CHALLENGE *AT* WORK
A Matter of Give and Take

Paul Preenen

Cover photo: Myung Feyen
Cover design: Mina Ma
Printed by: Ipskamp Drukkers, Amsterdam
ISBN: 978-90-76269-89-4

CHALLENGE *AT* WORK
A Matter of Give and Take

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D. C. van den Boom
ten overstaan van een door het college voor promoties ingestelde
commissie, in het openbaar te verdedigen in de Agnietenkapel
op vrijdag 12 november 2010, te 10.00 uur

door Paul Tae Young Preenen
geboren te Uijungboo City, Zuid Korea

Promotiecommissie:

Promotor:	Prof. Dr. A. E. M. van Vianen
Copromotor:	Dr. Ing. I. E. de Pater
Overige leden:	Prof. Dr. C. K. W. de Dreu
	Prof. Dr. A. Nauta
	Prof. Dr. B. A. Nijstad
	Prof. Dr. C. R. Wanberg
	Dr. U. C. Klehe

Faculteit der Maatschappij- en Gedragswetenschappen

“Whenever there is a challenge, there is also an opportunity to face it, to demonstrate and develop our will and determination.”
- Dalai Lama, *on Twitter, 2010*

“The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.”
- Martin Luther King, Jr., *Strength to love, 1963*

Voor Sonja, Chan Ja en Sue

CONTENTS

CHAPTER ONE
JOB CHALLENGE: AN INTRODUCTION

Five years ago, before starting my Ph.D. project, I made my money as a croupier in a casino. Although I respected the job a lot and found the job very challenging at first, I soon got bored and not really happy with my work. At that time, I realized how important it is to be challenged in a job, and I really got to understand the meaning of the well-known words: "I'm ready for a new challenge!". Like many young people (Van Vianen, De Pater, & Preenen, 2009) I was contemplating a lot about what job to choose. Luckily, not much later, I found the most challenging job in my life so far, my Ph.D. project, which is ironically enough about job challenge.

Indeed, job challenge has been found to be a key factor influencing individuals' job-choice decisions (e.g., Boswell, Roehling, LePine, & Moynihan, 2003; Slaughter, Richard, & Martin, 2006). Research has also shown that job challenge is highly relevant for employees and their organizations. Job challenge has found to be important for managerial development (DeReu & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009; Lyness & Thompson, 1997, 2000; McCauley, Ohlott, & Ruderman, 1999; McCauley, Ruderman, Ohlott, & Morrow, 1994) and career advancement (e.g., De Pater, Van Vianen, Bechtoldt, & Klehe, 2009; De Pater, Van Vianen, Fischer, & Van Ginkel, 2009), and is positively associated with job attitudes such as job satisfaction (e.g., James & Jones, 1980; Kirk-Brown & Wallace, 2004), commitment (e.g., Dixon, Cunningham, Sagas, Turner, & Kent, 2005; Huang, Lawler, & Lei, 2007), and motivation (e.g., Feldman, 2002; Houkes, Janssen, de Jonge, & Bakker, 2003).

Despite the growing amount of research on job challenge, much remains to be examined. First, because job challenge has many beneficial outcomes for employees, such as learning and development, it is often assumed, but never tested empirically, that job challenge may reduce voluntary turnover (e.g., Carmeli, 2005; Conklin & Desselle, 2007; Loquercio, 2006; Salopek, 2000). However, challenging jobs stimulate learning (e.g., Dragoni et al., 2009; McCauley et al., 1994) and thus increase employees' human capital and opportunities for employment in other organizations (Benson, Finegold, & Mohrman, 2004; Campbell & Campbell, 2003; Ito & Brotheridge, 2005). Investigating the consequences of job challenge for turnover intentions and behaviors seems thus warranted.

Second, although the positive consequences of performing challenging tasks for employees' development, careers, and job attitudes are well established, research has hardly explored possible moderators in these relationships (De Pater, Van Vianen, & Bechtoldt, 2010). In addition, extant research has neglected possible negative outcomes of performing challenging assignments (De Rue & Wellman, 2009; Van Vianen et al., 2008). For example, job challenge may not only result in learning and development, but may also increase an employee's stress levels (Podsakoff, Lepine, & Lepine, 2007).

Third, little is yet known about factors that influence the amount of challenge employees have in their work. For example, there may be individual characteristics that predispose employees to seek challenging assignments (De Pater, Van Vianen, Fischer, et al., 2009) and supervisors' task allocation decisions may also influence the extent to which employees encounter challenging experiences in their jobs (De Pater et al., 2010).

