one is unlikely to put adequate effort in the test and so will not perform to his fullest potential. However, if the anxiety level increases above the optimum level, distress during the test will impair performance. Despite the influence of this theory, anxiety has been conceptualized almost exclusively as having debilitating effects on performance, leading investigators to search only for linear effects of anxiety on test performance.

Most of the studies on the (linear) relationship between test anxiety and performance have been executed in an educational context and reported negative correlations between test anxiety and test performance with a generalized effect size of -.21 and a credibility interval ranging from -.07 to -.36 (see meta-analysis of Seipp, 1991). Be it rather small, the relationship is thus clearly negative and psychologically meaningful. Rosenthal and Rubin (1982) showed that even a correlation of .20 can mean a 20% difference in number of applicants passing or failing a test.
Since all of the above reasoning is based on research in educational contexts, one can question the relevance of this research within the context of personnel selection. There exists some evidence to state that the selection context is a strong evaluative situation, evoking test anxiety. For example, Fletcher, Lovatt, and Baldry (1997) stated that one commonly-observed candidate reaction to assessment centers is anxiety. More concrete, Iles, Robertson, and Rout (1989) found in two studies that respectively 32% and 18% of candidates reported that attending an assessment center was stressful. Also the interview is experienced as a stressful event. Keller, Heimberg, and Peca (1984) found that negative self-statements or worry about performance in upcoming interviews, such as thoughts about one’s inability to adequately answer questions or about the possibility of negative evaluation by the interviewer, occurred frequently.

Also, the intuitive feelings of applicants refer to links between anxiety and performance. For example, Teel and Dubois (1983) found that about half of both high and low assessment center candidates reported that their performance was impaired by stress. Also Dulewicz (1985) found that 15% of the candidates of an assessment center had the feeling that stress impaired their performance.

And finally, there exists some research evidence for a negative relationship between anxiety and performance and performance-related outcomes in the selection context. For example, negative relationships have been found between test anxiety and performance on a cognitive ability test (e.g., Arvey et al., 1990; Ployhart et al., 2003; Schmit & Ryan, 1992, 1997) and on the selection interview (McCarthy & Goffin, 2005).

**Rationale for the hypothesis.** Spielberger and Vagg (1987) stated that it may make a difference whether blaming is to be expected from the “self” or from “significant others”. Also Hagtvet and Renmin (1996) suggest that not all self-preoccupations have the same interfering capacity or absorb the same amount of processing capacity during test performance. However, they do not define these more and less interfering cognitive concerns at a more detailed level. In this study, it is suggested that SRA is less detrimental to test performance than ORA since it is more internally regulated than ORA.

**Justice perceptions**

**Hypothesis:** ORA is more strongly and negatively related to perceptions of distributive (H1a), procedural (H1b), interpersonal (H1c), and informational justice (H1d) in a personnel selection context than SRA.
Introduction

Theoretical framework. As mentioned above, academic interest in the applicant perspective has been developed in largely two different ways. On the one hand, scholars have focused on perceptions of procedures, decisions and the way the recruiter acts in the selection procedure, leading mainly to research on applicant fairness perceptions (e.g., Bauer et al., 2001; Ployhart & Ryan, 1997; Truxillo et al., 2001). A parallel stream of research has developed around test-taker attitudes such as applicants’ motivation, test-taking self-efficacy, and test anxiety (e.g., Arvey, et al., 1990). In order to advance understanding, Ryan and Ployhart (2000) called for a better integration of both research traditions and for a stronger theoretical framework on how these various types of perceptions might be expected to relate. As such, several scholars such as Gilliland (1993) and Ryan and Ployhart (2000) suggested relationships between perceptions of oneself in the selection situation (i.e., test-taker attitudes such as motivation and test anxiety) and perceptions about the procedure or process (typically justice perceptions) although the empirical evidence supporting these relationships is scarce. Nonetheless, some studies have done some linking. For example, Chan et al. (1997) and Derous and Born (2005) showed that face validity perceptions (a procedural justice perception) were related to test-taking motivation. With respect to test anxiety, Ryan and Chan (1999) as well as Lievens, De Corte, and Brysse (2003) related test anxiety to justice perceptions, revealing mixed support. The purpose of this dissertation is to provide more evidence for the relationship between test anxiety and justice perceptions.

Rationale for the hypothesis. In this dissertation, it is suggested that ORA is related more strongly to perceptions of injustice since it leads to more negative affect than SRA. Since applicants high on ORA experience a stronger threat of rejection by significant others in the case of failure than applicants high on SRA, they will experience more negative affect, which has been found to related negatively to perceptions of justice (Barsky & Kaplan, 2007).

Adding these two variables to Figure 1-1 provides us with a global picture of all the variables under study in this dissertation and how they may be related to each other, presented in Figure 1-3.
Figure 1-3:  Conceptual diagram of variables under study in this doctoral dissertation.

Note. Blue = Chapter 3; Purple = Chapter 4; Green = Chapter 5
1.5. Exploring the Self-Other Dimension From a Different Perspective

In this last part, we deviate somewhat from the test anxiety literature by exploring the self-other dimension from a different but related perspective. In exploring the literature on test anxiety, placed in the social framework of “self” and “significant others”, a close resemblance with the literature on impression management (IM) drew our attention. In fact, since other-referenced anxious applicants are primarily concerned with managing the impression that significant others form about them, it could be argued that they will try to manipulate this impression primarily by trying to comply with the social standards that are salient at that time. Self-referenced anxious applicants on the other hand will probably also be concerned about the impression the assessor forms about him/her, given the importance to achieve a highly desired goal, namely the job. However, these applicants will not so much try to comply with social standards but will act in agreement with own standards.

Within research on impression management, this distinction between these two types of impression management tactics is referred to as “self-focused” versus “other-focused tactics” (Tedeschi & Melburg, 1984). The self-focused tactics maintain attention on the candidate and allow him or her to focus the direction of the conversation in areas which will allow him or her to excel. Tactics that belong to this category are exemplification, in which the applicant tries to convince the interviewer that his or her behavior is good enough to use as a model for others, entitlements, in which the applicant takes major responsibility for positive events in one’s background, enhancements, in which the applicant attempts to increase the value of an event in order to make the outcome appear even more positive, and self-promotion, in which the applicant puts the qualities (s)he possess in the spotlight. When using other-focused tactics, the applicant gives up being the focus of attention and tends to focus on the standards of the interviewer. Tactics that belong to this category are other-enhancement, in which the applicant directly or indirectly flatters the interviewer, opinion conformity, in which the applicant agrees with comments made by the interviewer, favor doing, in which the applicant creates a debt owed by the interviewer by offering to do something for him or her, and feigned helplessness, in which the applicant tries to look helpless in order to enlist the help of the other participant. This category also includes nonverbal behavior, such as smiling and nodding at the interviewer during the interview in order to show agreement and attitude alignment.
Several studies showed the more positive effect of self-focused tactics versus other-focused tactics on the impression formed by the interviewer. For example, Dipboye and Wiley (1977, 1978) reported that a moderately self-focused style on the part of applicants led to a more favorable evaluation for the job than did the other-focused style. Also Tullar (1989) found that applicants who portrayed self-focused types of impression management tactics were more effective in the employment interview than applicants who used other-focused tactics. Although these studies provided some first insights on the relative effectiveness of different IM tactics, they were still open for some improvement, mainly by studying the relative effectiveness of the self-focused and other-focused condition with a neutral condition and with a combination condition. Without including a neutral condition, no firm conclusions can be drawn on whether employing these tactics results in any performance improvement at all. The inclusion of a combination condition allows making conclusions on the extent to which an applicant can freely combine self-other tactics at the same time.

1.6. Overview of the Chapters

As mentioned, the aim of the current doctoral dissertation is twofold, namely a) to propose a new measure of applicants’ test anxiety (i.e., SOAQ) and b) to investigate its nomological network. To this purpose, four empirical studies are conducted. In a fifth study, the self/other distinction is explored from a different but related perspective, namely applicants’ use of impression management tactics.

Chapter 2 describes the development and (internal and external) validation of a new two-dimensional measure of applicants’ test anxiety, namely the Self- versus Other-Referenced Anxiety Questionnaire (SOAQ). This questionnaire embeds worrisome cognitions of anxious applicants in the social evaluative context of “self” and “significant others” and provides a new conceptualization of cognitive anxiety in the personnel selection context.

In Chapter 3, a further nomological network is tested, by relating SRA and ORA to self-consciousness and perfectionism as antecedents and avoidance goals as consequences. All the concepts in this study can be conceived of as two-dimensional, containing an intrapersonal and an interpersonal component. On the basis of this two-dimensionality, it is suggested that respectively the intrapersonal and interpersonal components are related to each other.
Chapter 4 looks at the relationship between anxiety and test performance and more specifically investigates to what extent the different cognitive worries of anxious persons impair test performance in both an educational and a personnel selection context. It is hypothesized that SRA is less negatively related to test performance than ORA. This study also investigates the role of SDT as an exploratory mechanism.

Chapter 5 relates both types of anxiety to perceptions of distributive, procedural, interpersonal and informational justice. Again, a more negative relationship with justice perceptions is expected for ORA than for SRA, explained by a stronger induced negative affect.

Chapter 6 explores the self/other dimension from a different perspective, namely with respect to applicants’ use of impression management tactics, and with a different methodological design (i.e., experiment). It is suggested that the use of a single tactic leads to more positive selection outcomes than the use of no tactic, that the use of self-focused tactics is more successful than the use of other-focused tactics and finally that the use of a combination of tactics results in the most favorable outcomes.

Chapter 7 presents an overview of the key findings from these studies. Further, the strengths and limitations of this dissertation are discussed and recommendations for future research and practice are brought forward.
1.7. References


Chapter 2
Selection Test Anxiety: Investigating Applicants’ Self-versus Other-Referenced Anxiety in a Real Selection Setting

Test anxiety received limited attention in personnel selection research, though may impair test performances of applicants. This paper describes the development and validation of a new two-dimensional measure of applicants’ test anxiety (SOAQ) that embeds worrisome cognitions of anxious applicants in the social evaluative context of “self” and “significant others”. A confirmatory factor analysis, followed by cross-validation in a second sample and correlations with both proximal and distal theoretical constructs, indicated that the two scales have satisfactory psychometric properties and construct validity. The scientific and practical relevance of these findings are discussed.
2.1 Introduction

Research over the last 15 years has led to the widespread belief that cognitive ability is the best predictor for a variety of jobs, not only in the US (Hunter & Hunter, 1984; Ree, Earles, & Teachout, 1994; Reilly & Chao, 1982; Schmidt, Ones, & Hunter, 1992), but also across the UK (Bertua, Anderson, & Salgado, 2005) and Europe (Salgado & Anderson, 2003; Salgado, Anderson, Moscoso, Bertua, & De Fruyt, 2003; Salgado, Anderson, Moscoso, Bertua, De Fruyt, & Rolland, 2003). Although psychometrically sound, cognitive ability tests often evoke less favorable reactions from applicants (Ryan & Ployhart, 2000), one of which is test anxiety (Zeidner, 1998). Even though largely ignored in the past, the presence of test anxiety within a personnel selection context might be problematic. Selection test anxiety might lower the performance of anxious applicants, which can result in scores that do not accurately reflect the applicants’ true cognitive ability (Arvey, Strickland, Drauden, & Martin, 1990) and can therefore affect the reliability and validity of resulting personnel selection decisions (Schuler, 1993).

Until now, only limited attention has been paid to anxiety within the context of personnel selection. However, the few studies that have been carried out showed that applicants not only suffer from test anxiety (Dulewicz, 1985; Iles, Robertson, & Rout, 1989; Keller, Heimberg, & Peca, 1984; Teel & DuBois, 1983), but that test anxiety also leads to lower performance in a selection context (Arvey et al., 1990; Fletcher, Lovatt, & Baldry, 1997; McCarthy & Goffin, 2005; Schmit & Ryan, 1992, 1997).

Besides more research on the influence of test anxiety on test performance within personnel selection scenarios, also more research is needed on the conceptualization and measurement of the anxiety construct in personnel selection contexts. The purpose of the current paper is to propose a new measure of applicants’ test anxiety, the Self- versus Other-referenced Anxiety Questionnaire (SOAQ), which frames the failure outcome expectancies of test anxious subjects in a broader social evaluative context.

The added value of this questionnaire to existing research on anxiety in personnel selection is twofold. First, current research on applicant anxiety either uses more generalized measures of anxiety (e.g., STAI, Spielberger, Gorsuch, & Lushene, 1970), measures developed and tailored to the educational context (e.g., TAI, Spielberger, 1980; RTT, Sarason, 1984), or
measures of anxiety that tap more the affective state of the applicant during test taking (e.g., TAS, Arvey et al., 1990). However, Seipp’s (1991) meta-analysis on anxiety in educational contexts shows stronger relationships with performance of more specific measures as compared to more general measures of anxiety, calling for more research with more specific measures. Also Chan and Schmitt (2004) argue that studying domain-specific applicant reactions as opposed to general or global reactions is likely to be more informative and to provide more useful insights into specific aspects of the selection procedure. The SOAQ aims to fulfill this need by providing a domain-specific anxiety measure, capturing test anxiety of applicants within personnel selection context. Furthermore, with respect to more affective measures of anxiety, such as the TAS (Arvey et al., 1990), applicant anxiety research calls for a more cognitive orientation on the basis of previous findings, evidencing that there is more information in the cognitive component as opposed to the affective component of anxiety (Powers, 2001). For example, Dweck and Wortman (1982) emphasize that cognitions about failure and not the failure experience itself account for performance decrements and should be the central point of interest in anxiety research. Therefore, the SOAQ specifically taps the worries or failure outcomes expectancies of anxious persons within personnel selection context.

Second, the SOAQ embeds the worrisome thoughts of anxious applicants into the social evaluative context of self and significant others. Hagtvet, Man, and Sharma (2001) argue that failure outcome expectancies are represented by two facets or dimensions of observations, namely the “Concern Facet” and the “Referent Facet”. The Concern Facet refers to what issues the potential evaluator is perceived to be concerned about while the Referent Facet refers to who is perceived to be the potential evaluator of failure outcomes. Current theory and research continues to analyze failure outcome expectancies from an individualistic perspective. Hagtvet et al. extend this perspective by embedding the failure outcome expectancies in the context of the “self” and “significant others”. They state that the concept of failure outcome expectancies may explicitly take advantage of being implemented in a social evaluative context since “self” and “others” are central elements representing evaluative concerns of test anxious individuals. These ideas have already been tested successfully in school settings (Hagtvet, 1989). However, also within a personnel selection context, framing worries within the context of “self” and “others” seems particularly relevant. Specifically, during selection and assessment, not only the “self” is the critical evaluator of ones performance but this role can also be adopted by a “significant other”. The latter can be
present in the selection context be it physically through the assessor or a panel of assessors (e.g., in an assessment center) or through the applicant’s imagination (Buss, 1980). For example, significant others such as applicants’ family and friends might be present through imagination since the selection outcome (i.e., passing or failing) is visible to others even outside the selection context. Therefore, the anxious applicant experiencing self-referenced concerns may worry about a low score because then (s)he can doubt his/her own ability for the job or because then (s)he can blame him/herself only. The anxious applicant experiencing other-referenced concerns, on the other hand, may worry about a low score because then a significant other (e.g., assessor, friend, family) can doubt his/her ability for the job or can blame him/her for the low score.

The remainder of this paper describes the results of two studies in the development of the SOAQ. Study 1 involves the development of the SOAQ items and an assessment of their dimensionality and internal consistency. In study 2, the convergent and divergent validity of the SOAQ are examined.

2.2 Study 1: Internal Construct Validation

Method

Participants and procedure

Participants were applicants who took part in the first hurdle of an assessment procedure of a large governmental organization. Candidates applied for an undefined number of vacancies in different departments of the organization. The purpose of the selection was to create a list of valuable candidates that could be consulted by the different departments in case of an open vacancy up until two years later. In this case, the consulting department has the opportunity to organize an additional test in order to select the most valuable candidate for them. Before actual assessment, applicants completed the SOAQ, together with a short biographical inventory (i.e., age, gender, prior selection experience and employment status), a measure of general anxiety and self-regulation styles. Actual assessment consisted of one cognitive ability test. Two parallel versions of the cognitive ability test were administered and applicants were randomly assigned to one of these versions, resulting into a calibration and validation sample.

In total, 2059 applicants participated in this study ($n_{calibration\ sample} = 1023$ and $n_{validation\ sample} = 1036$). The calibration and validation sample were very much alike. Mean age of applicants
was 28 for both samples with 56% (calibration sample) and 54% (validation sample) women. On average, applicants had four years of work experience; 33% (calibration sample) and 32% (validation sample) were unemployed and on average, applicants had applied already three times (calibration sample) and two times (validation sample) at the concerned selection office.

**Construction of the SOAQ**

The SOAQ is based on an inventory developed by Hagtvet et al. (2001) to examine the generalizability of self-related cognitions in test anxiety in educational context. We formulated 24 items, half of them referring to “self-referenced” anxiety, the other half referring to “other-referenced” anxiety. Based on previous research in test anxiety and related fields (Covington, 1992; De Volder & Lens, 1982; Dweck & Wortman, 1982; Eysenck, 1997; Gjesme, 1981; Heckhausen, 1975; Skinner, Wellborn, & Connell, 1990; Tobias, 1985; Wine, 1980), items covered six concerns, namely effort, ability, blame, esteem, future success and controllability. Since these concerns cover a wide range of self-preoccupations of anxious persons, we supposed them to be applicable to personnel selection contexts. According to Hagtvet et al., when these preoccupations are related to the self versus others, they constitute *Self – versus Other-preoccupations*. Therefore, the SOAQ cross-classifies these two facets, related to these six concerns.

Participants rated 24 reasons for being afraid of a low score on the ability test they were going to take (Likert-type scale with 1 =totally disagree; 4 =totally agree). The first 12 items were formulated in an individualistic sense, such as “I am afraid for a lower score on this test because this is annoying to ME”, referring to SRA. The following 12 items were formulated with reference to a significant other (i.e., husband, employer, etc.). Items were framed as “I am afraid of a lower score on this test because this is annoying to [SIGNIFICANT OTHER]”. Participants filled-in a particular referent person (e.g., father/mother, brother/sister, spouse) before filling out the ORA items.