Last, but not least, the conceptualization and operationalization of job challenge in organizational literature and research is far from consistent. For example, some researchers operationalized and assessed job challenge in terms of objective work characteristics (e.g., De Pater et al., 2010; De Pater, Van Vianen, Bechtoldt et al., 2009; De Rue & Wellman, 2009; McCauley et al., 1994) whereas other researchers view job challenge as a subjective cognitive experience or state (e.g., Cuneen & Sidwell, 1994; Dixon et al., 2005; Huang et al., 2007; Walsh, Taber, & Beehr, 1980). Although measures of job challenge as objective characteristics of work have been developed (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1994; 1999), a theoretically grounded and validated measure for *experienced* job challenge is lacking (Preenen, Van Vianen, De Pater, & Geerling, 2010).

The central aim of the present dissertation is to provide a better understanding of the conceptualization, determinants, processes, and outcomes of job challenge by focusing on the issues mentioned above. In this chapter, I will provide an overview of the theory and research on job challenge. Specifically, I will first discuss existing conceptualizations of job challenge. Hereafter, I will discuss potential causes of individual differences in job challenge and I will outline its consequences for individual development and learning, career success, and job attitudes. Finally, I will provide an overview of the chapters in this dissertation.

The Concept of Job Challenge

Job challenge has been conceptualized in different ways (e.g., Cuneen & Sidwell, 1994; De Pater, Van Vianen, Bechtoldt et al., 2009; Dixon et al., 2005; Huang et al., 2007; McCauley et al., 1994; Walsh et al., 1980). In general, researchers have referred to job challenge as a characteristic of work (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1999; McCauley et al., 1994), a cognitive appraisal (e.g., Cuneen & Sidwell, 1994; Walsh et al., 1980), or a (physiological) mood state (e.g., Meyer & Allen, 1988; Taylor, 1981). Other researchers used the term job challenge but did not provide a definition of the construct in their studies (e.g., Bandura, 1986; Csikszentmihalyi, 1997; Maurer & Tarulli, 1994).

Job Challenge as a Work Characteristic

Various organizational theories have conceptualized job challenge as a work characteristic. For instance, goal-setting theory (e.g., Locke & Latham, 1990) proposes that goals should be both specific and challenging in order to increase employees' performance on the task. From this perspective, a challenging goal is defined as being difficult but obtainable.

This conceptualization corroborates Berlew and Hall's (1966) definition of job challenge: "having to meet performance expectations that are reasonably high" (p. 209). The Job Demands Model (Karasek, 1979) also considers job challenge to be a characteristic of the job. This model defines job challenge in terms of quantitative (i.e., the degree to which employees are required to work fast and have a lot of work to do in a short time) and qualitative (i.e., having to deal with role ambiguity and/or with conflicting roles) role demands (e.g., Janssen, 2001; Karasek, 1979).

Flow theory (Csikszentmihalyi, 1997) considers challenge to be one of the most important *situational* (work) conditions of flow. Flow is described as a state of consciousness where people become totally immersed in an activity and enjoy it intensely. The occurrence of flow is most likely when people perceive a balance between the challenge of a situation and their own skills to deal with this challenge (e.g., Clarke & Haworth, 1994). Flow theory, however, does not provide a clear definition of challenge.

Challenging job characteristics have been best defined in the context of management development. The management development literature views challenging jobs in terms of a set of developmental job aspects (e.g., McCall, Lombardo, & Morrison, 1988; McCauley et al., 1994; McCauley, et al., 1999). McCauley and colleagues identified five clusters of job components that represent challenging aspects of work: (a) job transitions, with individuals being confronted with new tasks and situations in which existing tactics and routines are inadequate, (b) creating change, with individuals having a clear goal to change a situation, but a loosely defined role that gives them the freedom to determine how to accomplish the goal, (c) managing at high levels of responsibility, characterized by increased visibility, the opportunity to make a significant impact, dealing with broader and more complex problems, and higher stakes, (d) managing boundaries, in which case employees have to work with people over whom they have no direct authority and have to develop strategies for influencing them and gaining their cooperation, and (e) dealing with diversity, that is, working with people who are different from themselves regarding their values, backgrounds, experiences, and needs.

Although these challenging job characteristics particularly concern managerial jobs, Van Vianen and colleagues (2008) have noted that most of these are applicable to non-managerial jobs as well. They stated that an assignment can be qualified as challenging to the extent that the task: (a) is new and asks for non-routine skills and behaviors, (b) tests one's abilities or resources, (c) gives an individual the freedom to determine how to accomplish the task, and (d) involves a higher level of responsibility and visibility. In the present dissertation, I mainly focus on this conceptualization of job challenge.

Job Challenge as a Cognitive Appraisal or Mood State

Literature on work (re-)design that is typically concerned with job characteristics describes job challenge in terms of the use and development of skills, talents, or capacities.

Hackman and Oldham (1976), for example, defined job challenge as "the degree to which a job requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person" (p. 257). In concordance with this definition of job challenge, several researchers conceptualized job challenge as the appraisal of skill use, skill variety, or learning. For instance, Cuneen and Sidwell (1994) defined job challenge as "an opportunity to learn new skills and apply theoretical concepts to the work world". Walsh and colleagues (1980) defined job challenge as "the degree to which the knowledge, skills, and abilities of the role incumbent are engaged or enlarged by the job" (p. 255), and Jones and James (1979) described job challenge as "the extent to which a job gives the individual a chance to use his skills or abilities" (p. 212).

Literature on stress considers challenge to be a cognitive appraisal of the situation. For instance, the challenge-threat literature usually conceptualizes challenge as "appraising a situation as having the potential for growth, mastery, or gain" (Folkman & Lazarus, 1985, p.152). In addition, this research domain has associated job challenge with pleasurable emotions such as eagerness, excitement, and exhilaration (e.g., Lazarus & Folkman, 1984). In a similar vein, Meyer and Allen (1988) defined job challenge as "the extent to which the job is challenging and exciting" (p. 198).

The above suggests that job challenge can be conceived of as a characteristic of the job, a cognitive appraisal, and a mood state. Although these conceptualizations clearly differ with respect to the chosen perspective, they all seem to fit into a *work characteristic - psychological state* model of job challenge. To clarify, a specific work characteristic, such as for example novelty of the task, can induce psychological states, such as the appraisal of a situation as being developmental (cognitive appraisal), and/or a state of excitement (physiological arousal). Thus, the different viewpoints and definitions of job challenge may well coexist.

Individual Differences in Job Challenge

Individuals who hold a similar job can differ considerably regarding the quality or content of their job (Quinones, Ford, & Teachout, 1995; Tesluk & Jacobs, 1998), especially the extent to which they have challenging experiences (e.g., De Pater et al., 2010; De Pater, Van Vianen, Fischer et al., 2009). The question, then, is what causes these individual differences in job challenge. As both employees (Bell & Staw, 1989; De Pater, Van Vianen, Fischer et al., 2009; De Pater, Van Vianen, Humphrey, Sleeth, & Hartman, 2009; Graen, Orris, & Johnson, 1973; Terborg, 1981) and supervisors (Bell & Staw, 1989; Graen et al., 1973; De Pater, Van Vianen, Humphrey et al., 2009) largely influence employees' job content, we will focus on both employee and supervisor factors that impact upon employees' challenging activities.

Individual Characteristics and Job Challenge

Research on job challenge has mainly focused on two individual factors to explain individual differences in job challenge: gender and individuals' motivational orientations. Of these two factors, gender has received the most attention.

Gender and job challenge. Several studies have shown that women encounter fewer challenging experiences in their jobs than their male counterparts (De Pater, Van Vianen, Fischer et al., 2009; Lyness & Schrader, 2006; Ohlott, Ruderman, & McCauley, 1994; Van Velsor & Hughes, 1990; Woodall, Edwards, & Welchman, 1997). More specifically, these studies revealed that women's jobs, as compared to men's jobs, involved less risk, lower visibility, and less opportunities to create change (Van Velsor & Hughes, 1990; Ohlott et al., 1994).

One explanation for the gender differences in job challenge is that women are less motivated than men to engage in challenging assignments (Dickerson & Taylor, 2000) or to seek challenging organizational roles (Lyness & Schrader, 2006) due to their lower self-efficacy. Research (De Pater, Van Vianen, Fischer et al., 2009; De Pater, Van Vianen, Humphrey et al., 2009), however, did not support this proposition and found, instead, that individuals' achievement motivation could explain gender differences in the choice to perform challenging tasks.