**Internal validation of the SOAQ**

*Confirmatory factor analysis.* Confirmatory factor analysis (CFA, LISREL 8.50) was performed on the calibration sample to assess the two-factor structure of the Self- versus Other-referenced Anxiety scale. Polychoric correlation matrices with asymptotic covariance matrices were calculated. On the basis of the theoretical framework, a two-factor model was tested in order to verify whether SRA and ORA could be considered as two separate
constructs. Also a six-factor model was tested based on the cognitive concerns that were expressed in the items (e.g., effort, ability, blame, esteem, future success and controllability). Weighted Least Squares estimation was used and five indices were employed to assess the fit of the model. The chi-square ($\chi^2$) statistic was reported but, due to its sensitivity to sample size, non-normality and model complexity, the $\chi^2$ may not be the best index of choice (Hu & Bentler, 1999). Therefore, other fit indices are reported as well. The RMSEA (Root Mean Square Error of Approximation, Steiger, 1990) has been recognized as one of the most informative criteria in covariance structure modeling. Values less than .05 indicate good fit and values as high as .08 represent reasonable fit. Also GFI and AGFI ((Adjusted)Goodness-of-Fit Index, Jöreskog & Sörbom, 1989) are reported, which can be classified as absolute indices of fit. The AGFI differs from the GFI only in the fact that it adjust for the complexity of the model. And finally, also one comparative fit index was reported, the CFI (Comparative Fit Index, Bentler, 1990), which takes sample size into account. If the model fits perfectly, these fit indices should have the value 1. Usually, a value of at least .90 is required to accept a model, while a value of at least .95 is required to judge the model fit as good (Hox & Bechger, 1998). As a baseline model, a two-factor model was tested with orthogonal factors. Fit indices are reported in Table 2-1. For the orthogonal two-factor model, RMSEA and CFI indicated a poor fit, whereas GFI indicated a good fit. In the second model, the two factors were allowed to correlate, as the two dimensions of anxiety were expected to be related. The RMSEA indicated a fair fit and the GFI, AGFI and CFI indicated good fit. For the six factor model, most fit indices indicated that the six factor model fitted the data less well than the two-factor model. On the basis of these results, the two-factor model with correlated factors was considered the best model. However, since factor correlations between SRA and ORA were high ($r = .74$) an additional model was tested that combined these two factors as one. RMSEA and CFI clearly supported the correlated two-factor model above the one-factor model. Finally, this two-factor model was successfully cross-validated in the validation sample.
Table 2-1. Overall Fit Indices for the Self- versus Other-referenced Anxiety Questionnaire (SOAQ)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>$\chi^2$</th>
<th>Df</th>
<th>RMSEA</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Model I</td>
<td>3770.45</td>
<td>252</td>
<td>.117</td>
<td>.92</td>
<td>.90</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>Two orthogonal factors</td>
<td></td>
<td></td>
<td>(.11-.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Model II</td>
<td>1409.95</td>
<td>251</td>
<td>.067</td>
<td>.97</td>
<td>.96</td>
<td>.95</td>
</tr>
<tr>
<td></td>
<td>Two correlated factors</td>
<td></td>
<td></td>
<td>(.064-.071)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Model III</td>
<td>1639.72</td>
<td>237</td>
<td>.076</td>
<td>.96</td>
<td>.96</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td>Six-factor model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Model III</td>
<td>1816.42</td>
<td>252</td>
<td>.078</td>
<td>.96</td>
<td>.95</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td>One-factor model</td>
<td></td>
<td></td>
<td>(.075-.081)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Model II in validation sample</td>
<td>1298.82</td>
<td>251</td>
<td>.063</td>
<td>.97</td>
<td>.97</td>
<td>.96</td>
</tr>
<tr>
<td></td>
<td>Two correlated factors</td>
<td></td>
<td></td>
<td>(.060-.067)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. RMSEA = Root Mean Square Error of Approximation with $^a$ 90% confidence interval; GFI = Goodness of Fit Index; AGFI Adjusted Goodness of Fit Index; CFI = Comparative Fit Index. All $\chi^2$ are significant on a .001 level.

Testing of measurement invariance. Subsequently, measurement invariance across the calibration and validation samples was tested. Proceeding as suggested by Marsh (1994), we first tested the two-factor model with no between-group invariance constraints (Step 1), followed by the testing of the equality of factor loadings (i.e., conceptual invariance, Step 2), and the equality of factor variances and covariances (i.e. psychometric invariance, Step 3). Table 2-2 shows invariance at all stages, demonstrating both conceptual and psychometric invariance. Although the $\chi^2$ of the constrained model increased significantly, this is not the best test for evaluating fit. Instead, the practical fit indices of the more restricted models did not alter much from those of the unrestricted models, supporting invariance at different levels.
Table 2-2. Simultaneous Test of Invariance for Factor Form, Factor Loadings and Factor Covariances of the SOAQ across the Calibration and the Validation Samples

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>$\chi^2$</th>
<th>$\Delta \chi^2$</th>
<th>$\Delta df$</th>
<th>RMSEA</th>
<th>GFI</th>
<th>CFI</th>
<th>CAIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Model 1</td>
<td>502</td>
<td>2708.76</td>
<td>-</td>
<td>-</td>
<td>.065</td>
<td>.97</td>
<td>.95</td>
<td>3554.55</td>
</tr>
<tr>
<td>Two SOAQ factors invariant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.063- .068)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Model 1 with pattern of factor loadings invariant (Model 2 – 1 difference)</td>
<td>524</td>
<td>2806.88</td>
<td>98.12**</td>
<td>22</td>
<td>.065</td>
<td>.97</td>
<td>.95</td>
<td>3462.80</td>
</tr>
<tr>
<td>3. Model 2 with factor variances and covariances invariant (Model 3 – 2 difference)</td>
<td>527</td>
<td>2841.03</td>
<td>34.15**</td>
<td>3</td>
<td>.065</td>
<td>.97</td>
<td>.95</td>
<td>3471.05</td>
</tr>
</tbody>
</table>

Note. RMSEA = Root Mean Square Error of Approximation with a 90% confidence interval; GFI = Goodness of Fit Index; CFI = Comparative Fit Index; CAIC = Bozdogon adjusted version of the AIC. All $\chi^2$ are significant on a .001 level. ** $p < .001$

**Internal consistency.** More analyses were undertaken to examine the internal consistency. Both scales were highly reliable, $\alpha = .86$ for SRA and $\alpha = .92$ for ORA.

**2.3 Study 2: External Construct Validation**

We divided this study into two phases. In phase 1, we investigated convergence with measures of related (i.e., theoretically proximal) constructs, assessing convergent validity. We first expected relatively high relationships of SRA and ORA with a general measure of anxiety. Second, we expected a stronger relationship of SRA with more internally regulated behavior, self-oriented perfectionism and private self-consciousness than of ORA. For the latter, we expected stronger relationships with more externally regulated behavior, socially prescribed perfectionism and public self-consciousness.
In phase 2, we assessed divergent validity by evaluating relationships with dissimilar (or more distal) constructs. The first variable under study is other-oriented perfectionism. Previous studies reported no correlations between other-oriented perfectionism and anxiety (Saboonchi & Lundh, 1997). Therefore, no relationship was expected between other-oriented perfectionism and the two dimensions of the SOAQ. Relatively moderate relationships were expected with gender, prior selection experience and employment status. In line with previous research (McCarthy & Goffin, 2005), higher levels of anxiety were expected for females as compared to males. Prior selection experience was expected to relate negatively to anxiety, because of its negative relationship with uncertainty, which has been proposed as a major antecedent of anxiety (Schlenker & Leary, 1982). Evidence for this was found by Fletcher et al. (1997), who found a marginally significant negative relation between familiarity, defined as previous experience with assessment centers as reported by the candidates, and state anxiety. Also employment status was expected to relate moderately negative to anxiety. Schlenker and Leary (1982) argued that a necessary but insufficient condition for social anxiety is that people be motivated to make a particular impression on others and that this motivation to impress is a direct function of the importance of the goal. For unemployed applicants, it seems reasonable to suggest that the goal of succeeding in the selection procedure and subsequently getting a job is more important than for applicants who already have a job.

Method

Participants and procedure

Part of the data was gathered as described in the procedure section of Study 1. Data with respect to the relationship between the SOAQ and the different dimensions of perfectionism and private and public self-consciousness were gathered from 271 psychology students at a large public university. 80% of this sample were women and their average age was 19.

Measures

General anxiety measure (Sample 1). The ZBV (van der Ploeg, 2000), which is the Dutch adaptation of the State-anxiety scale (Spielberger et al., 1970), was used. This scale consists of 20 items that are rated on a Likert-like scale \((1=\text{almost never}; 4=\text{almost always})\). Cronbach’s alpha was .93.
Self-regulation styles (Sample 1). Three scales were used to measure styles of self-regulation. All scales consisted of 5 items, with the exception of “Introjected regulation”, which consisted of 4 items. Items were adapted from the Academic Self-Regulation Questionnaire (Ryan & Connell, 1989) and rated on a Likert-type scale (1=strongly disagree; 7=strongly agree). Reliability estimates were .84 (Extrinsic regulation), .84 (Identified regulation), and .73 (Introjected regulation).

Perfectionism (Sample 2). In order to measure self-oriented, other-oriented and socially prescribed perfectionism, items were adapted from the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). All scales were measured with 5 items on a Likert-type scale from 1 (totally disagree) to 5 (totally agree). Cronbach’s alphas were .71, .66 and .76, respectively.

Self-consciousness (Sample 2). Items to measure private and public self-consciousness were adapted from the scales developed by Fenigstein, Scheier, and Buss (1975). Private self-consciousness was measured with 10 items; public self-consciousness was measured with 6 items, both on a Likert-type scale from 1 (totally disagree) to 4 (totally agree). Cronbach’s alphas were .76 and .72, respectively.

Prior selection experience (Sample 1). One-open ended item was used to measure prior selection experience: “How often did you participate in a selection procedure organized by this selection office?”.

Employment status (Sample 1). Employment status at the time of the selection procedure was measured by means of 1 item: “I am unemployed and looking for a job” (1=yes; 2=no).

SOAQ (Sample 2). Both dimensions of the SOAQ showed high internal consistency in the student sample (α = .91 for SRA and α = .93 for ORA).

Results

Table 2-3 summarizes the correlations between Self-Referenced and Other-Referenced Anxiety and several distal/proximal constructs.
Table 2-3. Correlations between Self- and Other-Referenced Anxiety and measures of similar and dissimilar constructs

<table>
<thead>
<tr>
<th></th>
<th>Self-Referenced Anxiety</th>
<th>Other-Referenced Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proximal constructs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General anxiety measure</td>
<td>.36***</td>
<td>.25***</td>
</tr>
<tr>
<td>Introjected regulation</td>
<td>.42***</td>
<td>.43***</td>
</tr>
<tr>
<td>Identified regulation</td>
<td>.31***</td>
<td>.18***</td>
</tr>
<tr>
<td>Extrinsic regulation</td>
<td>.25***</td>
<td>.38***</td>
</tr>
<tr>
<td>Self-oriented perfectionism</td>
<td>.16*</td>
<td>-.01</td>
</tr>
<tr>
<td>Socially prescribed perfectionism</td>
<td>.21**</td>
<td>.20*</td>
</tr>
<tr>
<td>Private self-consciousness</td>
<td>.02</td>
<td>.03</td>
</tr>
<tr>
<td>Public self-consciousness</td>
<td>.22**</td>
<td>.18*</td>
</tr>
<tr>
<td><strong>Distal constructs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other-oriented perfectionism</td>
<td>.14</td>
<td>.10</td>
</tr>
<tr>
<td>Gender</td>
<td>.15***</td>
<td>.04</td>
</tr>
<tr>
<td>Prior selection experience</td>
<td>-.07**</td>
<td>-.04</td>
</tr>
<tr>
<td>Employment status</td>
<td>.06**</td>
<td>.11***</td>
</tr>
</tbody>
</table>

*: p < .05, **: p < .01, ***: p < .001.

Phase 1: Convergent validity

Generally speaking, the relationships followed our predictions. Both SRA and ORA showed a significant positive relationship with the general measure of anxiety. However, SRA was more strongly related to the general anxiety measure than ORA, \( t(1754) = 5.53, p < .001 \). Both dimensions of the SOAQ also showed an equally strong relationship with introjected regulation. In line with our expectations, SRA showed a stronger relationship with identified regulation than ORA, \( t(1787) = 6.10, p < .001 \), while the latter showed a stronger relationship with extrinsic regulation, \( t(1793) = -6.32, p < .001 \). As expected, scores measuring self-oriented perfectionism were significantly related to SRA but not to ORA. However, socially-prescribed perfectionism was equally strong related to both dimensions of the SOAQ. ORA was, in line with our expectations, significantly related to public self-consciousness and not to private self-consciousness. However, also SRA unexpectedly followed this pattern of relationships with public and private self-consciousness.
Phase 2: Divergent validity

A pattern of lower relationships was found with more distal variables. No significant relations were found with other-oriented perfectionism. Women showed more SRA than men, $t(1870) = -6.45, p < .001$, whereas no difference between women and men was found for the ORA scale. The same pattern was found for prior selection experience which related negatively with SRA but showed no relationship with ORA. Employment status related positively with both types of anxiety, indicating that being unemployed at the time of the selection procedure leads to higher levels of anxiety. For gender and employment status, Spearman’s rho is reported instead of Pearson correlations.

2.4 General Discussion

The present study reports on the conceptual and empirical relevance of two different dimensions of self-related cognitions of anxious applicants, namely self-referenced and other-referenced cognitions. These two dimensions are derived from literature and empirical research showing that anxiety can be directed either towards oneself or towards significant others as the evaluator(s) of a future failure outcome (Hagtvet, 1989). Based on a theoretical framework, the SOAQ was developed to test applicants’ Self- and Other-Referenced Anxiety within the realm of personnel selection settings. This goal was accomplished in that considerable support was found for the construct validity of the SOAQ dimensions in a real personnel selection context. First, the dimensionality of the SOAQ was assessed using confirmatory factor analysis. Evidence for the correlated two-factor model above the six factor model, the one-factor model and the uncorrelated two-factor model was found, which is in line with theoretical underpinnings. This two-factor model was then successfully cross-validated in a second, independent sample of real applicants. Further evidence for the construct validity of the two SOAQ-scales was found by assessing the relationships between the SOAQ and both more proximal (convergent validity) and more distal (divergent validity) constructs. Relationships were basically in line with our expectations. Stronger relations were found between SOAQ-dimensions and more proximal constructs as compared to more distal constructs. Also, the two SOAQ-dimensions related differently to relevant constructs, demonstrating the conceptual difference between the two dimensions.

On the basis of these findings, both SRA and ORA are related to sensitivity to evaluation of overt aspects of oneself (public self-consciousness) and feeling pressured by others to perform well. However, applicants high on SRA seem to have internalized the demands of
others more in the sense that they are more inclined to set exacting standards for oneself and to stringently evaluate and censor one’s own behavior, as compared to applicants high on ORA. Also the reason for taking the cognitive test is more internally regulated for applicants high on SRA than for applicants high on ORA, who participate more out of external pressure. To summarize, one could state that applicants who are more anxious on a self-referenced base behave more internally regulated at all stages than applicants who are more anxious on an other-referenced base.

With respect to divergent validity, in line with our expectations, no relationship was found with other-oriented perfectionism. Gender related significantly with SRA and not with ORA. This indicates that the pervasive finding in the test anxiety literature that women experience higher levels of anxiety than males (see Hembree, 1988), might be an overgeneralization of findings with more individualistic measures of anxiety. In this study, it was found that women experience more SRA than men. Measuring anxiety with a more balanced instrument might reveal important insights with respect to gender-related differences in anxiety. Prior selection experience related negatively with SRA and showed no relationship with ORA. A possible explanation is that earlier participation in a selection procedure might provide an adequate script on how to proceed, leading to less SRA. Because the assessor differs from one selection procedure to another, applicants may still feel very insecure about this “significant other”. This can explain why ORA is less influenced by prior selection experience. And finally, employment status was positively related to both anxiety scales, indicating that being unemployed leads to higher levels of anxiety.

**Limitations and Directions For Future Research**

This study suffers from some limitations. The selection context described here could hardly be considered a regular personnel selection context. As mentioned, candidates applied for an undefined number of vacancies in different departments of the organization. The purpose of the selection was to create a list of valuable candidates that could be consulted by the different departments in case of an open vacancy up until two years later. In this case, the consulting department has the opportunity to organize an additional test in order to select the most valuable candidate for them. In order to be able to correct for this unusual situation, further data may be gathered in other selection contexts as well.
Also, anxiety was only assessed with respect to a cognitive ability test. Other results might have been obtained with respect to a selection interview or an assessment center. Again, further data may be collected with respect to the selection interview and future research might consider other selection devices as well.

In the present study, antecedents of anxiety within the context of personnel selection are not considered. An interesting research question would be to investigate to what extent expectations that applicants hold with respect to the selection procedure influence their level of anxiety. Derous, Born, and De Witte (2004) for instance, found several significant positive relations between applicants’ selection expectations (e.g., about transparency, objectivity, feedback, humane treatment, job information) and applicants’ motivation to apply. Similarly and as suggested by Bell, Wiechmann, and Ryan (2004), one could expect expectations to affect applicants’ level of test anxiety as well.

**Conclusion**

In conclusion, in this study it was shown that unraveling the cognitive component of test anxiety might bring new insights into anxiety research in personnel selection. More specifically, a new anxiety measure was proposed, assessing applicants’ Self-versus Other-Referenced Anxiety.
2.5 References


Chapter 3

The Relationship between Cognitive Test Anxiety, Self-Consciousness, Perfectionism and Achievement Goals.

This study relates test anxiety to perfectionism and self-consciousness as antecedents and avoidance goals as consequences in a simulated selection context. All concepts are conceived as two-dimensional, containing a personal and an interpersonal component. Except for self-consciousness, the results showed significant relationships between the personal components of each variable and between the interpersonal components of each variable.
3.1 Introduction

From the 1950s until now the construct of test anxiety has been gradually differentiated, starting from a one-dimensional construct, representing general unpleasant affect (see Mandler & Sarason, 1952; Sarason, Davidson, Lighthall, & Waite, 1958), to a more generally accepted two-dimensional structure with an affective emotionality component and a cognitive worry component (Liebert & Morris, 1967). Recently, Hagtvet, Man, and Sharma (2001) further elaborated this worry component. These authors suggested that worry items are more heterogeneous than emotionality items and showed that the cognitive concerns of anxious persons encompass cognitions with both an individualistic and a social frame of reference. In a similar vein, Proost, Derous, Schreurs, Hagtvet, and De Witte (2008) identified two cognitive anxiety dimensions known as Self-Referenced Anxiety (SRA) and Other-Referenced Anxiety (ORA). Whereas SRA refers to any concern for evaluative judgment from oneself in the case of failure, ORA refers to any concern for evaluative judgment from a significant other in the case of failure.

Research on these two anxiety dimensions is still in its early stages. Also the nomological network surrounding these anxiety dimensions remains largely unclear. The purpose of the present study is to explore this nomological network by investigating self-consciousness and perfectionism as antecedents and achievement goals as consequences of SRA and ORA.

Previous research has already demonstrated the relationship of anxiety with self-consciousness (Saboonchi & Lundh, 1997) and perfectionism as antecedents (Flett, Hewitt, Endler, & Tassone, 1995) and with achievement goals as consequences (Pekrun, Elliot, & Maier, 2006). The purpose of the present study is to advance the literature by examining the relationship between the two cognitive dimensions of anxiety and their correlates from a more social perspective. It is suggested that, since SRA is intrapersonal in nature (see Proost et al., 2008), it will be routed in private self-consciousness and an intrapersonal form of perfectionism and will lead to the adoption of intrapersonal achievement goals (i.e., mastery goals). In a similar vein, since ORA is interpersonal in nature (see Proost et al., 2008), we theorize that it will be routed in public self-consciousness and in an interpersonal form of perfectionism and will lead to the adoption of interpersonal achievement goals (i.e., performance goals).
3.2 Cognitive Anxiety as a Two-Dimensional Construct

Hagtvet et al. (2001), followed by Proost et al. (2008) state that the cognitive concerns of anxious persons (i.e., failure outcome expectancies) are two-dimensional, consisting of an intrapersonal and a social dimension. These authors state that anxiety research could benefit from framing these concerns in a broader social evaluative context, leading to a distinction between self-referenced failure outcome expectancies and other-referenced failure outcome expectancies. Since failure outcome expectancies are at the core of the anxiety experience (Dweck & Wortman, 1982; Wine, 1980), these concepts are further referred to as Self-Referenced Anxiety (SRA) and Other-Referenced Anxiety (ORA). SRA is defined as any concern for evaluative judgment from oneself in the case of failure in a particular setting while ORA is defined as to any concern for evaluative judgment from a significant other in the case of failure (Proost et al., 2008). The test-anxious person experiencing self-referenced concerns may worry about a low score because then (s)he can doubt his/her own ability or because then (s)he can blame him/herself only. The anxious person experiencing other-referenced concerns may worry about a low score because then a significant other (e.g., assessor, friend, family) can doubt his/her ability or can blame him/her for the low score. On the basis of these definitions, SRA is clearly intrapersonal in nature while ORA is interpersonal in nature.

In the remainder of this paper, it will be described how also self-consciousness, perfectionism and achievement goals can be considered as two-dimensional constructs with an intrapersonal and an interpersonal component, and how these external constructs relate to SRA and ORA based on a conceptual similarity.