Motivational orientations and job challenge. In achievement situations, individuals are aware of the fact that their performance can or will be compared with some standard of excellence (Cooper, 1983). Therefore, their behaviors will be oriented toward demonstrating high ability (approach motive) or avoiding to demonstrate low ability (avoidance motive) (Nicholls, 1984). An avoidance motivation reflects an individual's desire to avoid failure (Atkinson, 1957) and subsequent negative judgments of one's competence (Hirschfeld, Thomas, & Lankau, 2006). People high in avoidance motivation are less willing to perform achievement tasks and more easily change to non-achievement tasks than individuals low in motive to avoid failure (Atkinson & Birch, 1974). Moreover, an avoidance motivation has been associated with disengagement from challenging situations (Elliot, 1999). In contrast, an approach motivation reflects one's tendency to strive toward achieving challenging standards of task performance (Hirschfeld et al., 2006) and direct one's behaviors toward the attainment of success (Elliot, 1999). People high in approach motivation are more responsive to achievement cues and are more likely to perform achievement tasks than individuals low in motive to approach success (Atkinson & Birch, 1974), and may thus be more likely to perform challenging assignments. Research (De Pater, Van Vianen, Fischer et al., 2009; De Pater, Van Vianen, Humphrey et al., 2009) indeed showed that an approach motivation is related to individuals' choice to perform challenging tasks, whereas an avoidance motivation is related to the choice to perform non-challenging tasks.

Another important theory on individuals' motivational orientations is goal orientation theory (e.g., Dweck, 1999; Nicholls, 1984). Goal orientation refers to the underlying goals

that people adopt and pursue in achievement situations (Dweck, 1986; Dweck & Leggett, 1988). Goal orientation distinguishes two goal orientations: a mastery or learning goal orientation and a performance goal orientation. In goal orientation research the terms mastery goal orientation and learning goal orientation are used interchangeably. In the present dissertation, we will use the term mastery goal orientation. Mastery-oriented individuals focus on the development of competence through task mastery, whereas performance-oriented individuals focus on demonstrating and validating their competence and not performing worse than others (Elliot, 1999; VandeWalle, Cron, & Slocum, 2001). Mastery oriented individuals are open to and interested in learning from new experiences (VandeWalle et al., 2001) and perceive challenging activities as opportunities to learn (Dweck, 1986). In contrast, performance oriented individuals tend to prevent the risk of being viewed as incompetent by others and they are therefore thought to avoid challenging situations (e.g., Elliot, 1999; Dweck, 1986). Based on the above, it can be expected that a mastery orientation is positively and a performance orientation is negatively associated with the performance of challenging tasks. However, to date, empirical evidence for these propositions is scarce. One study (Dragoni et al., 2009) examined the relationship between mastery orientation and having challenging developmental experiences among junior managers, and indeed showed a positive relationship between mastery orientation and challenging, developmental experiences. This study, however, did not examine the relationship between performance orientation and job challenge.

Despite the widespread study of goal orientation, the literature on this construct represents conceptual inconsistency about the stability of the construct (DeShon & Gillespie, 2005). For example, extant research on goal orientations has viewed goal orientations as a trait (e.g., Ames & Archer, 1988; VandeWalle, 1997; VandeWalle, Ganesan, Challagalla, & Brown, 2000), as a state that can be influenced by situational characteristics (e.g., Harackiewicz, Barron, Carter, Leto, & Elliot, 1997; Jagacinsky & Nicholls, 1984), or did not address this issue (e.g., Bunderson & Sutcliffe, 2003; Elliot & Harackiewicz, 1994; 1996). In the current study, we focus on the conceptualization of goal orientation as a somewhat stable individual difference variable (quasi-trait) that may be (temporarily) influenced by situational characteristics (e.g., Button, Mathieu, Zajac, 1996; Dweck, 1989; Farr, Hoffmann, & Ringenbach, 1993).

Interestingly, lately researchers have combined theories on achievement motives and goal orientation by distinguishing mastery and performance goal orientations into approach and avoidance versions (e.g., Elliot & McGregor, 2001). Individuals with mastery-approach goal orientations focus on the development of competence through task mastery and gaining new skills, which is largely in line with the conceptualization of the traditional mastery orientation. Individuals with mastery-avoidance goal orientations strive to avoid deterioration, losing their skill, or leaving the task incomplete or un-mastered. Likewise, performance-oriented individuals can be motivated either to demonstrate superior competence relative to

others and obtain favorable judgments about their achievements (performance-approach goal orientation), or to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (performance-avoidance goal orientation) (e.g., Elliot, 1999; Elliot & Church, 1997; VandeWalle, 1997). To date, no goal orientation research has actually examined relationships between different goal orientations and the extent to which employees perform challenging tasks (for an overview, see Elliot, 2005; Payne, Youngcourt, Beaubien; 2007). Therefore, in the present dissertation, I will address this issue and examine the relationships between individuals' goal orientations and the performance of challenging tasks.

The Supervisor and Employee Job Challenge

Whether or not employees have challenging experiences will also depend on the behaviors of their supervisors, as supervisors may facilitate employees' challenging experiences by the assignment or delegation of challenging tasks (Cianni & Romberger, 1995; De Pater et al., 2010). Some sparse studies have examined why supervisors assign challenging tasks to some subordinates and not to others. One experimental study (Mai-Dalton & Sullivan, 1981) has found that supervisors assign more challenging tasks to same-sex subordinates as compared to opposite-sex subordinates. More recently, De Pater and colleagues (2010) have shown that supervisors were more inclined to provide challenging tasks to male rather than female subordinates.

Van Vianen and colleagues (2008) proposed that because delegating assignments to subordinates involves a certain risk for the supervisor (Van de Vliert & Smith, 2004), supervisors will try to reduce that risk by delegating challenging assignments exclusively to those subordinates they trust to be both willing and able to perform well. Indeed, research (De Pater et al., 2010) indicated that supervisors were inclined to assign challenging tasks to those employees they considered to be ambitious and well performers. Although it has been suggested that supervisor characteristics may also influence the delegation of challenging tasks (e.g., Klein & Ziegert, 2004), to date, no study has examined supervisor characteristics that influence the types of tasks their subordinates perform. Therefore, in the present dissertation, I will explore the possible link between supervisor characteristics and their task assignment behaviors. Specifically, I will examine possible relationships between supervisors' goal orientations and the extent to which their subordinates perform challenging tasks.

Consequences of Job Challenge

To date, most research on job challenge has focused on individual outcomes of job challenge, that is, on managerial development and learning, career success, and job attitudes.

Job Challenge and Career Success

Managers consider challenging experiences as one of the most important prerequisites of their career success (e.g., Lyness & Thompson, 1997; 2000; McCall et al., 1988; Van Velsor & Hughes, 1990). Indeed, job challenge has found to be beneficial for employees' career development. For instance, Berlew and Hall (1966) showed that the degree of challenge present within employees' first organizational assignments exerts a direct effect upon the levels of performance displayed throughout their careers. In a similar vein, Bray, Campbell, and Grant (1974) revealed that individuals' job challenge in the first years on their job was positively associated with their management level eight years later.

Researchers (Berlew & Hall, 1966; Taylor, 1981) have theorized that initial job challenge affects career success and future career performance through motivation, that is, individuals working on challenging assignments are thought to internalize high standards for their performance and positive job attitudes after experiencing the intrinsic and extrinsic rewards which accompany success on a challenging task. These standards and attitudes were believed to generalize to later task assignments and to motivate people to maintain high performance levels throughout their careers. Moreover, challenging tasks have been found to enhance people's range of interests, tolerance of uncertainty, and inner work standards (Berlew & Hall, 1966; Taylor, 1981), which are crucial assets for performing in management positions (London, 2002; McCauley et al., 1994).

Another explanation may be that the performance of challenging tasks is perceived of as a signal indicating employees' levels of ability (Humphrey, 1985), willingness to exert effort (Van Scotter, Motowidlo, & Cross, 2000), and their ambition for reaching higher-level positions (De Pater, Van Vianen, Bechtoldt et al., 2009). Research indeed indicated that employees' challenging job experiences are an important source for supervisory and organizational evaluations of employees' promotability over and above employees' tenure and current job performance (De Pater, Van Vianen, Bechtoldt et al., 2009) and that evaluations of employees' promotability are regarded as important indicators of actual promotions and career success (Van Scotter et al., 2000; Wayne, Liden, Kraimer, & Graf, 1999).

A third explanation for the positive impact of job challenge on people's careers is that challenging assignments are found to be important for the development of sources of organizational power, such as visibility to others, effective interpersonal networks, and resource availability within and outside the organization (Melamed, 1995), which can be regarded as important for managerial advancement (Hurley & Sonnenfeld, 1998). Finally, job challenge is likely to be related to career success, as job challenge is one of the most important determinants of learning and management development (e.g., McCall et al., 1988; McCauley et al., 1994; McCauley et al., 1999).

Job Challenge, Managerial Development, and On-the-Job Learning

Research on management development has consistently shown that performing challenging assignments is an important prerequisite for learning and managerial development. For example, DeRue and Wellman (2009) showed that developmental challenge resulted in leadership skill development, and a study by Dragoni and colleagues (2009) showed that challenging assignments were positively related to junior managers' end-state competencies.