3.3 Self-Consciousness and Perfectionism as Antecedents of Anxiety

Interestingly, much like test anxiety, self-consciousness and perfectionism can be considered as two-dimensional constructs. For example, Fenigstein, Scheier, and Buss (1975) differentiated between private self-consciousness, defined as the degree to which a person attends to one’s inner thoughts and feelings, and public self-consciousness, which refers to a general awareness of oneself as a social object. Also perfectionism has been considered as a two-dimensional construct. More specifically, Hewitt and Flett (1991a) differentiated between an intrapersonal and an interpersonal component of perfectionism. The intrapersonal component of perfectionism is labeled “self-oriented perfectionism” and refers to the setting of excessive and stringent standards on oneself and critically evaluating one’s own behavior vis-à-vis these self-imposed standards. The interpersonal component is comprised of “other-
oriented perfectionism”, referring to one’s setting of excessive and stringent standards on others (i.e., expectations of perfection that one has for others), and “socially prescribed perfectionism”, referring to one’s perception of other people’s expectations of being perfect. Whereas the cognitions of other-oriented perfectionists are other-directed, the cognitions of socially prescribed perfectionists and self-oriented perfectionists are self-directed. Since also the cognitions of anxious persons are always self-related, other-oriented perfectionism will not be considered in this study. Also, previous research has shown no relationship between other-oriented perfectionism and anxiety (Hewitt & Flett, 1991b).

Both self-consciousness and perfectionism have been related to test anxiety, yielding inconsistent results. For example, Flett, Blankstein, and Boase (1987) found significant positive relations between both private and public self-consciousness and test anxiety. However, earlier research found no relationship for private self-consciousness (Smith, Ingram, & Roth, 1985), only a significant positive relationship for public self-consciousness (Turner, Scheier, Carver, & Ickes, 1978) or no significant relationship for both private and public self-consciousness (Carver & Glass, 1976).

Self-oriented and socially prescribed perfectionism have both been positively related to test anxiety be it that the relationship with socially prescribed perfectionism has been shown to be stronger and more consistent than the relationship with self-oriented perfectionism (Einstein, Lovibond, & Gaston, 2000; Hayward & Arthur, 1998; Mills & Blankstein, 2000; Onwuegbuzie & Daley, 1999).

Two studies (Saboonchi & Lundh, 1997; Saboonchi, Lundh, & Ost, 1999) that considered both self-consciousness and perfectionism in there relationship with anxiety concluded that the correlation between self-consciousness and anxiety became insignificant after considering perfectionism in the relationship, thereby suggesting that perfectionism is a more relevant construct in the study of anxiety than is self-consciousness.

However, all the above studies did not take into account the two-dimensional character of the constructs under study and did not base their hypothesized relationships on the conceptual similarity between the intrapersonal and interpersonal components, respectively.
So, the current study aims to clarify the nature of the relations between self-consciousness, perfectionism and test anxiety by considering them as two-dimensional constructs. Theoretically, private self-consciousness and self-oriented perfectionism can be related to SRA since all are intrapersonal in nature. On the other hand, public self-consciousness and socially prescribed perfectionism are conceptually more allied to ORA since all are interpersonal in nature. Therefore, we formulated the following hypotheses:

**Hypothesis 1:** Private self-consciousness (H1a) and self-oriented perfectionism (H1b) are positively related to Self-Referenced Anxiety.

**Hypothesis 2:** Public self-consciousness (H2a) and socially prescribed perfectionism (H2b) are positively related to Other-Referenced Anxiety.

### 3.4 Achievement Goals as Consequences of Anxiety

Longitudinal evidence showed that test anxiety leads to the adoption of certain achievement goals (Conroy & Elliot, 2004), which are the cognitive-dynamic focus of competence-relevant behavior directed to a certain task (Elliot, 1999). Specifically, Elliot and McGregor (2001) proposed a two by two achievement goal framework, differentiating achievement goals on two dimensions, depending on how competence is defined and how competence is valenced. First, when pursuing mastery goals, competence is defined in terms of absolute standards (i.e., the requirements of the task itself) or intrapersonal standards (i.e., one’s own past attainment or maximum potential task attainment). When setting performance goals, competence is defined in terms of normative standards (i.e., the performance of others). Second, the way competence is valenced is made explicit in the approach-avoidance dichotomy. Approach goals are directed towards achieving a positive, desirable outcome whereas avoidance goals are directed toward avoiding a negative, undesirable outcome.

Anxious persons are typically more inclined to adopt avoidance goals, trying to avoid a negative, undesirable outcome (i.e., failure), instead of approach goals, trying to reach a positive, desirable outcome (i.e., success) (see Dickson & MacLeod, 2004). More specifically, test anxiety has been related to both performance-avoidance goals (Elliot & McGregor, 1999; McGregor & Elliot, 2002; Pekrun et al., 2006; Tanaka, Takehara, & Yamauchi, 2006) and mastery-avoidance goals (Conroy & Elliot, 2004; Elliot & McGregor, 2001). Mastery-approach goals on the other hand have mostly been found to be unrelated to test anxiety and also the relationship with performance-approach goals has been weakly positive or non-significant (Elliot & Church, 1997; Middleton & Midgley, 1997; Sideridis, 2005). Therefore,
the current study will only consider avoidance goals as consequences of test anxiety and not approach goals.

The two-way conceptualization of avoidance goals, based on the way competence is defined, is more relevant in its relationship with SRA and ORA. Where mastery goals are intrapersonal in nature, performance goals are clearly interpersonal in nature. This two-dimensional conceptualization of avoidance goals, together with the two-dimensional conceptualization of test anxiety that was described above, led to the following hypothesis:

**Hypothesis 3:** SRA will lead to the adoption of mastery-avoidance goals (H3a) whereas ORA will lead to the adoption of performance-avoidance goals (H3b).

### 3.5 This Study

**Method**

**Participants and procedure**

152 undergraduates in psychology participated for course credits. Of all participants, 81% were women with a mean age of 18.84 ($SD = 3.90$, ranging from 17 to 58 years).

Participants were told that the purpose of the study was to investigate the influence of motivational and personality factors on cognitive ability performance in a personnel selection context. So, we instructed participants to fill in the questionnaires and take the test like they would if they were real applicants. To further enhance the simulated selection context, a recruiter from a well-known selection office in Belgium introduced the test to the participants and provided verbal instructions explaining what the test measured. Also the recruiter promised to send the individual score on the test to all the participants in a closed letter within three weeks.

After this explanation, participants filled in the consent form and completed questionnaires on self-consciousness, perfectionism, test anxiety and goal-orientation. Subsequently, they completed the cognitive ability test. Surveys were coded using participant identification numbers in order to maximize confidentiality.
Self/other dimension

Measures

Self-consciousness. Private and public self-consciousness were measured with the scale developed by Fenigstein et al. (1975). Private self-consciousness was measured with 10 items while public self-consciousness was measured with 7 items, all answered on a Likert-type scale ranging from 1 (extremely uncharacteristic) to 4 (extremely characteristic). A sample item of private self-consciousness is “I am always trying to figure myself out”. A sample item of public self-consciousness is “I am concerned about the way I present myself”. Cronbach’s alphas were .77 for private self-consciousness and .63 for public self-consciousness. Omitting the first item increased Cronbach’s alpha for public self-consciousness to .69.

Perfectionism. Both self-oriented and socially prescribed perfectionism were measured with 5 items, taken from the Multidimensional Perfectionism Scale of Hewitt and Flett (1991a). Items were answered on Likert-type scales ranging from 1 (strongly disagree) to 5 (strongly agree). A sample item of self-oriented perfectionism is “One of my goals is to be perfect in everything I do”. A sample item of socially prescribed perfectionism is “The people around me expect me to succeed at everything I do”. Cronbach’s alphas were .70 for self-oriented perfectionism and .73 for socially prescribed perfectionism.

Anxiety. Self-Referenced Anxiety and Other-Referenced Anxiety were measured with the SOAQ (Proost et al, 2008). Participants rated 24 reasons for being afraid of a low score on the test they were going to take on a Likert-type scale ranging from 1 (totally disagree) to 4 (totally agree). The first 12 items were formulated in an individualistic sense, such as “I am afraid for a lower score on this test because this is annoying to ME”, measuring SRA. The following 12 items were formulated with reference to a significant other. Items were framed as “I am afraid of a lower score on this test because this is annoying to [SIGNIFICANT OTHER]”. Participants filled-in a particular referent person (e.g., father/mother, brother/sister, spouse), before filling out the ORA items. Both scales showed high internal consistency ($\alpha = .91$ and $\alpha = .93$, respectively).

Achievement goals. Mastery-avoidance goals and performance-avoidance goals were each measured with 3 items, taken from Elliot and McGregor (2001). Items were answered on Likert-type scales ranging from 1 (totally disagree) to 7 (totally agree). A sample item of mastery-avoidance goals is “I worry that I may not perform to my best at this test”. A sample
item of performance-avoidance goals is “I just want to avoid doing more poorly than others”. Cronbach’s alphas were .87 for mastery-avoidance goals and .86 for performance-avoidance goals.

Results

Descriptive statistics for each of the scales in this study are provided in Table 3-1.

Table 3-1. Descriptive statistics of the variables in this study.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>Self-Referenced Anxiety</td>
<td>2.47</td>
<td>.62</td>
</tr>
<tr>
<td>Other-Referenced Anxiety</td>
<td>2.24</td>
<td>.66</td>
</tr>
<tr>
<td>Private self-consciousness</td>
<td>2.90</td>
<td>.43</td>
</tr>
<tr>
<td>Public self-consciousness</td>
<td>2.81</td>
<td>.56</td>
</tr>
<tr>
<td>Self-oriented perfectionism</td>
<td>3.58</td>
<td>.52</td>
</tr>
<tr>
<td>Socially prescribed perfectionism</td>
<td>2.64</td>
<td>.58</td>
</tr>
<tr>
<td>Mastery-avoidance goals</td>
<td>3.50</td>
<td>1.54</td>
</tr>
<tr>
<td>Performance-avoidance goals</td>
<td>3.47</td>
<td>1.57</td>
</tr>
</tbody>
</table>

The proposed hypotheses were tested using a two-step structural equation modeling procedure suggested by Anderson and Gerbing (1988). In the first step, the fit of the measurement model was assessed prior to the evaluation of the full structural model. The model tested was created by mapping each item to the construct that it was predicted to represent. Results from this analysis evidenced that the model fit was acceptable to good. However, two loadings for private self-consciousness were not significant and thus deleted, leading to the following fit indices, \( \chi^2(1349) = 1913.93, \text{RMSEA} = .054, \text{SRMR} = .081, \text{CFI} = .93. \)

Next, a structural model was estimated including private self-consciousness and self-oriented perfectionism as antecedents and mastery-avoidance goals as consequences of SRA. For ORA, public self-consciousness and socially prescribed perfectionism were included as antecedents and performance-avoidance goals were included as consequences. The correlations between the exogenous latent variables are presented in Table 3-2.
Table 3-2. *Correlations between exogenous latent variables*

<table>
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<th>2.</th>
<th>3.</th>
<th>4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Private Self-Consciousness</td>
<td>.48***</td>
<td>.21*</td>
<td>.17</td>
</tr>
<tr>
<td>2. Public Self-Consciousness</td>
<td></td>
<td>.38***</td>
<td>.13</td>
</tr>
<tr>
<td>3. Self-Oriented Perfectionism</td>
<td></td>
<td></td>
<td>.45***</td>
</tr>
<tr>
<td>4. Socially Prescribed Perfectionism</td>
<td></td>
<td></td>
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</tbody>
</table>

* p < .05; ** p < .01; *** p < .001

The structural model with the standardized path coefficients is presented in Figure 3-1. Inspection of this model, $\chi^2(1363) = 1950.28$, RMSEA = .055, SRMR = .09, CFI = .93, showed significant positive relationships between perfectionism, test anxiety and achievement goals, in line with H1b, H2b and H3. However, no relationship was found between private and public self-consciousness and SRA and ORA respectively (H1a and H2a not supported). Modification indices did not show any evidence for drawing additional paths between latent variables in the model, thereby supporting the current model. Private self-consciousness and self-oriented perfectionism explained 7% of the variance in SRA, while public self-consciousness and socially prescribed perfectionism only explained 3% of the variance in ORA. The relationships with achievement goals were more significant in the sense that SRA explained 18% of the variance in mastery-avoidance goals and ORA explained 15% of the variance in performance-avoidance goals.
Figure 3-1.  *Structural equation model, testing the nomological network of SRA and ORA.*

- Private self-consciousness
- Self-oriented perfectionism
- Socially prescribed perfectionism
- Public self-consciousness
- Self-referenced anxiety
- Other-referenced anxiety
- Mastery-avoidance goals
- Performance-avoidance goals

R² values:
- R² = .07
- R² = .03
- R² = .18
- R² = .15

Correlation coefficients:
- .03
- .25**
- .17*
- .04
- .43***
- .63***
- .39***

* p < .05; ** p < .01; *** p < .001
3.6 Discussion

The purpose of the present study was to move away from a purely individualistic conceptualization of the cognitive component of anxiety and to look at it from a more social perspective. Hagtvet et al. (2001) and Proost et al. (2008) considered cognitive anxiety as a two-dimensional construct, consisting of an intrapersonal component, SRA, and an interpersonal component, ORA.

Findings of this study generally support the idea to consider anxiety from a broad social perspective. The fact that the different dimensions of perfectionism and achievement goals were related differently to SRA and ORA provided strong validity for the two-dimensionality of cognitive anxiety. The fact that no significant relationships were found for self-consciousness is in line with the studies of Saboonchi and Lundh (1997) and Saboonchi et al. (1999) who found that perfectionism was more robustly related to anxiety than was self-consciousness. However, the current study investigated these relationships more profoundly by relating both public and private self-consciousness and socially prescribed and self-oriented perfectionism to SRA and ORA.

Study Limitations and Suggestions for Future Research

When considering the amount of variance explained in the dependent variables, the results of the present study provided solid support for achievement goals as consequences of SRA and ORA. However, no support or rather limited support was found for self-consciousness and perfectionism as antecedent of SRA and ORA. One possible explanation is that SRA and ORA are largely induced by the situation at hand and less determined by relatively stable traits such as perfectionism and self-consciousness. Further research could consider the influence of more state-like concepts such as self-awareness. Also relationships with other persons involved in the testing procedure, previous selection experiences as well as selection expectations (see Bell, Ryan, & Wiechmann, 2004) could be considered. Alternatively, it might be that the personality variables under study were not the best choice and should be replaced by other trait-like constructs such as self-definition in terms of the interdependent versus the autonomous self, importance attached to in-group versus personal goals and emphasis placed on relatedness versus rationality in relationships (Bodas & Ollendick, 2005). The fact that the data were collected through a survey methodology and at a single point in time, allows for common method variance to be a potential threat. However, in this study
several procedural steps were undertaken in order to limit the change of common method bias to occur. Specifically, as suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), different scale endpoints were used for the measurement of perfectionism, anxiety and avoidance goals and verbal labels were provided for the midpoints of the scales. Further, a Harman’s single factor test was performed, leading to a poorly fitting measurement model, $\chi^2(1325) = 4528.21$, RMSEA = .13, SRMR = .12, CFI = .80. While the results of this analysis do not preclude the possibility of common method variance, they do suggest that it is not a likely explanation for the reported findings.

Another limitation relates to our sample, which is predominantly female. This might have affected our results since previous research found anxiety to be consistently higher for females than for males (Cassady & Johnson, 2002; Hembree, 1988; McCarthy & Goffin, 2005) as well as gender differences in the relationship between perfectionism and anxiety (e.g., Masson, Hoyois, Cadot, Nahama, Petit, & Ansseau, 2004). We suggest further research to be conducted with more diverse samples as to demographic variables such as gender and age.

**Theoretical and Practical Implications**

The relationships between perfectionism, anxiety and achievement goals that were supported by the results of this study have important implications for both research and practice. The results underscore the usefulness of considering these constructs as two-dimensional when studying their interconnectedness in future research. More, the interconnectedness that was found in this study can also be looked at from a different perspective, which makes the practical relevance of this way of relating these concepts more evident. Specifically, the intrapersonal components of this study can all be considered more adaptive than the interpersonal components of the constructs under study. For example, Proost et al. (2008) found that SRA is more adaptive than ORA with respect to cognitive performance both in a student sample and a large sample of job applicants. The same applies to the related forms of perfectionism and achievement goals. Whereas self-oriented perfectionism has been shown to incorporate more adaptive features of perfectionism (e.g., self-efficacy, meta-cognitive and cognitive learning strategies, positive achievement strivings), socially prescribed perfectionism has been related to purely maladaptive outcomes (e.g., poorer performance, demand for approval of others, fear of negative evaluation, overgeneralization of failure, psychological maladjustment) (Bieling, Israeli, Smith, & Antony, 2003; Blatt, 1995; Flett,
Hewitt, Blankstein, & Mosher, 1991; Flett, Hewitt, Blankstein, & O’Brien, 1991; Hewitt & Flett, 1991b, Klibert, Langhinrichsen-Rohling, & Saito, 2005; Mills & Blankstein, 2000). Also mastery-avoidance goals present a combination of optimal and less optimal components, whereas the adaptation of performance-avoidance goals generally leads to purely negative outcomes (Elliot & McGregor, 2001). Thus, whereas the intrapersonal constructs under study can be considered more healthy and adaptive, the interpersonal constructs are generally unhealthy and maladaptive. From a theoretical point of view, an interesting path for future research is to clarify this adaptive versus maladaptive nature of the intrapersonal and interpersonal constructs of this study and the way this might offer an alternative explanation for their relatedness. From a practical point of view, the differential nomological network surrounding SRSA versus ORA might have important implications with respect to the treatment that is most accurate in reducing anxiety and learning people how to cope. If ORA can be proved to be more maladaptive with respect to a number of outcomes, and SRA is not, cognitive anxiety therapy might try to redirect people’s focus from the social environment to more internal feelings and standards instead of trying to reduce all types of worrisome thoughts.

In conclusion, this study supported the idea to consider the cognitive component of anxiety as two-dimensional with perfectionism as an interesting antecedent and avoidance goals as pertinent consequences.
3.7 References


Chapter 4

The Differential Effect of Applicants’ Self- versus Other-Referenced Anxiety on Test Performance.

This study investigated to what extent the cognitive worries of anxious persons impair test performance in both an educational and a personnel selection context. A differential relationship of SRA and ORA with test performance was suggested. In both studies \((n = 176\) undergraduates and \(n = 1459\) applicants), a negative relationship with test performance was found for ORA and no relationship was found for SRA. In an attempt to clarify these differential relations with test performance, the mediating effects of respectively identified and external behavioral regulation on the relationships between SRA and test performance and ORA and test performance were put forward but could not be confirmed. The scientific and practical relevance of these findings were discussed.
4.1 Introduction

Selection tests, even when psychometrically sound, cannot be considered neutral predictors of applicants’ suitability and subsequent job performance (Anderson, 2001). Applicants react in particular ways to different selection instruments and these reactions affect both proximal (e.g., actual test performance), intermediate (e.g., organizational attractiveness) and distal (e.g., job satisfaction) outcomes (Hausknecht, Day, & Thomas, 2004). Specifically, interviews and work samples are perceived more favorably than cognitive ability tests, followed by personality inventories, honesty tests, biodata and graphology (Hausknecht et al., 2004).

Despite the relative low preference of applicants for cognitive ability tests, they are a common and essential occurrence in personnel selection scenarios. However, Sarason, Sarason, and Pierce (1995) argue that poor performance on these tests does not necessarily mean poor intellectual potential. Test anxiety can lower cognitive ability scores (Arvey, Strickland, Drauden, & Martin, 1990; Dobson, 2000) and therefore can lead to scores that do not accurately reflect the applicants’ true cognitive ability (Dobson, 2000). Consequently, test anxiety can affect the reliability and validity of resulting personnel decisions (Arvey et al., 1990; Ryan & Ployhart, 2000).