Several processes may explain why challenging experiences result in managerial development. First, challenging assignments provide employees with the opportunity and motivation to learn (McCauley et al., 1994). Challenging assignments often involve confrontations with new situations in which existing tactics and routines are inadequate. In order to perform well, employees need to develop new strategies and skills (Davies & Easterby-Smith, 1984, McCall et al., 1988; Nicholson & West, 1988). Challenging assignments thus provide a platform for trying new behavior or reframing old ways of thinking or acting, and facilitate the practice of underdeveloped skills (McCauley et al., 1994). Moreover, challenging experiences are believed to facilitate skill development by motivating employees to exert extra effort to acquire the skills demanded of them (Kanfer & Ackerman, 1989).

Second, challenging assignments improve cognitive and strategic skills as employees have to think critically about the assignment, identify the underlying causes and consequences of problems, and process new and ambiguous information (Cox & Cooper, 1988; DeRue & Wellman, 2009; Gillen & Carrol, 1985). Finally, the accomplishments of challenging tasks are expected to increase crucial assets for managerial development, such as employees' self-esteem (Davies & Easterby-Smith, 1984), ambition for higher management positions (Van Vianen, 1999), and self-efficacy regarding their managerial potential (Maurer & Tarulli, 1994).

Job Challenge and Job Attitudes

Several studies suggest that individuals are particularly attracted to organizations that offer jobs and tasks that are challenging rather than non-challenging (Boswell et al., 2003; Slaughter, et al., 2006), and that job challenge is positively related to employees' job satisfaction (e.g., Cammann, Fichman, Jenkins, & Klesh, 1983; Carmeli, Cohen-Meitar, & Elizur, 2007; James & Jones, 1980; Judge, Bono, & Locke, 2000; Kirk-Brown & Wallace, 2004) and organizational commitment (e.g., Allen & Meyer, 1990; Buchanan, 1974; Cammann et al., 1983; Dixon, et al., 2005; Hall & Schneider, 1972; Meyer & Allen, 1988; Steers, 1977). In fact, it has been proposed that job challenge is a key variable in accounting for individuals' satisfaction with their work (e.g., Kirk-Brown & Wallace, 2004) and organizational commitment (e.g., Allen & Meyer, 1990; Dixon et al., 2005; Meyer & Allen, 1988; Steers, 1977).

There are several explanations for the positive impact of job challenge on employees' job attitudes. First, challenging jobs involve skill development and on-the-job-learning (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009; McCall et al., 1988; McCauley et al, 1994), which promote competence and efficacy in approaching work-related problems (Gouillart & Kelly, 1998). Challenging jobs may thus satisfy basic, innate needs, such as the desire to acquire and exercise competence (e.g., Elliot & Dweck, 2005; Skinner, 1995) and the need for achievement (McClelland, Atkinson, Clark, & Lowell, 1953). Hence, people will be more satisfied with their job and committed to their organization. In addition, employees may also like and commit to jobs that stimulate the acquisition of new skills, competencies, and learning experiences because this is important for their employability and future career opportunities (Berlew & Hall, 1966; De Pater, Van Vianen, Bechtoldt et al., 2009; McCall et al., 1998).

Secondly, job challenge may enhance positive job attitudes because employees who are provided with challenging assignments may perceive that their organization is committed to helping them meet their individual needs, values them, and rewards them. They are, therefore, more likely to view the organization favorably and to become more committed to the organization (Buchanan, 1974; Steers, 1977). Finally, job challenge may enhance positive job attitudes because it may positively affect individuals' positive motivational states (e.g., Csikszentmihalyi, 1990; Feldman, 2002; Houkes et al., 2003; Massimini & Carli, 1988). Challenging assignments are believed to "encourage employees to put a greater amount of their cognitive and emotional resources into their job, which usually results in greater, more meaningful job experiences" (Carmeli et al., 2007, p. 3). Empirical support for this idea stems from goal-setting research that has shown that challenging goals are likely to increase the amount of effort employees invest in goal attainment (LaPorte & Nath, 1976; Latham & Locke, 1991), and that such goals directly enhance people's task enjoyment and interest in the task (Harackiewicz et al., 1984; Locke & Bryan, 1967).

Despite the positive impact of job challenge on employees' job attitudes, learning and development, and career success, several researchers (e.g., Taylor, 1981; Van Vianen et al., 2008) have argued that one should be careful to put job challenge in a too positive perspective.

Negative Consequences of Job Challenge

Under certain circumstances job challenge may also have less positive or even negative consequences for employees. For instance, research has indicated that employees can be either insensitive or react negatively to challenging job characteristics such as when they experience too much autonomy and skill variety (Katz, 1978). Moreover, it has been argued that job challenge may increase incidences of job failure across employees, which may lead to several negative psychological and organizational consequences (Taylor, 1981).

Based on theories of cognitive functioning (Fiedler & Garcia, 1987; Sweller, 1988, 1994), it can be proposed that challenging work experiences place employees at a higher risk

for cognitive overload because these experiences are new and require them to cognitively deal with many factors and demands simultaneously, such as monitoring multiple tasks, performance stress because of the high performance levels, and evaluation anxieties due to the high responsibility and visibility of challenging assignments. Employees who become cognitively overloaded often exhibit symptoms, such as a lack of perspective and being unable to focus on relevant information, which may inhibit, instead of stimulate, learning and skill development (DeRue & Wellman, 2009).

Thus, although job challenge is generally considered to have beneficial outcomes, it is important to keep in mind that job challenge may also have negative outcomes. Actually, both high and low challenging assignments may have their pros and cons, that is, high challenging tasks offer opportunities for learning but could be stressful, whereas low challenging tasks are comfortable (as long as job demands are not too low) but could lead to deactivation and lower effort. Given that organizations provide their employees with low and high challenging assignments, it is thus important to examine factors that may influence the relationship between challenging assignments and outcomes of these assignments.

To date, little is known about factors that may moderate the relationship between job challenge and employee outcomes. Therefore, in the present dissertation, I address this issue by investigating the moderating role of goal orientation on the relationship between challenging assignments and employees' job attitudes. As I described earlier, people's goal orientations are likely to influence the amount of challenging tasks that people perform. I propose that employees' goal orientations may also influence their reactions to challenging assignments. Therefore, in the present dissertation, I will also investigate employees' goal orientations as possible moderators in the relationship between the performance of challenging tasks and its psychological consequences.

Overview of the Present Dissertation

The objective of the present dissertation is to broaden our knowledge about job challenge by investigating the concept of job challenge, antecedents and outcomes of job challenge, as well as possible moderators that may influence the relationship between job challenge and its consequences.

In Chapter 2, we examine the relationship between employees' challenging assignments, on-the-job-learning, and turnover intentions, job-search behaviors, and actual voluntary turnover. Specifically, we propose and test a model in which challenging assignments lead to on-the-job learning, which in turn decreases employees' turnover intentions and job-search behaviors. Using a two-wave study design, we examine the impact of challenging assignments on employees' learning, turnover intentions, job-search behaviors, and actual voluntary turnover over a two-year time period. As job experiences, such as challenging assignments and on-the-job learning, are likely to change over time (McDaniel, Schmidt, & Hunter, 1988), we examine the impact of changes in challenging assignments and

on-the-job learning on voluntary turnover over and above the impact of initial turnover intentions and job-search behaviors. We examine these relationships in a field study among 689 employees working in health care and welfare organizations in the Netherlands.

Chapter 3 describes a laboratory study that examined whether and how the inducement of individuals' goal orientation (mastery-approach vs. performance-approach vs. no orientation) while performing an assigned high or low challenging task influences their affective responses and task motivation. Considering one's affective responses, we will focus on positive and negative activating mood states, because challenge is associated with positive moods such as being active and alert (e.g., Lazarus & Folkman, 1984; Meyer and Allen, 1988) as well as with negative moods, such as feeling nervous, tensed, and stressed (Boswell, Olson-Buchanan, & Le Pine, 2004; McCauley et al., 1994). We will argue that performing a high challenging assignment leads to better mood (high positive, low negative) and higher motivation with a mastery-approach orientation than with a performance-approach orientation, or no goal orientation. We will also argue that performing a low challenging assignment leads to better mood (high positive, low negative) and higher motivation with a performance-approach orientation than with a mastery-approach orientation, or no goal orientation. In order to enhance external validity, we have developed realistic (non-)challenging assignments for the study sample consisting of a total of 179 students.

The purpose of Chapter 4 is to examine the extent to which the performance of challenging tasks is related to employees' and supervisor's goal orientations. We will draw on recent goal orientation theory and research (e.g., Elliot & McGregor, 2001; Janssen & Prins, 2007) that focuses on four goal orientations: performance-approach orientations, performance-avoidance orientations, mastery-approach orientations, and mastery-avoidance orientations. Specifically, Study 4.1 examines the impact of employees' own goal orientations on the extent to which they perform challenging assignments. Study 4.2 investigates the impact of supervisors' goal orientations on the extent to which employees perform challenging assignments. Study 4.1 concerns a two-wave field study among 216 students. Study 4.2 concerns a sample of 39 supervisors and 193 employees working for an industrial organization at six locations.