In order to be able to address this problem, a clear insight into the underlying processes by which anxiety influences performance is needed. Many models have been shaped to explain this relationship (Zeidner, 1998) but no one model fully clarifies the way anxiety and performance are related to each other. One way to shed more light on this relationship is by further refining the test anxiety construct. The present study contributes to the current literature by elaborating on the cognitive component of anxiety, defined as failure outcome expectancies. We argue that anxiety research could benefit from framing the failure concerns of anxious individuals in a broader social evaluative context, where both oneself and significant others are held as evaluators of a possible failure outcome. Based on related research, we further argue that both types of failure outcome expectancies have a differential effect on test performance. To advance our knowledge on the anxiety-performance relationship, we also investigated a motivational mechanism to explore any differential relationships.
4.2 Self- versus Other-Referenced Anxiety

Since Liebert and Morris (1967), anxiety has been generally conceived of as two-dimensional, containing an emotionality and a worry component. In later studies on the influence of anxiety on performance, the cognitive component has received most of the attention. Sarason (1980) suggests that the tendency to become self-preoccupied and self-focused when confronted with the threat of evaluation is at the core of the anxiety experience. Wine (1980) makes this even more explicit by suggesting the term “evaluation anxiety” instead of test anxiety and Dweck and Wortman (1982) emphasize that cognitions about failure and not the failure experience itself accounts for performance decrement, making the worry component the central point of interest within research on the anxiety-performance relationship.

Liebert and Morris (1967) provide a very open definition of the worry construct to be any cognitive concern about performance or consequences of failing. However, they do not specify the nature of the concerns. Hagtvet, Man, and Sharma (2001) argue that worry or cognitive concerns about the consequences of failing (i.e., failure outcome expectancies) are represented by two facets (i.e., dimensions of observations), namely the “Concern Facet” and the “Referent Facet”. The Concern Facet refers to what issues the potential evaluator is perceived to be concerned about while the Referent Facet refers to who is perceived to be the potential evaluator of failure outcomes. In this study, we investigate this referent facet to a further extent.

Hagtvet et al. (2001) state that current theory and research mainly analyses failure outcome expectancies from an individualistic, self-referenced perspective and that anxiety research may explicitly take advantage of being implemented in a social evaluative context. Specifically, an anxious person can worry about the consequences of failing for oneself, referred to as Self-Referenced Failure Outcome Expectancies, or for significant others, referred to as Other-Referenced Failure Outcome Expectancies. Since failure outcome expectancies are the central components of the anxiety experience, we will further refer to these worries as Self-Referenced Anxiety (SRA) and Other-Referenced Anxiety (ORA).

Within a personnel selection context, this distinction between SRA and ORA seems particularly relevant. Specifically, during selection and assessment, not only the “self” is the critical evaluator of ones performance. Also a “significant other” can be held as critical
evaluator. The latter can be present in the selection context be it physically through the assessor or a panel of assessors (e.g., in an assessment center) or through the applicant’s imagination (Buss, 1980). For example, significant others such as applicants’ family and friends might be present through imagination since the selection outcome (i.e., passing or failing) is visible to others even outside the selection context. Therefore, the anxious applicant experiencing self-referenced concerns will worry about a low cognitive ability score because then (s)he can doubt his/her own ability for the job or because then (s)he can blame him/herself only. The anxious applicant experiencing other-referenced concerns will worry about a low cognitive ability score because then a significant other (e.g., assessor, friend, family) can doubt his/her ability for the job or can blame him/her for the low score.

### 4.3 Differential Relationship of SRA and ORA with Test Performance

Spielberger and Vagg (1987) state that it may make a difference whether blaming is to be expected from the “self” or from “significant others”. Also Hagtvet and Renmin (1996) suggest that not all self-preoccupations have the same interfering capacity or absorb the same amount of processing capacity during test performance. However, they do not define these more and less interfering cognitive concerns at a more detailed level. In this study, it is suggested that SRA is less detrimental to test performance than ORA. This proposition is derived from related psychological disciplines, making an analogous distinction between a more self-oriented construct and a more other-oriented construct.

For example, Kurosawa and Harackiewicz (1995) found that anxious individuals in a private self-awareness condition performed better on a series of word puzzles than anxious individuals in a public self-awareness condition, showing that private self-awareness is less detrimental to performance than public self-awareness.

Also research on perfectionism has shown the more adaptive nature of self-oriented perfectionism, an intrapersonal form of perfectionism, versus the more maladaptive nature of socially prescribed perfectionism, an interpersonal form of perfectionism, with respect to a number of different outcomes (e.g., Klibert, Langhinrichsen-Rohling, & Saito, 2005; Molnar, Reker, Culp, Sadava, & DeCourville, 2006).

In a similar vein, research on impression management distinguishes between self-focused tactics (i.e., the applicant maintains attention on own goals) and other-focused tactics (i.e., the
applicant focuses on the recruiter’s standards) and demonstrated a more positive effect of the

Research on the emotions guilt and shame also points in the same direction. Whereas guilt
(i.e., a tendency to accept own responsibility with a lower tendency toward interpersonal
anger and hostility) was related to positive long-term consequences, shame (i.e., a tendency to
project blame outward) was clearly related to negative long-term consequences (Tangney,

These studies show that overall, and more specifically with respect to (performance)
outcomes, one’s orientation on the self seems less detrimental and more adaptive than
orientations on the other.
On the basis of these findings, it was hypothesized that:

Hypothesis 1: SRA is less negatively related to test performance than ORA.

4.4 Self-Determination Theory as Explanatory Mechanism

Although there is a rather solid base in the literature to propose a less detrimental effect of
self-oriented expectancies versus other-oriented expectancies on test performance, the
literature remains rather vague with respect to explanatory mechanisms. However,
understanding underlying processes is important for designing any future interventions to
overcome potential detrimental effects of anxiety on test performance. Therefore, the second
goal of this paper was to look into Self-Determination Theory (SDT) to find a possible
explanation of the differential effect of SRA and ORA on test performance.

SDT is a broad-based theory of human motivation and maintains that people have the natural
inclination to engage in activities that are volitional or self-determined (Deci & Ryan, 1985;
Ryan & Deci, 2000). Self-determined behaviors are initiated and regulated through choice and
people engage in it for their own sake. Controlled behaviors, on the other hand, are regulated
by pressuring contingencies that are overtly external to the individual, such as the promise of
a reward or the threat of a punishment, and thus do not represent true choice. Although the
most self-determined behavior is “intrinsically motivated behavior”, it is not the only type of
self-determined behavior. Extrinsically motivated behaviors vary along a continuum in terms of the degree to which the motivations emanate from the self and thus are self-determined.

With respect to the selection context, participating in a selection test is not, strictly speaking, an act out of free choice and thus not intrinsically motivated. Applicants are “obliged” to participate in it if they do not want to lose their chance to get the job (Schuler, 1993). However, as above-mentioned, this extrinsic motivation to engage in the selection test can vary along a continuum of more or less self-determined, depending on the degree to which this behavior (i.e., participating in a selection test) has been internalized. The most controlled form of behavior is the externally regulated behavior, in which applicants participate in the selection context out of social pressure or to obtain an external reward or to avoid punishment. In the case of introjected motivation, the behavior is partially self-integrated. The behavior of the applicant is motivated by internal pressures such as feelings of shame, guilt and anxiety. A more fully integrated form of motivation is identified motivation. Although participating in the selection procedure remains non-enjoyable, the applicant feels no resistance to doing it. The applicant accepts the fact that he has to pass a selection test in order to be able to get the job and participates willingly (Ryan & Connell, 1989).

As it follows logically from the definition, especially introjected motivation has been related to anxiety. For example, Ryan and Connell (1989) found that introjection was positively correlated with anxiety in school and maladaptive coping with failures. However, by considering failure concerns of anxious applicants both at the individual and the social level, it is possible to investigate the relationship of anxiety with the quality of motivation at a more fine-grained level. Anxious applicants whose behaviors are externally motivated, and thus are pressured by others to participate, are probably more likely to experience ORA. On the other hand, anxious applicants who willingly participate in the selection procedure in order to guarantee their chances to get the job, are probably more likely to experience SRA. These relationships already have been supported in a previous study by Proost, Derous, Schreurs, Hagtvet, and De Witte (2008).

In this study, it is proposed that this differential underlying quality of motivation might be responsible for the differential relationships of SRA and ORA with test performance. According to SDT, the more the behavior is self-determined, the more positive outcomes can
be expected from it such as better conceptual learning (Grolnick & Ryan, 1987), higher academic performance (Lloyd & Barenblatt, 1984), and higher self-esteem (Deci, Schwartz, Sheinman, & Ryan, 1981).

Along these lines, we formulated the following hypotheses:

*Hypothesis 2a:* The relationship between SRA and test performance is mediated by identified behavioral regulation.

*Hypothesis 2b:* The relationship between ORA and test performance is mediated by external behavioral regulation.

In this paper, two studies are reported. Study 1 investigated the relationship between SRA and ORA and test performance in an educational context. Study 2 aimed to replicate Study 1 findings in a large sample of real applicants. It further extended Study 1 in that the proposed motivational mechanism was studied to explain anxiety-performance effects.

### 4.5 Study 1

Since the concepts of SRA and ORA were originally developed and tested in an educational context (Hagtvet, 1989), our first study was conducted within a student sample.

#### Method

**Participants and procedure**

Participants of the first study were 176 psychology students, who took part in this study within the framework of their final examination for the course Personnel Psychology. 69% of the respondents were women and their mean age was 22. Just before receiving their examination, the students were asked to fill in a measure on SRA and ORA.

**Measures**

*Self-Referenced Anxiety and Other-Referenced Anxiety.* The Self- versus Other-referenced Anxiety Questionnaire (SOAQ, see Proost et al., 2008) was used to measure both types of worrisome thoughts, but items were slightly reformulated to fit the educational context. This questionnaire has been shown to have good (internal and external) construct validity. Participants rated 24 reasons for being afraid of a low score on the examination they were going to take, on a Likert-type scale from 1 (*totally disagree*) to 4 (*totally agree*). The first 12 items were formulated in an individualistic sense, such as “I am afraid of a lower score on this examination because this is annoying to *ME*”, measuring SRA. The following 12 items were
formulated with reference to a significant other (i.e., parents, etc.). Items were framed as “I am afraid of a lower score on this examination because this is annoying to [SIGNIFICANT OTHER]”. Participants filled-in a particular referent person (e.g., father/mother, brother/sister, spouse), before filling out the ORA items. Both dimensions of the SOAQ showed high internal consistency ($\alpha = .79$ and $\alpha = .84$, respectively).

**Test Performance.** The examination consisted of a case study, scored by the tutor of the course on a scale from 1 to 20. The examination was assessed in the form of an open book examination. In the case study, an organizational process was described in which several HRM problems became manifest. The task for the students was to write down several solutions for the HRM problems in the concerned organization.

**Results**

Descriptive statistics and intercorrelations between the variables in this study are presented in Table 4-1. The correlation between SRA and test performance was insignificant whilst the correlation between ORA and test performance was significantly negative.

<table>
<thead>
<tr>
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<th>$M$</th>
<th>$SD$</th>
<th>2</th>
<th>3</th>
</tr>
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<tbody>
<tr>
<td>1. Self-Referenced Anxiety</td>
<td>2.64</td>
<td>.49</td>
<td>.37**</td>
<td>.10</td>
</tr>
<tr>
<td>2. Other-Referenced Anxiety</td>
<td>2.36</td>
<td>.56</td>
<td>-.23**</td>
<td></td>
</tr>
<tr>
<td>3. Test performance</td>
<td>13.91</td>
<td>1.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** $p < .001$  

Hypothesis 1 investigated whether ORA was more negatively related to test performance than SRA. A hierarchical regression analysis was conducted to determine the relative weights of SRA and ORA with respect to performance. Johnson (2000) stated that if predictor variables have a relevant, known ordering, the increase in $R^2$ as each variable is entered into the model is an appropriate indicator of relative weights of predictors. SRA was entered first since this was considered to reflect more closely the traditional measure of the cognitive component of anxiety. Adding ORA in the second step allowed seeing the increase in variance in the dependent variable, explained by this “new” worry construct.
The results (see Table 4-2) showed no significant relationship of SRA with performance (Step 1), and a significant negative relationship of ORA with performance (Step 2), confirming Hypothesis 1. SRA did hardly explain any variance in the dependent variable, $R^2_{\text{change}} = .01$, n.s., whereas ORA additionally explained 8% of the variance in the dependent variable. Thus, Hypothesis 1 was supported in this first sample.

Table 4-2. *Results of Hierarchical Regression Analysis (Study 1)*

<table>
<thead>
<tr>
<th></th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Referenced Anxiety</td>
<td>.10</td>
<td>.22**</td>
</tr>
<tr>
<td>Other-Referenced Anxiety</td>
<td></td>
<td>-.31***</td>
</tr>
<tr>
<td>$R^2$ cumulative</td>
<td>.01</td>
<td>.10</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.00</td>
<td>.08</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.01</td>
<td>.08</td>
</tr>
<tr>
<td>$F$ change</td>
<td>1.56</td>
<td>15.23***</td>
</tr>
<tr>
<td>Df1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Df2</td>
<td>165</td>
<td>164</td>
</tr>
</tbody>
</table>

** p < .01; *** p < .001

4.6 Study 2

Study 2 was conducted on a large applicant pool in a real personnel selection context to replicate and extend findings of Study 1.

Method

Participants and procedure

Participants were 1459 applicants, who took part in the first hurdle of a selection procedure of a large governmental organization. 55% of the respondents were women, their mean age was 28 and all candidates had a master degree. In the current selection procedure, candidates applied for an undefined number of vacancies in different departments of the organization. The purpose of the selection procedure was to create a list of valuable candidates that could be consulted by the different departments in case of an open vacancy up until two years later. Before actual assessment, consisting of one cognitive ability test, applicants completed the anxiety questionnaire and a measure of behavioral regulation styles.
Measures

Self-Referenced Anxiety and Other-Referenced Anxiety. The Self- versus Other-referenced Anxiety Questionnaire (SOAQ, see Proost et al., 2008) was used to measure both types of worrisome thoughts. Items were answered on a Likert-type scale from 1 (totally disagree) to 4 (totally agree). Both dimensions of the SOAQ showed high internal consistency ($\alpha = .86$ and $\alpha = .92$, respectively).

Self-regulation styles. Two types of self-regulation styles were measured, namely identified regulation (4 items) and external regulation (5 items). Items were taken from the Academic Self-Regulation Questionnaire (Ryan & Connell, 1989) and reformulated to fit the selection context. A sample item of identified regulation is “I participate in this selection test because it is important to me.” A sample item of external regulation is “I participate in this selection test because I will get in trouble if I don’t.” Items were rated on a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). Reliability estimates were .84 for both scales.

Test performance. Test performance was measured by means of the number of items answered correctly on a reading comprehension test. The test consisted of several text fragments applicants had to read carefully in order to answer a list of 50 questions concerning these fragments. The applicants were allowed to keep the texts during the testing and could re-consult as often as wished for. The total time provided to complete the test was four hours. A multiple-choice format with one correct answer and three distracters was used. A one-sample Kolmogorov-Smirnov test showed that the test score was normally distributed ($Z = .95$, $p = .33$) with a mean of 30.26 and a standard deviation of 5.90. The average level of difficulty of the items was .62 and the average discrimination index was .29, which are values within acceptable ranges (Davis, 1965). Cronbach’s alpha for the test was .73.

Results

Descriptives and intercorrelations between the variables in this study can be found in Table 4-3. SRA and ORA were both unrelated to test performance when looking at the zero order correlations.
Table 4-3. Descriptives and intercorrelations between the variables in Study 2

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Referenced Anxiety</td>
<td>2.28</td>
<td>.56</td>
<td>.58**</td>
<td>.24**</td>
<td>.26**</td>
<td>.03</td>
</tr>
<tr>
<td>2. Other-Referenced Anxiety</td>
<td>1.85</td>
<td>.61</td>
<td>.10**</td>
<td>.38**</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>3. Identified regulation</td>
<td>5.19</td>
<td>1.23</td>
<td>-.09**</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. External regulation</td>
<td>2.42</td>
<td>1.21</td>
<td>-.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Test performance</td>
<td>30.26</td>
<td>5.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** p < .001

Hypotheses 1 investigated the differential relationship of SRA and ORA with test performance using Structural Equation Modeling in Lisrel 8.50. Following Chan, Schmitt, Sacco, and DeShon (1998) and in order to limit the number of indicators for test performance, five testlets, consisting of 10 items each with opposite item difficulties (see Holt, 2004), were constructed. The structural model was tested using Weighted Least Squares estimation based on the polychoric correlation matrix and the asymptotic covariance matrix. Due to the high bivariate correlation between SRA and ORA in this second study, \( r = .58, p < .001 \), the relative importance of SRA and ORA with respect to test performance was estimated by using a Cholesky decomposition of the intercorrelations among the latent predictors (Bentler & Satorra, 2000). A Cholesky decomposition can be considered a method for computing hierarchical or fixed-order regressions in the context of latent variables. This approach essentially decomposes the predictor variables into orthogonal components and consequently regresses the dependent variable on these orthogonal components, thereby ruling out the problem of multicollinearity. In this study, we first calculated the relationship between SRA and test performance and consequently calculated the relationship between the unique or residual variance in ORA after controlling for SRA, labeled KSI, and test performance.

The structural equation model, testing the differential influence of SRA and ORA on test performance (see Figure 4-1) showed a good fit to the data, RMSEA = .054; GFI = .97; CFI = .95; NNFI = .94. No relationship was found between SRA and test performance whereas a significant negative relationship was found between the residual of ORA and test performance, indicating that ORA has some unique features that relate differently to test performance than SRA. Thus, Hypothesis 1 was supported although the amount of variance explained in the dependent variable was small, \( R^2 = .03 \). Since the zero-order correlation
between ORA and test performance was not significant, these results also suggest a suppressor effect of SRA on the relationship of ORA with test performance.

Hypotheses 2a/b investigated whether behavioral regulation mediated the effects of SRA and ORA on test performance. In order to test this motivational mechanism, the steps proposed by Baron and Kenny (1986) were followed, using structural equation modeling. Since no relationship was found between SRA and test performance, no further mediational analyses were executed for SRA and Hypothesis 2a was not confirmed. To test Hypothesis 2b, a first model was tested with a path drawn from ORA to external behavioral regulation. This model showed a good fit to the data, RMSEA = .06; GFI = .98; CFI = .96; NNFI = .96 and a significant path was found from ORA to external behavioral regulation, $\beta = .50$, $p < .01$. In the next step, the relationship between external behavioral regulation and test performance was modeled but was found to be insignificant, thereby ending the mediational analyses. So, also Hypothesis 2b was not confirmed.
Figure 4-1. *Structural equation model, testing the differential effect of SRA and ORA on test performance with Cholesky decomposition (Study 2).*

****: p < 0.1

<table>
<thead>
<tr>
<th>Self1</th>
<th>Self9</th>
<th>Self10</th>
<th>Self11</th>
<th>Self12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self2</td>
<td>0.90</td>
<td>0.64</td>
<td>-</td>
<td>0.73</td>
</tr>
<tr>
<td>Self3</td>
<td>0.61</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self4</td>
<td>0.89</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self5</td>
<td>0.78</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self6</td>
<td>-</td>
<td>0.94</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Self8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

| Other1 | 0.93  | -      | -      | -      | -      | -      | -      |
| Other2 | 0.94  | -      | -      | -      | -      | -      | -      |
| Other3 | 0.93  | 0.84   | -      | -      | -      | -      | -      |
| Other4 | 0.97  | -      | -      | -      | -      | -      | -      |
| Other5 | 0.90  | 0.96   | 0.93   | -      | -      | -      | -      |
| Other6 | 0.98  | 0.93   | 0.97   | -      | -      | -      | -      |
| Other7 | 0.94  | -      | 0.97   | 0.95   | -      | -      | -      |
| Other8 | -     | -      | -      | -      | -      | -      | -      |

**SRA**

**Testlet1**

**Testlet2**

**Testlet3**

**Testlet4**

**Testlet5**

**Test Performance**

**KSI**

**ORA**

****: p < 0.1
4.7 Discussion

Main Findings

This paper investigated whether different types of failure outcome expectancies had different relationships with test performance (i.e., on a university exam and on a personnel selection test, respectively). The results of both studies showed that SRA was unrelated to test performance whereas ORA was related negatively to test performance. In an attempt to clarify these differential relations with test performance, the mediating effect of external behavioral regulation on the relationships between ORA and test performance was tested but not confirmed.

Theoretical and Practical Implications

The distinction between two types of worrisome thoughts of test anxious applicants has important implications for future research on applicants’ anxiety and on personnel selection practices. As the results of the studies showed, both types of cognitions have different relationships with applicants’ performance on two different tests. Whereas ORA showed a significant negative relationship with test performance, SRA showed no relationship with test performance. The latter is particularly noteworthy since in previous research (e.g., McCarthy & Goffin, 2005; Seipp, 1991), the worry component of anxiety is consistently negatively related to test performance. Further research should be done in order to investigate these differential relationships more in depth. As mentioned in the literature review, other theories besides Self-Determination Theory make an analogous distinction between self-oriented constructs and other-oriented constructs, from which other interesting mediators can be derived (e.g., perfectionism, impression management tactics, emotions).

When looking at the results on a more practical level, the most important question to ask is “Does anxiety matter at all”? Looking at the relative small proportions of variance explained in the dependent variable, anxiety seems to have a relative small influence, especially within the context of personnel selection. However these low values are not exceptional. Morris, Davis, and Hutchings (1981), based on a review of the educational literature, found that anxiety typically accounts for about 10% of the variance in observed scores. This value corresponds with the amount of variance explained in the educational context. Though, in this personnel selection context anxiety seemed to play an even smaller role. Different
explanations can be provided for this. For example, Zeidner (1998) reported correlations of -.45 between test anxiety and performance for tests perceived to be difficult and only a trivial correlation of -.07 for tests viewed as being relatively easy. It might be that applicants in Study 2 perceived the test as relatively easy, contrary to the students who were going to pass an examination in Study 1. This might be explained by the fact that the test was passed in the first hurdle of the selection procedure, contrary to a final phase where ones knowledge and personality is elaborated more in depth. Hill and Eaton (1977) also found that time limits play an important role in the anxiety-performance relationship in the sense that, with time limits removed, high anxious persons did nearly as well as low to moderate test-anxious persons. The time constraints experienced in Study 2 were probably less stringent than in Study 1. And finally, also the type of test that was taken in the two studies might have influenced the results. Benjamin, McKeachie, Lin, and Holinger (1981) showed that high anxious students do poorly on essays and short-answer questions but do well on multiple choice questions that involve less active retrieval. This might explain why such a small proportion of variance was explained in the second study, using a multiple-choice test.

With respect to the distinction between SRA and ORA and their differential relationship with test performance, practical guidelines can be formulated for personnel selection practitioners in order to stimulate anxious applicants to focus more on self-determined norms instead of other-determined norms. This could possibly be done by stressing the importance of their performance on the cognitive test for themselves and by linking it to future success for themselves. For example, Simons, Dewitte, and Lens (2003) found that instructions emphasizing the personal and future relevance of the task at hand enhanced task orientation, motivated behavior, and finally performance. Also practices that affect the visibility of one’s outcomes to others (e.g., public posting of civil service exam scores, listing of names for interview callbacks) may induce ORA, and therefore negatively affect performance in a personnel selection context.

**Study Limitations and Suggestions for Future Research**

The focus of this study was on the cognitive component of anxiety. Further research should also consider the affective aspects of anxiety, grasping the whole complexity of the anxiety construct.
In this paper, we only considered anxiety with respect to a cognitive ability test. Since these tests are considered to be the single best predictors of future job performance (Bertua, Anderson, & Salgado, 2005; Ree, Earles, & Teachout, 1994), it might be that they are less sensitive to the influence of unwanted error variance. However, more research is necessary in order to investigate the effect of anxiety with respect to other selection devices. Fletcher, Lovatt, and Baldry (1997) found in their study that state anxiety is most likely to impact on interpersonal aspects of Assessment Center performance. Therefore, future research could consider the influence of anxiety on group exercises, selection interviews and presentation exercises. For example, McCarthy and Goffin (2004) investigated Job Interview Anxiety and found negative relationships with interview performance.

In the present study, antecedents of anxiety within the context of personnel selection are not considered. An interesting research question, as suggested by Bell, Wiechmann, and Ryan (2006) is to investigate to what extent expectations that applicants hold with respect to the selection procedure and more specifically the confirmation of these expectations influences their level of anxiety.

Also, further research is warranted in order to investigate to what extent anxiety influences the construct validity and predictive validity of personnel selection decisions. Schmit and Ryan (1992) were one of the first authors who directly investigated the moderating effect of test-taking dispositions on criterion-related validity for both an ability and a personality test. They found that the criterion-related validity of the personality test was higher for test-takers with less positive test-taking motivation than for test-takers with higher test-taking motivation. The opposite was true for the ability test.

In sum, the results of the current study clearly supported the two-dimensional conceptualization of cognitive anxiety and showed different effects of both types of worries on test performance in two different studies. Whereas SRA seemed to allow students and applicants to perform to their fullest potential, providing a more accurate reflection of a person’s true cognitive ability, ORA seemed to prevent students and applicants from performing to their fullest potential, leading possibly to a mistaken impression of poor intellectual potential. Whether both types of cognitions really influenced the criterion-related validity of the personnel selection test, would be a promising avenue for further research.
4.8 References


Chapter 5

Justice Perceptions in a Personnel Selection Context: The Influence of Cognitive Anxiety and Negative Affect.

This study relates both types of anxiety to perceptions of distributive, procedural, interpersonal and informational justice. A more negative relationship with justice perceptions was expected for ORA than for SRA, explained by a stronger induced negative affect. The results confirmed our hypotheses in the sense that no relationship was found between SRA and perceptions of justice and a significant negative relationship was found between ORA and perceptions of interpersonal justice, mediated by negative affect.


5.1 Introduction

Initial research on reactions to selection procedures was conducted rather atheoretical and focused on applicants’ perceptions of specific selection techniques. However, in 1993, Gilliland developed a model of applicant reactions based on organizational justice theory, which since then became the dominant framework in the applicant reactions literature. Accordingly, several scholars applied social justice theory to the study of applicants’ perceptions of selection methods (e.g., Bell, Wiechmann, & Ryan, 2006; Gilliland & Hale, 2005; Truxillo, Steiner, & Gilliland, 2004).

Current research on justice perceptions has mainly focused on outcomes associated with perceptions of injustice (Bauer et al., 2001; Feinberg, Meoli-Stanton, & Gable, 1996; Hopkins & Weathington, 2006; Robertson, Iles, Gratton, & Sharpley, 1991; Waung & Brice, 2000) and to a more limited extent on antecedents (see Ryan & Ployhart, 2000).

The current study aims to gain more insight in the formation of fairness judgments in a personnel selection context by considering the influence of two antecedents, namely applicants’ cognitive anxiety and negative affect. According to Barsky and Kaplan (2007), justice perceptions are formed on the basis of both cognitive processes and emotions. Yet, existing personnel selection research on antecedents of justice perceptions mainly considered the influence of cognitions (e.g., justice expectations, Bell, Ryan, & Wiechmann, 2004; perceived procedure characteristics, Bauer, Maertz, Dolen, & Campion, 1998; Ryan & Chan, 1999; Truxillo, Bauer, Campion, & Paronto, 2002) and largely neglected the influence of emotions. However, be it in an organizational setting, the meta-analytic study of Barsky and Kaplan (2007) convincingly showed a significant relationship between negative affect and justice perceptions.

The present study is the first to consider the influence of negative affect on justice perceptions in a personnel selection context. Further, not only a direct effect of negative affect but also a potential mediating effect in the relationship between cognitive anxiety and justice perceptions is considered. The reason for studying cognitive anxiety together with negative affect is based on the idea that cognitive anxiety can be considered the most proximal cognitive determinant of negative affect.
5.2 Justice Perceptions

Initially, researchers focused mainly on the fairness of the outcomes that are distributed in a given situation (Adams, 1965), labeled distributive justice. Perceptions of distributive justice result when outcomes are allocated on the basis of well-defined rules such as equity, equality and needs (Colquitt, 2001; Cropanzano & Greenberg, 1997; Deutsch, 1975). Later, also procedural justice, or judgments about the way the allocation decision was made, received a lot of attention (Greenberg, 1990; Tyler & Bees, 1990). Today, justice perceptions are best conceptualized along four dimensions, including also interpersonal justice, capturing the quality of interpersonal treatment received, and informational justice, capturing the adequacy of information conveyed about the procedures that were used and the decisions that led to the outcome (Colquitt, 2001). Originally, the two latter concepts were combined into one “interactional justice” component, but were later distinguished into two separate forms of justice. In this study, the influence of cognitive anxiety and negative affect will be studied with respect to the four different forms of justice.

5.3 Cognitive Anxiety and Justice Perceptions

Ryan and Ployhart (2000) proposed to examine whether people who are more anxious, view selection procedures as more unfair. However, research investigating this relationship has revealed mixed results. For example, Lievens, De Corte, and Brysse (2003) found no significant relationship between test anxiety and fairness perceptions of eight different selection procedures. However, applicants in this study merely made their judgment on the basis of a description of the selection procedures under study without really experiencing these procedures and the accompanied levels of anxiety, which may explain some of their null findings.

Ryan and Chan (1999) tested this relationship in a real field setting and found a significant correlation between both test anxiety and cognitive interference and post-feedback fairness perceptions, be it only when this relationship was uncontrolled for pre-feedback fairness perceptions. However, in their study all measures were taken post-test while Ryan and Ployhart (2000) urged to move away from post-test designs to include pre-test measures as well. Therefore, the current study will measure anxiety prior to test-taking as an applicant’s expectation about one’s upcoming performance in the personnel selection setting. So, contrary to expectations about selection procedures (i.e., justice expectations), which have been shown to be determinants of justice perceptions (Bell et al., 2006), anxiety is defined as an expectation about oneself in the selection context, which is equally assumed to influence
justice perceptions. This assumption is derived from Ryan and Ployhart (2000) who stressed the importance of investigating the role of self-perceptions as an antecedent of applicant perceptions of procedures and who suggested relationships between perceptions of oneself in the selection situation and perceptions about the procedure or process. However, the current study does not focus on perceptions of oneself but rather on expectations of oneself, which is in line with current research, moving away from post-test perceptions to pretest expectations (Bell et al., 2004, 2006; Derous, Born, & De Witte; 2004; Schreurs, 2007).

Recently, this cognitive component of anxiety as an expectation about one’s performance on the selection test, received more attention. For example, Hagtvet, Man, and Sharma (2001) criticize the fact that cognitions of anxious persons and more specifically failure outcome expectancies have been mainly analyzed from an individualistic point of view, neglecting the social-evaluative context of “significant others”. This allies with the idea that achievement behavior and consequently expectations of failure do not take place in a vacuum but rather occur within a social setting, where not only the achiever him/herself but also external observers react to others’ performance. Applicants in a selection context can be concerned about the possibility of harming the self-image that one holds or the image of oneself that is held by other people around one (Carver & Scheier, 1986). And these different concerns are captured by different types of cognitions of anxious persons. This idea was first tested in an educational context by Hagtvet (1989) and later translated to the personnel selection setting by Proost, Derous, Schreurs, Hagtvet, and De Witte (2008). The latter authors developed a cognitive anxiety measure, the Self-versus Other-referenced Anxiety Questionnaire (SOAQ), tailored to the personnel selection context. This questionnaire specifically taps the cognitive component of the anxiety experience and makes a distinction between SRA, defined as any concern about the evaluative judgment of oneself in an achievement situation, and ORA, defined as any concern about the evaluative judgment of a significant other in an achievement situation.

In the remainder of this paper, we argue that the different focus of these two types of cognitions might result in different fairness perceptions. Further, we argue that this differential effect might be explained by the level of negative affect that is differentially aroused by both types of anxious cognitions. So, in the following we first provide a rationale for a possible differential influence of SRA and ORA on justice perceptions and consequently consider a possible mediating influence of negative affect by discussing the relationship
between negative affect and justice perceptions and between cognitive anxiety and negative affect.

5.4 Self- versus Other-Referenced Anxiety and Justice Perceptions

A rationale for a differential effect of SRA versus ORA on justice perceptions is based on the literature on anxiety and interpretation bias. Considerable research documents that anxiety influences the interpretation of ambiguous situations (Amir, Beard, & Bower, 2005; Beck & Clark, 1988) in the sense that highly anxious individuals tend to make more threatening interpretations of ambiguous information than non-anxious individuals. This tendency is referred to in the literature as an interpretation bias.

In this paper, we argue that since the selection context can be considered an ambiguous situation, justice perceptions in a personnel selection context will be influenced by an interpretation bias as well. The idea that the selection context is an ambiguous context, open to more than one interpretation, is derived from previous research on justice in a personnel selection context, showing that although applicants pass through the same procedure, there exists substantial variance in fairness perceptions (e.g., Truxillo, Bauer, Campion, & Paronto, 2006).

However, this interpretation bias does not occur with respect to all aspects of the situation but is mainly limited to those aspects of the situation where the anxious person is focusing on. For example, people with social anxiety tend to give more threatening interpretations of ambiguous social events but not of ambiguous non-social events (Amir, Foa, & Coles, 1998) and tend to do this more strongly than non-anxious controls and generally anxious individuals (Amir et al., 2005). Translated to the personnel selection context, this means that socially anxious applicants more than other applicants (e.g., generally anxious, non-anxious) tend to give more negative or less positive interpretations of social aspects of the personnel selection context. And since justice perceptions can be considered social judgments (Barsky & Kaplan, 2007), they will be influenced by an interpretation bias that is associated with social anxiety.

In this study, not the influence of social anxiety is considered but the influence of a closely related construct, namely ORA. For example, a central aspect of social anxiety is a fear of being judged and evaluated negatively by other people and associated beliefs that one will be rejected (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). This definition of social
anxiety links it conceptually very closely to the concept of ORA and less closely to SRA, which refers to a fear of being judged negatively by oneself.

So, on the basis of the above arguments, the first hypothesis is formulated:

**Hypothesis 1**: ORA is more strongly and negatively related to perceptions of distributive (H1a), procedural (H1b), interpersonal (H1c), and informational justice (H1d) in a personnel selection context than SRA.

### 5.5 Negative Affect and Justice Perceptions

Besides anxiety, also moods (Davy, Bickerstaffe, & MacDonald, 2006) and more specifically negative affect (Huppert, Foa, Furr, Filip, & Mathews, 2003) have been shown to lead to more negative or less positive interpretations of ambiguous information. Further, Barsky and Kaplan (2007) evidenced significant relationships between negative affect and all four types of justice perceptions, be it in a work situation and not in a personnel selection context. Bell et al. (2006) investigated this relationship in a personnel context and found that perceptions of distributive and interpersonal justice, but not procedural and informational justice, were significantly related to applicants’ negative affect. However, in their study both justice perceptions and negative affect were measured post-test which might have confounded their results. As such, the current study considers the influence of negative affect, measured pre-test, on justice perceptions, measured post-test. In line with the meta-analysis of Barsky and Kaplan (2007), we propose the following hypothesis:

**Hypothesis 2**: Negative affect is negatively related to perceptions of distributive (H2a), procedural (H2b), interpersonal (H2c), and informational justice (H2d) in a personnel selection context.

### 5.6 The Mediating Role of Negative Affect

In this study, we provide a possible explanation for the more negative relationship of ORA (versus SRA) with justice perceptions, through its relationship with negative affect. According to Baron and Kenny (1986), in order to speak of mediation, four conditions have to be fulfilled. First, a significant relationship has to exist between the independent variable (i.e., cognitive anxiety) and the dependent variable (i.e., justice perceptions) and second, between the mediator (i.e., negative affect) and the dependent variable. For both conditions, a rationale is built in the previous paragraphs. Third, a significant relationship has to be demonstrated between the independent variable (i.e., cognitive anxiety) and the mediator (i.e., negative affect). And finally, an empirical test has to be conducted to verify whether the relationship
between the independent and the dependent variable renders insignificant after controlling for the mediator.

In general, social cognitive theory (Bandura, 1986) argues that individual outcome expectations (e.g., failure outcome expectancies) are primary determinants of affective outcomes, suggesting a significant relationship between anxious cognitions and negative affect. This relationship also received empirical support in a study of Beck et al., (2001). Further, motivational research has suggested a relationship between an avoidance orientation, which is a central feature of anxiety (Dickson & MacLeod, 2004), and negative affect (Karoly & Newton, 2006). And finally, also Ryan (2001) suggested a linear effect of anxiety on debilitating emotions in a personnel selection context.

Building further on these findings, in this study, it is theorized that especially ORA will be related to negative affect in a personnel selection context since applicants high on ORA experience a stronger threat of rejection by significant others in the case of failure than applicants high on SRA. This argument is derived from previous research (Blackhart, 2007; Nelsdale & Lambert, 2007) showing that the experience of social rejection leads to more negative and less positive affect. ORA measures the expectation of social rejection or a fear of negative evaluation by others, which has also been significantly related to negative affect in previous research by Christopher and Schlenker (2004) and Cowden (2005). In the study of Christopher and Schlenker, also social identity, defined as “one’s public image as presented through social roles and relationships” (Cheek, Tropp, Chen, & Underwood, 1994, p.3) was related to more negative affect whereas personal identity, defined as “one’s private conception of self and subjective feelings of continuity and uniqueness” (Cheek et al., p.3) was not. Similarly, Costarelli (2005) showed that self-directed negative affect results from deviations from the norms of a reference group, but only when these norms are situationally salient and the reference group is relevant to one’s own identity. Since applicants high on ORA are afraid to deviate from the expectations and norms of significant others, who can be considered an identity-relevant reference group and since the norms of this group with respect to their performance in the selection context are salient in the selection context, we formulated the following hypothesis:

*Hypothesis 3*: ORA is more strongly related to feelings of negative affect than SRA.

And finally, the rationales with respect to Hypotheses 1 to 3 form the basis on which we proposed the fourth hypothesis:
**Hypothesis 4**: The relationship between ORA and distributive (H4a), procedural (H4b), informational (H4c), and interpersonal justice perceptions (H4d) is mediated by negative affect.

### 5.7 This Study

#### Method

**Participants and procedure**

Participants were applicants for the job of prison guards for the federal government. This selection procedure entails a very large-scale procedure where thousands of applicants apply every year. The first hurdle of the selection procedure consists of a written examination, for which applicants are all gathered together in a large room and receive 4 hours to complete it. On the basis of their score on this examination, a ranking is made and the first 1200 applicants are invited for an interview. All other applicants receive a rejection letter within three weeks after the first hurdle. The second hurdle, namely the interviews, is spread in time over 6 months. This means that time-delay between the first hurdle and a final decision is very large. However, applicants are well informed of this procedure by the selection office itself (i.e., through written examination regulations) and by federal union operations (e.g., information sessions, practicing sessions, etc.).

For this study, data collection occurred at two points in time, before test-taking (Time 1) and one month after test-taking (Time 2). At Time 1, in order not to disturb the regular selection procedure, questionnaires were placed on all desks when applicants randomly entered the examination room. On the top of the questionnaire, a clear request was made to start answering the questionnaire immediately, together with a clear explanation of the purpose of the survey. As soon as all applicants were seated, all surveys were recollected and the examination started. This implies that, although a lot of applicants were still willing to answer the questionnaire, time limitations made this impossible and the questionnaires were returned uncompleted or even blank. In total, we collected 1073 completed questionnaires at Time 1. Data collection at Time 2 occurred through an electronic survey and after participants received their test score. Applicants were contacted through the email address that they had provided us during data collection at Time 1. However, about 30% of email addresses were incorrect. After sending a reminder, we ended up with 170 completed questionnaires at Time 2.
2. Since it is difficult to provide any data on the response rate in this study, we compared this final sample with our sample at Time 1 in order to detect any response distortions. Respondents at Time 2 did not differ from the sample at Time 1 with respect to gender, \( t(1071) = 1.60, n.s. \), age, \( t(1071) = .60, n.s. \), being currently employed with the government or not, \( t(1071) = .15, n.s. \), employment status, \( t(1071) = -1.56, n.s. \), and with respect to the independent variables in this study (i.e., SRA, \( t(1071) = .31, n.s. \); ORA, \( t(1071) = -.35, n.s. \); negative affect, \( t(1071) = .51, n.s. \). However, since we did not have the test score of the total sample of applicants at Time 1 (score was asked in the second questionnaire) we could not statistically compare both samples with respect to test score.

With respect to demographic variables, 55% of the participants were men and the average age in the sample was 35. All applicants had maximum a lower secondary educational level. On average, participants had already 14 years of work experience and 14% of them already worked for the federal government of which 39% already worked as prison gardener on a temporal base. Passing the selection procedure offered these temporal workers the opportunity to get employed on a permanent base. Only 8% of the sample was unemployed at the time that the selection procedure took place. Although this number is rather atypical for a general applicant population, this figure corresponds to the employment rate in the general Flemish population which was 8.8 for citizens with a lower educational level in 2006 (Federale Overheidsdienst Werkgelegenheid, Arbeid en Sociaal Overleg).

**Measures**

*Self-Referenced Anxiety and Other-Referenced Anxiety (Time 1).* The Self- versus Other-referenced Anxiety Questionnaire (SOAQ, see Proost et al., 2008) was used to measure test anxiety. Participants rated 24 reasons for being afraid of a low score on the examination they were going to take on a Likert-type scale from 1 (*totally disagree*) to 4 (*totally agree*). The first 12 items were formulated in an individualistic sense, such as “I am afraid of a lower score on this examination because this is annoying to ME”, measuring SRA. The following 12 items were formulated with reference to a significant other. Items were framed as “I am afraid of a lower score on this examination because this is annoying to [SIGNIFICANT OTHER]”. Participants filled-in a particular referent person (e.g., father/mother, brother/sister, spouse), before filling out the ORA items. Both dimensions of the SOAQ showed high internal consistency (\( \alpha = .88 \) and \( \alpha = .93 \), respectively).
Negative Affect (Time 1). Negative affect was measured with 10 items of the PANAS (Watson, Clark, & Tellegen, 1988). All items were answered on Likert-type scales, ranging from 1 (very slightly or not at all) to 5 (extremely). Cronbach’s alpha showed good reliability ($\alpha = .85$).

Justice Perceptions (Time 2). Applicants’ justice perceptions were assessed with the scales developed by Colquitt (2001), adapted to the selection context by Bell et al. (2006). We measured the four dimensions, namely procedural justice (7 items, $\alpha = .73$), distributive justice (4 items, $\alpha = .83$), interpersonal justice (4 items, $\alpha = .92$) and informational justice (5 items, $\alpha = .93$) on a Likert-type scale from 1 (totally disagree) to 5 (totally agree).

Control variables. Applicants were asked to fill out their gender (0 = male; 1 = female), currently employed for the government or not (0 = no; 1 = yes) at Time 1 and the test score, which was provided by the selection office on a scale from 1 to 20, at Time 2.

Results

Means, standard deviations, and correlations of this study’s variables are presented in Table 5-1. Although SRA and ORA were highly correlated, $r = .69$, we treated them as two separate anxiety constructs, since previous research showed a better fit of a two-factor model versus a one-factor model and showed differential relationships of these anxiety measures with external constructs (Proost et al., 2008). Also procedural justice and distributive justice were highly correlated, $r = .61$, as well as interpersonal and informational justice, $r = .63$. Again, despite the high correlations, we treated them as separate constructs, in line with previous research (Bernerth, Feild, Giles, & Cole, 2006). Also empirical evidence for the construct validity of these measures was obtained through confirmatory factor analyses in Lisrel 8.50.

For the anxiety measure, acceptable to good fit indices were obtained for the hypothesized two-factor model, RMSEA = .082 [0.073-.092]; SRMR = .07; CFI = .96. With respect to justice perceptions, the proposed four-factor model showed acceptable to good fit, RMSEA = .075 [0.063-.088]; SRMR = .08; CFI = .96.

Further, since prior research suggests the influence of test score (Ryan & Ployhart, 2000) and other background variables on justice perceptions, we first tested the influence of these variables on our dependent variables. Specifically, the meta-analysis of Ryan and Ployhart (2000) showed support for an effect of gender on justice perceptions. We also included
“working for the government” as a control variable since incumbents are likely to be more familiar with the human resource policy of the government, which also might affect their perceptions of this particular selection procedure. Results of a General Linear Model procedure (SPSS 15.0) with the four justice components entered as dependent variables, gender and working for the government entered as fixed factors and score entered as covariate, showed only a significant multivariate effect of score, $F(4,163) = 19.46, p < .001,$ and not of gender, $F(4,163) = 0.27, n.s.,$ nor of working for the government, $F(4,163) = .70, n.s.$ In light of these findings, we only controlled for test score in all further analyses.

Our first hypothesis stated that ORA is more strongly and negatively related to perceptions of distributive (H1a), procedural (H1b), interpersonal (H1c), and informational justice (H1d) in a personnel selection context than SRA. In line with Lievens et al. (2003), this hypothesis was tested by means of the General Linear Model procedure with score, SRA and ORA entered as covariates. The four justice perceptions were entered as dependent variables. The results (see Table 5-2) showed no significant multivariate effect of SRA and ORA on any of the four justice perceptions. However, univariate analyses showed a significant main effect of ORA on interpersonal justice perceptions, $F(1, 166) = 3.91, p < .05, \text{partial } \eta^2 = .02,$ confirming only H1c.

Our second hypothesis stated that negative affect is significantly and negatively related to perceptions of distributive (H2a), procedural (H2b), interpersonal (H2c), and informational justice (H2d) in a personnel selection context. Again, a General Linear Model procedure was executed with the four justice perceptions as dependent variables and score and negative affect as covariates. The results (see Table 5-3) confirmed this hypothesis with respect to three of the four dependent variables. So, negative affect was negatively related to perceptions of distributive justice, $F(1, 167) = 8.83, p < .01, \text{partial } \eta^2 = .05,$ interpersonal justice, $F(1, 167) = 11.42, p < .001, \text{partial } \eta^2 = .06,$ and informational justice, $F(1, 167) = 13.75, p < .001, \text{partial } \eta^2 = .08,$ but not to perceptions of procedural justice.
Table 5-1:  
*Means, standard deviations, and intercorrelations*

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender (1)</td>
<td>1.45</td>
<td>.50</td>
<td>.11</td>
<td>.01</td>
<td>-.06</td>
<td>-.15*</td>
<td>-.03</td>
<td>.03</td>
<td>.03</td>
<td>.05</td>
<td>.07</td>
</tr>
<tr>
<td>2. Government (1)</td>
<td>.14</td>
<td>.35</td>
<td>.00</td>
<td>-.17*</td>
<td>-.19*</td>
<td>-.07</td>
<td>-.08</td>
<td>-.08</td>
<td>-.08</td>
<td>-.07</td>
<td></td>
</tr>
<tr>
<td>3. Test score (2)</td>
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<td>3.55</td>
<td></td>
<td>.05</td>
<td>-.08</td>
<td>-.24**</td>
<td>.40***</td>
<td>.56***</td>
<td>.13</td>
<td>.16*</td>
<td></td>
</tr>
<tr>
<td>4. SRA (1)</td>
<td>2.36</td>
<td>.58</td>
<td></td>
<td>.69***</td>
<td>.27***</td>
<td>-.04</td>
<td>-.02</td>
<td>-.09</td>
<td>-.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ORA (1)</td>
<td>1.97</td>
<td>.61</td>
<td></td>
<td>.33***</td>
<td>.11</td>
<td>-.05</td>
<td>-.18*</td>
<td>-.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Negative Affect (1)</td>
<td>1.26</td>
<td>.35</td>
<td></td>
<td>-.18*</td>
<td>-.31***</td>
<td>-.27***</td>
<td>-.30***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Procedural justice (2)</td>
<td>3.69</td>
<td>.62</td>
<td></td>
<td></td>
<td>.61***</td>
<td>.38***</td>
<td>.37***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Distributive justice (2)</td>
<td>3.36</td>
<td>1.04</td>
<td></td>
<td></td>
<td></td>
<td>.20**</td>
<td>.25**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Interpersonal justice (2)</td>
<td>4.27</td>
<td>.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.63***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Informational justice (2)</td>
<td>4.02</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note.*  (1) denotes that the variable was measured pretest; (2) denotes that the variable was measured posttest.

\* p < .05; \** p < .01; \*** p < .001.
The third hypothesis, suggesting that ORA is more strongly related to feelings of negative affect than SRA, was tested by means of a regression analysis, with negative affect as the dependent variable and both types of anxious cognitions as independent variables. The results confirmed hypothesis 3 in the sense that a significant relationship was found for ORA, $\beta = .26, p < .01$, and not for SRA, $\beta = .09, n.s.$

The fourth hypothesis suggested a mediating influence of negative affect on applicants’ perceptions of distributive (H4a), procedural (H4b), interpersonal (H4c), and informational justice (H4d). As stated before, according to Baron and Kenny (1986), testing a mediating effect requires four steps. First, a significant relationship needs to be demonstrated between the independent variable and the dependent variable. The results with respect to H1 however only showed a significant relationship between ORA and interpersonal justice. Therefore, a mediating effect could only be tested with respect to this dependent variable. The second and third condition, respectively a significant relationship between negative affect and interpersonal justice and between ORA and negative affect have been demonstrated in Tables 5-2 and 5-3.

Finally, in order to speak of mediation, the relationship between ORA and the interpersonal justice perceptions should disappear after entering negative affect into the equation. Therefore, a final General Linear Model General was run, with score, SRA, ORA and negative affect entered as covariates and all four justice perceptions entered as dependent variables. Although at this stage we were only interested in the results with respect to interpersonal justice perceptions, we entered also the other justice perceptions into the equation in order to control for the correlations among these dependent variables and to stay consistent with previous analyses. The same reason was followed when entering also SRA as a covariate in the analyses. The results (see Table 5-4) confirmed H4c in the sense that the relationship between ORA and interpersonal justice perceptions turned insignificant when negative affect was entered into the equation.
### Table 5-2. Summary of multivariate and univariate analyses testing the influence of cognitive anxiety on justice perceptions.

<table>
<thead>
<tr>
<th>Source</th>
<th>Multivariate F Value</th>
<th>Univariate F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Distributive justice</td>
</tr>
<tr>
<td>Score</td>
<td>19.28***</td>
<td>76.96***</td>
</tr>
<tr>
<td>SRA</td>
<td>.33</td>
<td>.88</td>
</tr>
<tr>
<td>ORA</td>
<td>1.28</td>
<td>.30</td>
</tr>
<tr>
<td>Mean Square Error</td>
<td>.75</td>
<td>.33</td>
</tr>
<tr>
<td>R²</td>
<td>.32</td>
<td>.17</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; *** *p* < .001. SRA = Self-Referenced Anxiety; ORA = Other-Referenced Anxiety.

### Table 5-3. Summary of multivariate and univariate analyses testing the influence of negative affect on justice perceptions.

<table>
<thead>
<tr>
<th>Source</th>
<th>Multivariate F Value</th>
<th>Univariate F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Distributive justice</td>
</tr>
<tr>
<td>Score</td>
<td>16.36***</td>
<td>64.60***</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>6.05***</td>
<td>8.83**</td>
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<tr>
<td>Mean Square Error</td>
<td>.71</td>
<td>.33</td>
</tr>
<tr>
<td>R²</td>
<td>.35</td>
<td>.17</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; ** *p* < .01; *** *p* < .001.
<table>
<thead>
<tr>
<th>Source</th>
<th>Multivariate F value</th>
<th>Univariate F Value</th>
<th>Distributive justice</th>
<th>Procedural justice</th>
<th>Interpersonal justice</th>
<th>Informational justice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>16.23***</td>
<td>64.21***</td>
<td>26.55***</td>
<td>.57</td>
<td>1.32</td>
<td></td>
</tr>
<tr>
<td>SRA</td>
<td>.32</td>
<td>.41</td>
<td>.00</td>
<td>.66</td>
<td>.44</td>
<td></td>
</tr>
<tr>
<td>ORA</td>
<td>1.28</td>
<td>1.09</td>
<td>.31</td>
<td>2.30</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>5.89***</td>
<td>8.93**</td>
<td>.89</td>
<td>8.21**</td>
<td>13.48***</td>
<td></td>
</tr>
<tr>
<td>Mean Square Error</td>
<td>.72</td>
<td>.33</td>
<td>.39</td>
<td>.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.35</td>
<td>.17</td>
<td>.09</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. *p < .05; **p < .01; ***p < .001. SRA = Self-Referenced Anxiety; ORA = Other-Referenced Anxiety.*
5.8 Discussion

Main Findings

Current research on the formation of justice perceptions in a personnel selection context mainly considered cognitive antecedents. However, the present study extended this research tradition by considering both a cognitive antecedent (i.e., cognitive anxiety) and an emotional antecedent (i.e., negative affect). The results partially supported the idea that justice perceptions are formed on the basis of both cognitive and emotional influences. However, stronger evidence was found for the emotional influence (i.e., negative affect) than for the cognitive influence (i.e., cognitive anxiety), both in the significance of the relationships as in the amount of variance explained in the dependent variable by these variables, supporting the idea of Barsky and Kaplan (2007) that justice perceptions are “hot”. Also the mediating role of negative affect in the relationship of cognitive anxiety with interpersonal justice, stresses the importance of studying emotions as antecedents of justice perceptions.

The results of the present study further demonstrated the importance of splitting the cognitive component of anxiety into a more self-directed form (i.e., SRA) and a more other-directed form (i.e., ORA) with respect to justice perceptions. In line with our expectations, ORA was more strongly related to justice perceptions than SRA, be it that this relationship was only evidenced with respect to interpersonal justice perceptions. A possible explanation for this finding might be found by looking more closely at the meaning of the different justice components. Interpersonal justice differs from the other forms of justice in the sense that it specifically revolves around judgments about the quality of interpersonal treatment the person receives (e.g., sincerity, respectfulness) (Bies & Moag, 1986; Tyler and Bies, 1990). Based on previous research, a possible explanation might be put forward why only this type of justice perception was influenced by ORA. For example, Winton, Clark, and Edelmann (1995) have shown that subjects high on “fear of negative evaluation” demonstrate a bias towards identifying others’ emotional expressions as negative. It seems reasonable to suggest that this information about others’ emotional expressions in a personnel selection context is most easily derived from the interpersonal treatment one receives in terms of respect, friendliness etc. and that therefore the interpersonal justice perception which taps these aspects is most affected by ORA. Also, Thau, Aquino, and Wittek (2007) suggested that people with a chronic uncertainty about ones’ own abilities, opinions and interpersonal relations, are more
motivated to search for fairness information in the interpersonal domain rather than in the procedural one. Since especially people high on ORA show uncertainty about interpersonal relations, they might be in particular tempted to search for fairness information in the interpersonal domain, affecting their judgment of interpersonal justice.

**Strengths**

This study makes some important contributions to the applicant reactions literature. The first contribution of this study allies with the call of Ryan and Ployhart (2000) to conduct more research on antecedents of justice perceptions instead of just considering consequences of justice perceptions. Further, Ryan and Ployhart urged to move away from post-test designs which suffer from common method variance to include both pre-test and post-test measures in one study. This was realized in this study by measuring anxiety and negative affect before test-taking and justice perceptions after test-taking. And thirdly, Ryan and Ployhart warned that the results of current research are limited by the use of cross-sectional designs, in which it is difficult to establish a temporal order. Therefore, in this study the influence of both cognitions and emotions is investigated in a longitudinal design.

And finally, besides distributive and procedural justice, this study also focuses on interpersonal and informational justice, dimensions of justice which have often been neglected in previous research (Aquino, Lewis, & Bradfield, 1999). However, Mikula, Petri and, Tanzer (1990) found that injustices relating to the quality of interpersonal treatment were far more reported by respondents than the other types of injustices, indicating the importance of this type of injustice. The current study further demonstrates the importance of looking at cognitive and mood influences especially with respect to this type of justice perception, where no evidence was found for an influence of the more traditionally investigated influence of test score.

**Limitations and Suggestions for Future Research**

One of the limitations of the current study is that it solely focused on negative affect and did not consider the influence of positive affect on justice perceptions. However, since previous research has shown that people tend to interpret ambiguous information consistent with their affective state (Mittall & Ross, 1998), positive affect might lead to more positive justice perceptions. From a personnel practitioners viewpoint it might be more interesting to find out
what increases justice perceptions rather than decreases justice perceptions (i.e., anxiety and negative affect).

Another limitation of the current study is that we did only look at the influence of subjective judgments, at the neglect of the objective characteristics of the selection context. As suggested by Bell et al. (2004) it may be important to disentangle the relative effects of cognitions and emotions on the one hand and the actual, objective characteristics of events on justice perceptions. To what extent are applicants’ perceptions influenced by their level of anxiety and emotional state versus what they actually experience? As suggested by these authors, separating these effects may be best achieved in laboratory settings where the level of anxiety, emotional moods and justice conditions can be experimentally controlled and manipulated.

And finally, whereas in this study anxiety is considered an antecedent of justice perceptions, and negative affect is proposed as a mediator in this relationship, further research could investigate other possible relationships between anxiety, affect and justice perceptions. For example, several studies have reported on the affective consequences of fairness perceptions (Krehbiel & Cropanzano, 2000; Van den Bos, 2001a; Weiss, Suckow, & Cropanzano, 1999), suggesting reciprocal rather than unidirectional relationships between justice perceptions and emotions. Ryan and Ployhart (2000) also called for more research on possible moderators in the perception-outcome relationships. As such, based on research of Van den Bos (2001b) on uncertainty salience, a possible moderating role of anxiety could be suggested. More specifically, since anxiety has often been conceptualized in terms of a heightened level of uncertainty (Dugas, Freeston, & Ladouceur, 1997), anxious persons might be more sensitive to justice violations and thus react more negatively to it (Nowakowski & Conlon, 2005).

**Practical Implications**

We believe that the study on cognitive and affective antecedents of justice perceptions might offer several practical implications on how organizations might try to influence and enhance these perceptions. One clear implication is that organizations need to recognize the effect that anxiety and negative affect have on how applicants perceive their selection procedure in terms of fairness. The results suggest the importance of reducing anxiety, especially ORA, in order to enhance perceptions of interpersonal justice, which has been found to be the most salient type of justice in a study of Mikula et al. (1990). This could be done by developing training
programs that are especially aimed at reducing selection anxiety, and more specifically by eliminating ones’ worrisome thoughts or redirecting them to self-referenced thoughts.

Further, the significant relationship that was found between negative affect and justice perceptions suggests that priming applicants to start the selection procedure in a positive affective mood might lead to more positive justice perceptions. And since negative affect mediated the relationship between anxiety and interpersonal justice, anxiety reduction programs might also lead to a reduction in negative mood in itself. However, more explicit efforts, not only to reduce negative affect but also to enhance positive affect could be undertaken by the organization. For example, it might be interesting to experiment with mood enhancing interventions in a personnel selection context, for example by welcoming the applicant and explaining the procedure in terms of positive emotional words, such as happy, jovial, pleased (King, Hicks, Krull, & Del-Gaiso, 2006), or by playing music before and during the selection test, which already has been shown to increase both positive affect and job performance (Lesiuk, 2005).

In conclusion, the present study demonstrates the importance of studying both cognitive and emotional influences on the formation of justice perceptions in a personnel selection context.
5.9 References


Justice perceptions


Chapter 6

Ingratiation and Self-Promotion in the Selection Interview: The Effects of Using Single Tactics or a Combination of Tactics on Interviewer Judgments.

This study investigates the relative effectiveness of the use of two IM tactics, namely ingratiation and self-promotion, on interviewers’ evaluations of an applicant in a laboratory setting. It was suggested that the use of a single tactic would be better than the use of no tactic, that the use of self-promotion would be more successful than the use of ingratiation and finally that the use of a combination of tactics would lead to the best evaluations. Results were largely in line with our hypotheses. Interviewer ratings and action recommendations were more positive in the combination condition, followed by the self-promotion condition, the ingratiation condition and the neutral condition. Theoretical and practical implications are discussed.
6.1 Introduction

Over 50 years ago, Goffman (1955) drew attention to the fact that people consciously manage the impressions they convey to others in interpersonal interactions. Especially in high-stake situations, people will try to convey a positive self-image by employing impression management behaviors. This also applies to the selection interview, that unlike some other selection devices (e.g., cognitive ability test, personality inventory), is characterized by these social dynamics (Judge, Higgins, & Cable, 2000). Both the interviewer and the applicant will attempt to create positive images to each other, for the applicant to get the best job and for the organization, to attract the best applicant (Gilmore & Ferris, 1989).

Past research has investigated applicants’ use of impression management (IM) tactics and how these tactics influence interviewer decisions. It was found that IM tactics, and more specifically ingratiation and self-promotion, were frequently used by applicants (Stevens & Kristof, 1995) and that these tactics can be employed successfully in employment interviews (see Higgins, Judge, & Ferris, 2003, for a review).

In current research on IM, however, IM tactics are often studied in isolation without considering the relative effectiveness of different tactics. Therefore, the present study examines the relative effectiveness of the two most frequently used tactics, namely ingratiation and self-promotion (Stevens & Kristof, 1995), with respect to personnel selection outcomes. Although Kacmar and Carlson (1999) and Kacmar, Delery, and Ferris (1992) already found that ingratiation was more effective than self-promotion, these studies did not compare the use of a single tactic to a neutral condition in which the applicant uses no IM tactics. Therefore, the present study extends this research by comparing the effectiveness of these tactics with a neutral condition, in which no IM tactics are employed.

Second, also the effects of combining different tactics have largely been ignored (Higgins et al., 2003). Therefore, the current study also investigates the effect of combining ingratiation and self-promotion tactics on personnel selection outcomes. More specifically, it is investigated whether the combination of these tactics would lead to more positive selection outcomes than the use of a single tactic or no use of IM tactics at all.
6.2 Types of Impression Management Tactics

Impression management refers to the activity of controlling information in an attempt to steer the impression others form of themselves in the service of personal or social goals (Schlenker & Pontari, 2000).

IM tactics were classified by Tedeschi and Melburg (1984) as either assertive or defensive. Whereas assertive impression management tactics are used to bolster one’s image (e.g., self-enhancements or other-enhancements), the defensive tactics are employed to protect or repair one’s image (e.g., accounts, excuses, and apologies). The tactical assertive behaviors, contrary to the defensive behaviors, seem particularly salient for applicants to use in an employment interview (Gilmore & Ferris, 1989) and therefore are the focus of the current study.

The two most frequently used assertive IM tactics in employment interviews are ingratiation and self-promotion (Stevens & Kristof, 1995). Ingratiation tactics are used to evoke interpersonal attraction or liking while self-promotion tactics are intended to draw attention to the positive qualities of oneself, one’s future plans, or one’s past accomplishments.

Although both IM tactics can be classified as assertive tactics, they differ to where they focus the conversation (i.e., on the applicant or on the interviewer). Where ingratiation is other-focused, used to increase interpersonal attraction or liking by employing subtle mechanisms of influence (i.e., verbally praising the other person, conforming with the opinion of the other person), self-promotion is self-focused, used to highlight ones positive qualities or to draw attention to past accomplishments (Kacmar et al., 1992; Stevens & Kristof, 1995).

6.3 Relative Effectiveness of IM Tactics

Both ingratiation and self-promotion tactics have been positively related to interviewer evaluations (Ellis, West, Ryan, & DeShon, 2002) and hiring recommendations (Gilmore & Ferris, 1989; Kacmar et al., 1992) and were found to predict significantly whether applicants later obtained on-site visits from the organization in a real personnel selection context (Stevens & Kristof, 1995).

However, ingratiation, belonging to the category of other-focused tactics, and self-promotion, belonging to the category of self-focused tactics, have been shown to have differential effectiveness with respect to different outcomes. In general, it has been found that self-
focused IM tactics are more effective in employment interviews than other-focused IM tactics (Dipboye & Wiley, 1977; Kacmar & Carlson, 1999; Tullar, 1989). More specifically, Kacmar et al. (1992) found that applicants who used self-focused tactics received higher ratings, were given more job offers and fewer rejections, but not more second-interview offers. However, this study of Kacmar et al. did not allow making any statements on the extent to which the use of IM tactics improved interviewer decisions compared to a neutral condition, in which applicants used no IM tactics.

Therefore, the current study compares a neutral condition in which no IM tactics are employed to three IM conditions, one in which the applicant employs ingratiation tactics, and one in which the applicant employs self-promotion tactics, as well as a condition where applicants use both tactics together. Although Baron (1986) found that the combination of two non-verbal IM tactics in the employment interview induced a “too-much-of-a-good-thing effect” and thus led to lower interviewer evaluations, Higgins et al. (2003) suggested however that certain combinations of tactics may be particularly successful in obtaining desirable outcomes. Evidence for this idea was provided by a study of Falbe and Yukl (1992) who found that influence attempts in which a pair of tactics was used had more favorable outcomes than when a single tactic was used and Bolino and Turnley (2003) more specifically suggested that especially the combination of self-promotion and ingratiation might be a successful recipe.

In line with this stream of research, the following hypotheses were formulated:

**Hypothesis 1**: Participants in the combination condition will rate the applicant most positively, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition.

**Hypothesis 2**: Participants in the combination condition will be most likely to offer a job, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition.

**Hypothesis 3**: Participants in the combination condition will be least likely to reject the applicant, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition.

**Hypothesis 4**: Participants in the combination condition will be most likely to invite the applicant for a second interview, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition.
6.4 This Study

Method

Participants and procedure

Data were collected from 160 psychology students at a large public university. Students were randomly assigned to one of four experimental conditions. 48% of them were men. The average age of the participants was 19 ($SD = 1.00$). Students participated in this study in order to receive credit points.

Participants in each experimental condition were asked to imagine themselves working at the HR-department of a company. After receiving a short introduction on the experiment and some oral information about the company, participants were assigned the task of hiring an assistant IT-manager, specialized in the design of Inter- and Intranet software. Participants were told that applicants for the job had already been attracted and now were invited for a brief selection interview. They received a short job description and a curriculum vitae of one fictive applicant. The experiment consisted of rating the applicant on the basis of a videotaped selection interview (with an off-camera interviewer). The interview was a short introductory interview, which lasted about 5 minutes. Depending on the experimental condition, the fictive applicant on the videotape employed different IM tactics (no IM tactics, only ingratiation, only self-promotion, the combination of ingratiation and self-promotion). Job description, CV, content and structure of the interview were kept constant across the four experimental conditions. Also non-verbal behavior was controlled for by having the same male person playing the four conditions, dressed identically and being interviewed in the same office setting. So, the tapes differed only on the verbal behaviors demonstrated by the applicant. A between-person design was used such that each participant viewed only one condition. After having seen the videotape, participants were asked to rate the applicant through filling-in a questionnaire.

Four experimental conditions were created, differing from one another with respect to the IM-tactics employed. In the first, neutral condition the applicant answered in a neutral way, without employing IM tactics. The second condition was the ingratiation condition in which the applicant used verbal tactics to make the interviewer feel good about him/herself. For example, in this condition the applicant complimented the interviewer with the way he
conducted the selection interview. The third condition was the self-promotion condition, in which the applicant directed attention to his positive qualities. For example, the applicant emphasizes different extracurricular activities he participated in and that could benefit him in this job. The fourth condition was the high IM condition and combined the IM tactics used in the ingratiation condition and self-promotion condition.

**Measures**

**Interviewer rating.** In line with the study of Kacmar et al. (1992), participants were asked to rate the applicant on a scale from 1 (strongly disagree) to 4 (strongly agree), containing 12 items, referring to 12 qualities to rate the applicant on. These qualities were flexibility, motivation, enthusiasm, initiative, presence, past experience, communication skills, confidence, technical skills, analytical ability, conceptual ability and knowledge of inter- and intranet-applications. Cronbach’s alpha for this scale was .84.

**Action recommendation.** In line with Kacmar et al. (1992), three items were formulated with respect to action recommendation and were used separately in the analyses. The three questions were “Would you invite the applicant for a second interview?”, “Would you offer the applicant a job?” and “Would you send the applicant a rejection letter”? All items were rated on a Likert-type scale from 1 (absolutely not) to 4 (absolutely).

**Manipulation check.** In order to verify whether IM had been manipulated adequately, 3 items were added to the questionnaire. Items questioned to what degree the participants felt that the applicant had answered in a neutral way, used ingratiation tactics and used self-promotion tactics. All items were rated on a Likert-type scale from 1 (strongly disagree) to 4 (strongly agree).

In order to ensure that the four conditions were constant with respect to job-relevant information and in line with the study of Kacmar et al. (1992), participants were asked to indicate when during the interview they arrived at their decision (i.e., after reading the CV or after the interview; 0 = no, 1 = yes) and which characteristics, based on the 12 qualities on which they rated the applicant, were important in their decisions. Items were framed as “The following qualities of the applicant have led to my decision …” and were answered on a Likert-type scale from 1 (totally disagree) to 4 (totally agree).
Results

Manipulation checks

In order to verify whether IM had been manipulated adequately, a MANOVA was conducted, using the 3 items that measured to what extent the applicant engaged in IM tactics as the dependent variables and IM as the independent variable. The MANOVA showed an overall significant effect for the independent variable, $F(9, 353) = 14.52, p < .001$. Also the 3 univariate tests showed significant effects in line with the IM manipulations in the different experimental conditions. Descriptive statistics are presented in Table 6-1. In the combination condition, respondents rated higher on self-promotion tactics than on ingratiation tactics (i.e., three out of four paired t-test were significant at the .01 level), which makes the experimental condition in line with the results of the field study of Stevens and Kristof (1995).

Table 6-1. Mean values on the items which measure the adequacy of the experimental manipulations

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean neutral</th>
<th>Mean ingratiation</th>
<th>Mean self-promotion</th>
<th>Mean combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>In general, the applicant responded in a neutral way to my questions.</td>
<td>2.85</td>
<td>2.38</td>
<td>2.66</td>
<td>2.28</td>
</tr>
<tr>
<td>The applicant tried to flatter me during the interview.</td>
<td>1.95</td>
<td><strong>3.38</strong></td>
<td>2.17</td>
<td><strong>3.49</strong></td>
</tr>
<tr>
<td>The applicant promoted himself during the interview.</td>
<td>3.18</td>
<td>3.35</td>
<td><strong>3.91</strong></td>
<td><strong>3.85</strong></td>
</tr>
</tbody>
</table>

In order to ensure that the four conditions were constant with respect to job-relevant information and in line with Kacmar et al. (1992), a second MANOVA was conducted, with the importance of each of the 12 characteristics in the decision-making process and the moment of decision making as dependent variables and IM as the independent variable. The results showed no significant effect for importance of the characteristics in the decision-making process and moment of decision making, $F(42, 280) = .84, n.s.$ These results suggest that the four experimental conditions were indeed equal with respect to job-relevant information.
Hypotheses

A MANOVA was conducted in order to test hypotheses 1 to 4, with interviewer rating and each of the three action recommendation items as dependent variables and IM as the independent variable. The results showed an overall significant main effect for IM, $F(12, 379) = 2.65, p < .01, \eta^2 = .07$. Consequently, four univariate analyses of variance were conducted to explore the effects at the level of each dependent variable. Also follow-up paired comparisons (using Tukey’s HSD correction) were performed to explore the mean differences between the conditions.

Hypothesis 1 predicted that participants in the combination condition would give the applicant the highest rating, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition. A one-way analysis of variance was significant for interviewer ratings, $F(3, 146) = 8.79, p < .001, \eta^2 = .15$. Inspection of the means showed that the highest rating was given in the combination condition, $M = 35.56$ ($SD = 4.50$), followed by the self-promotion condition, $M = 34.08$ ($SD = 5.78$), the ingratiation condition, $M = 32.50$ ($SD = 6.26$), and finally the neutral condition, $M = 29.36$ ($SD = 5.14$). Follow-up paired comparisons however, only revealed a significant difference between the neutral condition and both the self-promotion condition and the combination condition. The ingratiation condition did not differ significantly from all other conditions.

Hypothesis 2 predicted that participants in the combination condition would be most likely to offer a job, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition. A one-way analysis of variance was significant for job offers, $F(3, 146) = 3.57, p < .05, \eta^2 = .07$. Inspection of the means showed that the highest rating was given in the combination condition, $M = 2.82$ ($SD = .51$), followed by the self-promotion condition, $M = 2.70$ ($SD = .52$), the ingratiation condition, $M = 2.53$ ($SD = .76$), and finally the neutral condition, $M = 2.39$ ($SD = .65$). Follow-up paired comparisons however only revealed a significant difference between the neutral condition and the combination condition. The ingratiation condition and the self-promotion condition did not differ significantly from each other, neither from the neutral and combination condition.

Hypothesis 3 predicted that participants in the combination condition would be least likely to reject the applicant, followed consequently by participants in the self-promotion condition, the
ingratiation condition and finally the neutral condition. A one-way analysis of variance was not significant, $F(3, 146) = 1.64$, n.s., and also follow-up paired comparisons showed no significant differences between the conditions. Inspection of the means, however, showed that the results were in line with our hypothesis. The lowest rating was given in the combination condition, $M = 2.18$ ($SD = .72$), followed by the self-promotion condition, $M = 2.27$ ($SD = .56$), the ingratiation condition, $M = 2.45$ ($SD = .76$), and finally the neutral condition, $M = 2.50$ ($SD = .81$).

Hypothesis 4 predicted that participants in the combination condition would be most likely to invite the applicant for a second interview, followed consequently by participants in the self-promotion condition, the ingratiation condition and finally the neutral condition. A one-way analysis of variance was marginally significant, $F(3, 146) = 2.45$, $p < .07$, $\eta^2 = .05$. Inspection of the means again showed that the results were mainly in line with our hypothesis. However, the highest rating was given in the self-promotion condition, $M = 3.05$ ($SD = .62$), followed by the combination condition, $M = 2.92$ ($SD = .48$), the ingratiation condition, $M = 2.87$ ($SD = .81$), and finally the neutral condition, $M = 2.64$ ($SD = .72$). Follow-up paired comparisons only revealed a significant difference between the neutral condition and the self-promotion condition.

### 6.5 Discussion

The aim of this study was to investigate the relative effectiveness of applicants’ use of IM tactics in the selection interview. This study contributes to the current literature in the sense that the effectiveness of ingratiation and self-promotion were studied, relative to each other and relative to a neutral condition in which the applicant used no IM tactics. More, also a combination condition, in which the applicant combined both tactics, was compared to the neutral condition and the single use conditions (i.e., ingratiation and self-promotion).

All results were in the expected direction. In general, interviewers’ rating and action recommendations were more positive in the combination condition, followed by the self-promotion condition, the ingratiation condition and the neutral condition. However, although the results were in line with the finding of Kacmar et al. (1992) that self-promotion tactics were more effective than ingratiation tactics, both conditions did not differ significantly from each other. However, the current design allows to make more clear conclusions on the effectiveness of different IM tactics, due to the inclusion of a neutral and combination
condition. For example, the ingratiation condition was less effective than the self-promotion condition in the sense that it did not differ significantly from the neutral condition for any of the dependent variables while the self-promotion and the combination condition led to higher interviewer ratings. The self-promotion condition was also more effective with respect to getting a second-interview offer and the combination condition was more effective with respect to receiving a job offer.

However, the results with respect to inviting the candidate for a second interview were less clear. The highest mean level for this variable was found in the self-promotion condition, with a slight decrease in the combination condition. These results were in line with Kacmar et al. (1992) who found different results with respect to this dependent variable (i.e., second-interview offer) as compared to the other dependent variables in this study (i.e., interviewer ratings, job offer, and rejection letter). This finding might be explained by the double message that is included in inviting someone for a second interview. On the one hand, this might mean that the interviewer finds the applicant a good candidate for the job and therefore wants the candidate to proceed through the rest of the selection procedure. On the other hand, this might mean that the interviewer was not able to collect enough information from the applicant and wants to be able to elaborate more on certain aspects in a second follow-up interview, as was the case in the study of Kacmar et al.

**Strengths and Limitations**

A key problem with field studies is to determine when the applicant uses IM and when the applicant responds in an honest and objective way (Peeters & Lievens, 2006). Conducting a lab study enabled us to manipulate IM use and to disentangle rival explanations for the results. This scenario research methodology has been used effectively in the past and provides several benefits (Fandt & Ferris, 1990; Liden, Ferris, & Dienesch, 1988). Scenarios provide respondents with standardized stimuli, thus eliminating potential sources of interpretation error. Further, great effort was taken to ensure that the job-related information presented was held constant across the four scripts. Therefore it is reasonable that observed differences between the four conditions are due to the manipulations in our study (i.e., the level of IM).

On the other hand, this methodology limits the external validity of the current study. The fact that interviewers evaluated a videotaped candidate and had no face-to-face contact might have affected our results. For example, Van Iddekinge, Raymark, and Roth (2003) showed that
ratings of videotaped interviews were more resistant to interviewee response distortion, which means that the effect sizes in our study might have been an underestimation of the real effect sizes.

Another limitation with respect to the external validity of this study is the use of one applicant and one job. Using a male applicant, being evaluated by both male and female interviewers, did not allow us to check for differences in evaluating applicants of the same/different sexes. For example, Graves and Powell (1995) found that interviewers give higher ratings to applicants of the opposite sex. Therefore, further research could be conducted with both a male and a female applicant in each condition. Also, Van Vianen and Willemsen (1992) found that for higher-level technical jobs, the ideal candidate is described by the job interviewers as having more masculine than feminine traits. Since the job that was used in this study could be categorized as a higher-level technical job and a male applicant was used, this might have inflated ratings on the dependent variables. Therefore, future research with other job descriptions and both male and female applicants is warranted.

Also the use of one job limits the generalizability of the results. Previous research showed that IM tactics can detract from, improve or have no impact on the image observers had of an individual, depending on the characteristics of the situation in which the tactic was demonstrated (Giacalone, 1985; Kacmar & Carlson, 1999; Tedeschi & Melburg, 1984). In this study, a back office job was used, whereas the use of a more commercial job with the same applicant could have shown very different results.

**Directions for Future Research**

Further research is necessary to develop a deeper understanding of the underlying processes that cause IM tactics to have an impact on interviewers’ evaluations. For example, little is known about how individual difference variables such as interviewer experience, personality characteristics or gender moderate the way IM tactics are evaluated. For example, Baron (1986) suggested men base their evaluation more on external related factors than women and are less adapted to ignore certain aspects than women. Therefore, men would need more time to decide whether behavior is either situational or dispositional than women, leading to a more negative evaluation when there are a lot of external, distracting factors, such as IM behavior. Also the influence of intermediate variables, such as applicant similarity to the interviewer and interviewer affect toward the applicant, as studied by Howard and Ferris (1996) and
Gallois, Callan, and McKenzie Palmer (1992), is important to consider in further research on IM in order to create a deeper understanding on how IM tactics are related to interviewers’ evaluations.

Existing research has been mainly concerned with how IM tactics influence interview outcomes. However, only recently, Varma, Toh, and Pichler (2006) considered how these same IM tactics may be used in job applicant letters and found results that were in line with results on the selection interview, in the sense that self-focused tactics were more effective than other-focused tactics. Further research could be done in order to deepen our understanding of how IM tactics may influence the decisions of recruiters who rely on written applications, or a combination of written applications and selection interviews.

**Practical Implications**

The results of the current study suggest that it is better to use any type of IM tactics in the interview than using no tactic at all. However, using only ingratiation was not effective enough to differentiate oneself from the applicant using no IM tactics at all. Using self-promotion or a combination of self-promotion and ingratiation led to higher interviewer ratings. Using self-promotion alone led to more second-interview offers whereas using a combination of tactics led to more job offers.

The current results are obtained with respect to selection interview outcomes. However, one should be careful in translating them to other contexts. In line with the meta-analytic review of Higgins et al. (2003), it was found that ingratiation but especially self-promotion works well in the interview. However, these results need to be somewhat differentiated since especially self-promotion appears to backfire in performance evaluations provided by supervisors (Gordon, 1996). Jones and Pittman (1982) suggested that self-promotion may be less successful when claims of competence can be verified.
6.6 References


Chapter 7

General Conclusions and Discussion

In this final chapter, the key findings obtained in the empirical studies are summarized and discussed. It is concluded that the cognitive component of applicants’ test anxiety can be considered as a two-dimensional construct, consisting of Self-Referenced Anxiety and Other-Referenced Anxiety. Further it is concluded that these two types of anxiety are differentially related to test performance and justice perceptions. This dissertation’s strengths and limitations are discussed, together with implications for practice and future research.
7.1 Research Overview

This dissertation aimed to fulfill two purposes, namely to develop a new measure of applicants’ test anxiety, based on a two-dimensional conceptualization of selection test anxiety, and to investigate the nomological network including both proximal and distal constructs. In the following section, the key findings with respect to these two aims are discussed.

A New Measure of Applicants’ Test Anxiety

Hagtvet, Man, and Sharma (2001) proposed a new two-dimensional conceptualization of the anxiety construct and successfully applied their idea to an educational context. The results of Chapter 2 support the transfer of this construct to the personnel selection context. Based on theoretical frameworks, the SOAQ was developed to test applicants’ Self-Referenced (SRA) and Other-Referenced Anxiety (ORA) within the realm of a personnel selection setting. This goal was accomplished in that considerable support was found for the internal and external construct validity of the SOAQ dimensions in a real personnel selection context. First, the dimensionality of the SOAQ was assessed using confirmatory factor analysis. Evidence for a correlated two-factor model was found above an uncorrelated two-factor model, a one-factor model and a six-factor model, which was in line with our theoretical underpinnings. The correlated two-factor model was then successfully cross-validated in a second independent sample of real applicants. Further evidence for the external construct validity of the SOAQ was found by demonstrating the relationships between the two SOAQ dimensions and both more proximal (convergent validity) and more distal (discriminant validity) constructs.

Towards a Nomological Network of Self- and Other-Referenced Anxiety

The second aim of this dissertation was to explore the nomological network around the two anxiety constructs by relating them to both proximal and more distal external constructs. In Chapter 1, a theoretical model was presented, showing the constructs that were investigated in relation to SRA and ORA. Empirical evidence for this model, as found on the basis of Chapters 2-5, is presented in Figure 7-1.

Chapter 3 investigated in a student sample the relationship between two-dimensional conceptualizations of perfectionism, self-consciousness, achievement goals and selection test anxiety and showed a significant relationship between self-oriented perfectionism, mastery-
avoidance goals and SRA and between socially prescribed perfectionism, performance-avoidance goals and ORA. However, although also conceptualized along a intrapersonal/interpersonal dichotomy, no relationship was found with dimensions of self-consciousness.

Chapter 4 and 5 related both types of anxiety to more distal constructs. A rationale was built to suggest a more positive effect of SRA versus ORA on test performance and justice perceptions. Specifically, Chapter 4 investigated, both in a student sample and in a large applicant pool, the differential relationship of SRA and ORA with cognitive ability performance and showed evidence for a differential relationship of both types of test anxiety with test performance. The results of both studies showed that SRA was unrelated to test performance whereas ORA was negatively related to test performance. In an attempt to clarify these differential relations with test performance, the mediating effect of external behavioral regulation on the relationships between ORA and test performance was tested but not confirmed.

Chapter 5 related SRA and ORA to perceptions of distributive, procedural, informational and interpersonal justice in a real personnel selection context and again showed a differential relationship of both types of anxiety with fairness perceptions. Whereas ORA led to more negative perceptions of interpersonal justice, justice perceptions were unrelated to SRA. The relationship between ORA and perceptions of interpersonal justice was mediated by negative affect.

Taken together, these results support the two-dimensional conceptualization of cognitive anxiety in a personnel selection context and show that these anxiety constructs can be reliably measured.

In Chapter 6, the self/other dimension was investigated from a different perspective, namely with respect to applicants’ use of impression management tactics in a selection interview. In line with the previous studies in this dissertation, it was found that the use of self-focused impression management tactics led to more favorable impression than the use of other-focused tactics. More, the combination of both tactics led to the best chance of receiving a job offer.
Figure 7-1: *Empirical relationships between the central variables under study in this doctoral dissertation.*

*Note.* Blue = Chapter 3; Purple = Chapter 4; Green = Chapter 5. Thick lines = significant relationship; dotted lines = insignificant relationship.
7.2 **Strengths, Limitations, and Future Research Directions**

**Strengths**

Research on anxiety in a personnel selection context is rather scarce compared to research on test-taking motivation in a personnel selection context as well as compared to the vast amount of research on test anxiety in an educational context (Hembree, 1988; Preiss, Gayle, & Allen, 2006; Seipp, 1991; Zeidner & Matthews, 2005). Further, only a limited amount of efforts have been undertaken to develop reliable and valid measures of applicants’ test anxiety (see McCarthy & Goffin, 2004 for an example). This dissertation adds to the literature on applicants’ perceptions by increasing our understanding of applicants’ test anxiety and, in line with the call of Ryan and Ployhart (2000), by conducting more research on its (internal/external) construct validity and improved measurement. Specifically, this dissertation proposed the SOAQ as a new measure of applicants’ test anxiety, based on a theoretical framework and providing evidence for its construct validity.

This dissertation also adds to the clarification of the anxiety construct. Until recently, the cognitive component of test anxiety was defined very broadly with different researchers often using different labels. In addition to that, the cognitive component was mainly approached from an individualistic perspective compared to a social perspective. Thus, this dissertation adds to the literature on test anxiety by defining the cognitive component more specifically as failure outcome expectancies and by placing these expectancies in the context of self and significant others, as such including the social-evaluative context of test anxiety as well.

The present dissertation also adds to the study of applicant reactions. Ryan and Ployhart (2000) described two different streams in the research on applicant reactions, one focusing on justice perceptions and one focusing on perceptions of oneself in the selection context (e.g., test-taking motivation, test-anxiety, self-efficacy) and how these relate to test performance. Based on a review of this literature, Ryan and Ployhart, followed by Hausknecht, Day, and Thomas (2004) call for a better integration of these two streams of research in order to further our understanding of applicant reactions. In line with this call, this dissertation investigates the relationship between applicants’ test anxiety (i.e., perception of oneself in the selection context) and their justice perceptions. Further, the significant negative relationship that was found between test anxiety and perceptions of interpersonal justice in Chapter 5 supports the
suggestion of Ryan and Ployhart that linking the two traditions can lead to new insights in applicant reactions research.

And finally, this dissertation improved methodologies typically employed in applicant reactions research. Specifically, this dissertation responded to calls for improvement by examining real job applicants, applying for actual positions (Ryan & Ployhart, 2000), employing both a longitudinal and an experimental design to permit the examination of more causal and time-dependent processes (Chan & Schmitt, 2004). Also structural equation modeling techniques were employed that may account for the imperfect measurement of constructs.

**Limitations**

Besides strengths, this dissertation also suffers from some limitations.

First, this dissertation focused on the cognitive component of applicants’ anxiety, without considering the affective component. Although this can be considered a limitation, we argue that investigating one component at a time might reduce the complexity and reveal important insights that could not be grasped in a more complex design. However, further research should reintegrate these different components and study the combined influences of SRA, ORA and the affective component of test anxiety.

Second, the applicant pools in this dissertation were both derived from the public, governmental sector, leaving non-governmental organizations unattended. This could have colored the results. For example, Crewson (1995) suggested on the basis of previous research a lower entrant quality in the public sector, due to a number of reasons such as poor pay and the image of the public sector as a meritless, power-seeking and self-interested organization. However, Crewson contradicted this with his data and found that, during the 1980s, the American federal government was able to attract higher quality entrants than the private sector. It however remains unclear to what extent these results can be generalized to a Belgian population and to what extent these results can be extrapolated to this decennium, featured by a shortage in high quality entrants.

Further, the selection contexts that were investigated in this study somewhat deviate from “regular” personnel selection contexts. Candidates applied for an undefined number of vacancies in different departments of the governmental organization. The purpose of the selection was to create a list of valuable candidates that could be consulted by the different
departments in case of an open vacancy up until two years later. In this case, the consulting department has the opportunity to organize an additional test in order to select the most valuable candidate for them. In the case of failure, applicants could reapply in the (near) future. This might have impacted the results in the sense that there was less at stake for applicants when they failed the selection test and accordingly might have experienced more moderate levels of cognitive anxiety, compared to applicants in more regular selection procedures.

The studies in this dissertation all relied on self-report measures of anxiety. Although we recognize that this may have important shortcomings (e.g., social desirable answers), for practical reasons we opted for this solution. Further research in more controlled laboratory settings could consider other research methods such as for example the implicit association test (Egloff & Schmukle, 2002) or thought listing methods (Derakshan & Eysenck, 2005).

And finally, the correlational nature of our data makes it difficult to infer causal directions. For example, in Chapter 4, it is not possible to infer a causal direction from pretest anxiety to performance on a cognitive ability. It might be suggested that the association between the two variables (i.e., pretest reactions and test performance) may simply be a result of general cognitive ability being a common cause. Hence, it might be important to determine if the relationship we found between pretest anxiety and test performance remains after controlling for an independent measure of general cognitive ability. Rocklin and Thompson (1985), however, suggested that it may not make much sense to control for cognitive ability in anxiety research, as it may be impossible to measure cognitive ability uncontaminated by the respondents’ level of anxiety. Chan, Schmitt, Sacco, and DeShon (1998) used grade point averages as a proxy of general cognitive ability and found that pretest reactions (i.e., face validity, predictive validity, and fairness perceptions) could have an influence on test performance that is independent of the true level of the test construct being measured. Other experimental studies in educational context further suggested that anxiety was independent of cognitive ability. For example, Dusek, Kermis, and Mergler (1975) found that the performance decrements of high anxious children only appeared when the task was presented as a test and not when the task was presented as a game, suggesting that the performance decrements could not be attributed to poor mental ability.
Future Research Directions

We suggest two directions for further research on test anxiety in personnel selection contexts. First, further research could be conducted on the antecedents of SRA and ORA in a personnel selection context. Second, future research on test anxiety in personnel selection contexts could consider other consequences than investigated in this dissertation.

Antecedents of anxiety

Only scant attention has been paid to the study of antecedents of applicants’ test anxiety. One important exception is the study of Carless and Imber (2007) that showed that perceived interviewer characteristics (i.e., warmth, unfriendliness, job knowledge, general competence, humor) influenced the level of anxiety reported by job applicants. In line with this study, further research may want to study the influence of recruitment variables on the level of anxiety experienced, and more specifically the level of SRA versus ORA experienced.

In line with studies on social anxiety, several context variables may influence the level of test anxiety experienced in interpersonal contexts. Specifically, findings on social anxiety can be extrapolated and tested in the context of the selection interview and the assessment center. For example, social anxiety research has shown an impact of the number of co-performers in the evaluative situation on the level of social anxiety experienced. The general idea here is that there is safety in numbers, since the presence of multiple performers at a time obliges evaluators to divide their attention among the various performers (Jackson & Latane, 1981; Schlenker & Leary, 1982). This might have important implications for the level of anxiety experienced by applicants for example during group exercises in assessment centers. On the other hand, the presence of multiple evaluators has been shown to lead to greater anxiety (Schlenker & Leary, 1982), which suggests that panel interviews negatively influence the level of anxiety experienced by applicants. Up till now, research on the social dynamics of panel interviews as well as social psychological research on the functioning of groups in a personnel selection context is largely underdeveloped (Lievens & Klimoski, 2001; Posthuma, Morgeson, & Campion, 2002; Zedek, 1986) and could be an interesting pathway for further research.
**Other anxiety outcomes to consider**

This dissertation focused on two important outcomes, namely test performance and justice perceptions. The depiction of these outcome variables was in line with the two research streams within the applicant reactions literature (i.e., one focusing on the influence of test-taking attitudes on test performance and the other one focusing on justice perceptions). However, there are numerous other outcome variables that have been related to applicants’ anxiety and that deserve more attention in further research.

*Test validity.* Guion and Cranny (1982) stated that any random error present in the testing situation will lead to an attenuation of validity. Systematic error, however, may moderate test validity. So, an important question for future research is to investigate the extent that systematic effects of anxiety on test performance moderate the test validity of tests.

Concerning the construct validity, Chan and Schmitt (2004) suggest that applicant reactions may affect the construct validity of tests. This problem occurs when inferences about applicants’ abilities are made on the basis of test scores that do not purely reflect the intended test construct. For example, when a component of the systematic variance in test scores in fact reflects differences in applicant reactions (e.g., test anxiety) which are distinct from and irrelevant to the intended test constructs. The total test score in this case is not one-dimensional, as suggested, but multidimensional. Further research may want to investigate the extent to which some items suffer from bias, using the techniques of differential item functioning and differential feature functioning (Van den Noortgate & De Boeck, 2005).

With respect to predictive validity, Schmit and Ryan (1992) suggested that it could be that a test is a better predictor of performance for individuals with either positive or negative test attitudes and motivations. However, it is also reasonable to suggest that test-taking dispositions may show incremental validity as a predictor used in conjunction with an ability test to predict performance. This assumption is based on the finding that personality traits show incremental validity in the prediction of job performance (e.g., Baehr & Orban, 1989; Day & Silverman, 1989). Test-taking dispositions and motivation may be correlated with stable personality traits. More specifically, test anxiety has been found to relate to the personality trait of neuroticism (e.g., Moutafi, Furnham, & Tsaousis, 2006), which has been
associated with lower performance on a cognitive ability test in a personnel selection setting (Dobson, 2000).

On the other hand, Schmit and Ryan (1992) found that test-taking dispositions and motivation moderated test validity for both an ability and personality test. An unexpected finding was that the moderation effect was exactly opposite for the two types of measures. The criterion-related validity of the personality test was found to be higher for test-takers with less positive test-taking motivation than for those with higher test-taking motivation. However, the criterion-related validity of the ability test was lower for test-takers with less positive test-taking motivation than for those with higher test-taking motivation. So, further research is necessary in order to shed light on the influence of test anxiety on test validity.

**Applicant withdrawal.** Previous research has shown that in extreme cases, socially anxious people tend to avoid situations that produce embarrassment (Brown and Garland, 1971). Also, research on test anxiety in an educational context has shown that anxious persons often evidence a variety of avoidance or escape behaviors at various stages of the exam process (Zeidner, 1998). In fact, wishing to escape the test situation is the most frequently reported negative thought that test anxious subjects experience during an actual exam (Galassi, Frierson, & Sharer, 1981). In most real-life situations or experimental test situations, however, participants generally do not believe escape to be a viable option. As such, psychological withdrawal may often be the end result of this inability to escape or disengage physically from the test situation (Carver, 1996).

Only a limited number of studies have considered the influence of anxiety on escape behavior in a personnel selection context. One exception is the study of Schmit and Ryan (1997) who found that individuals with more test anxiety were less likely to withdraw from the selection process, even after controlling for test-taking motivation. These authors explained this by suggesting that individuals who are more serious about seeing the selection process through the end may experience a higher degree of test anxiety than those who are less sure about whether they will actually complete the entire process. Alternatively, it might be that these applicants did not believe escape to be a viable option but rather disposed psychological withdrawal behavior. Bell, Wiechmann and Ryan (2006) showed significant relationships between psychological withdrawal and perceptions of distributive and interpersonal injustice, the latter being related to ORA in Chapter 5 of this dissertation.
Also studying the relationship between anxiety and applicant withdrawal with a more fine-grained measure of anxiety such as the SOAQ might bring more clarity into this relationship. For example, (psychological) withdrawal behavior might be related exclusively to ORA, while SRA is possibly related to higher persistence.

**Group differences.** Studies on gender differences in anxiety generally show that women experience higher levels of anxiety than men (see Hembree, 1988). However, McCarthy and Goffin (2005) found that females’ test performance was less impaired by anxiety than males’ test performance due to better coping mechanisms employed by females. On the basis of the results of this dissertation, an alternative explanation might be worth investigating. First, the results in this dissertation suggest that the finding that women experience more anxiety than men might be an overgeneralization of findings with more individualistic measures of anxiety. Further, the positive relationship of SRA with test score might explain why for women anxiety is less detrimental to their performance than for men. So, measuring anxiety with a more balanced instrument might reveal important insights with respect to gender-related differences in anxiety.

Test anxiety has also been put forward as a possible explanation for the performance gap on cognitive ability tests between ethnic minority and majority groups. For example, Steele and Aronson (1995) suggested that higher levels of anxiety experienced by Blacks in situations of heightened stereotype threat might lead to performance decrements for this group as compared to Whites. However, empirical evidence for this idea is rather mixed. Some studies reported greater anxiety levels for Blacks (Clawson, Firment, & Trower, 1981; Payne, Smith, & Payne, 1983a) while other studies found lower levels (Payne, Smith, & Payne, 1983b). Continuing this research with the SOAQ might bring new insights into this domain. Blacks, who generally live in more collectivist culture (Gaines, Larbie, Patel, Pereira, & Sereke-Melake, 2005), might experience more ORA than Whites. The greater level of ORA experienced by Blacks as compared to Whites might cause a stronger negative effect of anxiety on performance for this group and might explain performance decrements for this group.

### 7.3 Practical Implications

When looking at the results on a more practical level, the most important question to ask is “Does anxiety matter at all”? Looking at the relative small proportions of variance explained
in the dependent variables, anxiety seems to have a relative small influence within the context of personnel selection. However these low values are not exceptional and several moderating influences (e.g., difficulty of the test, evaluative character of the selection context, relaxed time limits, type of test) could have played a role. So, further research is necessary in order to determine the importance of anxiety in the selection context.

However, we do believe that the results are strong and consistent enough in order to say that the influence of ORA is more negative than of SRA, both with respect to test performance as with respect to perceptions of justice. On the basis of this finding, an important implication for practice is to develop strategies to reduce the level of ORA experienced by applicants, both to the benefit of the applicant as to the benefit of the organization. For the applicant, reducing the level of ORA experienced is important since it lowers his or her performance on a cognitive ability test, possibly leading to incorrect conclusions about their real cognitive ability. More, if anxiety is independent of their ability, this anxiety might change the rank ordering of the candidates, leading to rejection of the high anxious applicant on a wrong basis. For the organization, reducing the level of ORA experienced by applicants is important because it might lower the efficiency ratio of the selection procedure. Making inferences about cognitive ability on the basis of total test scores, without taking anxiety into account, might lead to incorrect rejection of highly skilled but anxious applicants. Further, the presence of ORA in the selection context leads to more negative perceptions of interpersonal justice, which has been shown to affect organizational attractiveness (Porter, Conlon, & Barber, 2004).

Some practical guidelines can be formulated for the organization to reduce the level of ORA experienced by the applicant. For example, personnel selection practitioners could try to stimulate anxious applicants to focus more on self-determined norms instead of other-determined norms. This could possibly be done by stressing the importance of their performance on the cognitive test for themselves and by linking it to future success for themselves. For example, Simons, Dewitte and Lens (2003) found that instructions emphasizing the personal and future relevance of the task at hand enhanced task orientation, motivated behavior and finally performance. On the other hand, practices that affect the visibility of one’s outcomes to others (e.g., public posting of civil service exam scores, listing of names for interview callbacks) should be avoided since they may induce ORA.
Further, the significant relationship that was found between ORA and negative affect suggests that priming applicants to start the selection procedure in a positive affective mood might affect the level of ORA experienced through a reciprocal relationship. So, explicit efforts, not only to reduce negative affect but also to enhance positive affect could be undertaken by the organization. For example, it might be interesting to experiment with mood enhancing interventions in a personnel selection context, for example by welcoming the applicant and explaining the procedure in terms of positive emotional words, such as happy, jovial, pleased (King, Hicks, Krull, & Del-Gaiso, 2006), or by playing music before and during the selection test, which already has been shown to increase both positive affect and job performance (Lesiuk, 2005).

This finding also has implication for more intensive training programs for applicants. Existing programs have focused largely on increasing applicant skills (e.g., writing an applicant letter, how to conduct a selection interview, etc.) and have failed to incorporate anxiety-reduction techniques into their program. However, the current dissertation suggests that adding cognitive-behavioral treatment (Meichenbaum, 1972) to this program might be advantageous, in particular when focusing on cognitive modification, redirecting the cognitions of anxious applicants towards self-imposed norms and standards versus norms and expectations that are dictated by others.
7.4 References