In Chapter 5, we aim to reach a better understanding and conceptualization of job challenge by exploring and categorizing the aspects that lay persons, other than researchers, consider to be challenging. Specifically, in a qualitative study, we asked participants to describe a task they recently performed and experienced as challenging and then asked them to describe why they considered this task to be challenging. We used concept mapping to analyze and categorize participants' responses. Concept mapping is a technique that is widely used for specifying conceptual frameworks (Trochim, 1989) and coding qualitative data aimed at scale development (Jackson & Trochim, 2002). Finally, based on the results, we will propose a categorization of challenging job aspects.

The central aim of Chapter 6 is to develop and validate a reliable, theoretically sound instrument to assess perceived job challenge, the *Perceived Job Challenge Measure* (PJCM). We generated items based on the results of Chapter 5. The PJCM was tested in two studies for which data was collected among employees from different organizations in the Netherlands. In Study 6.1, we investigate the underlying factor structure of the measure and its reliability among 222 employees. In Study 6.2, we again test the factor structure and internal consistency of the measure in a sample of 468 employees. We furthermore examine its test-retest reliability over a six-month time interval and its convergent, discriminant, and concurrent validities. The convergent validity will be examined by relating the PJCM to extant measures of job challenge and variables that are closely related to job challenge. We examine the discriminant validity of the PJCM by investigating relationships between the PJCM subscales and measures that are expected not to relate to perceived job challenge. The concurrent validity of the PJCM is tested by examining relationships between the PJCM and job satisfaction, affective commitment, turnover intentions, and job performance.

In Chapter 7, I will summarize and integrate the results of the studies that are reported in this dissertation. Furthermore, I will discuss the implications for theory and practice, the limitations of the present dissertation, and I will propose avenues for future research.

Finally, I would like to note that Chapters 2 through 6 have been prepared as separate journal articles and therefore may be read independently.

CHAPTER TWO
CHALLENGING ASSIGNMENTS, ON-THE-JOB LEARNING, AND RETENTION

Job challenge is found to be beneficial for the careers of individual employees, as positive relationships have been found between challenging job experiences and learning (e.g., DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009), supervisory promotability ratings (De Pater, Van Vianen, Bechtoldt, & Klehe, 2009), and career success (Berlew & Hall, 1966; Bray, Campbell, & Grant, 1974). Less is known, though, about organizational consequences of providing employees with challenging assignments (Van Vianen, De Pater, & Preenen, 2008).

Due to the rapid changes in and increasing complexity of work, it is nowadays vital for organizations to maintain a flexible and capable workforce. Providing employees with challenging assignments may help organizations to face this challenge. First, in recent years researchers have shown that individuals are particularly attracted to organizations that offer challenging jobs (Boswell, Roehling, LePine, & Moynihan, 2003; Slaughter, Richard, & Martin, 2006), suggesting that offering challenging jobs may be a means to retain employees. Second, challenging assignments are found to result in on-the-job learning and employee development (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009), which can satisfy (inherent) needs of people, such as the desire to acquire and exercise competence (e.g., Elliot & Dweck, 2005; Skinner, 1995). Employees may thus highly value having challenging assignments in their jobs as these assignments lead to learning and development.

The present study examines whether challenging assignments will help organizations to retain their valuable employees by reducing voluntary employee turnover. Voluntary employee turnover, the departure from an organization despite having the opportunity to remain (Price, 1977; Wright & Cropanzano, 1998), is a significant problem for many organizations (Proudfoot, Corr, Guest, & Dunn, 2009) as the cost of replacing employees and educating new employees is high. Moreover, expected labor shortages on the longer term due to the graying labor force and impending baby-boomer retirements (Hedge, Borman, & Lammlein, 2006; Toossi, 2007) induce the need for effective strategies for maintaining employees (Morrow, Suzuki, Crum, Ruben, & Pautsch, 2005).

Popular and applied literatures (CIPD, 2005; Loquercio, 2006; Salopek, 2000) have already proposed that organizations should create challenging jobs in order to avoid voluntary employee turnover. This suggestion is corroborated by studies that showed that individuals are attracted to challenging jobs (Boswell et al., 2003; Slaughter et al., 2006) and research that revealed positive relationships between job challenge and employees' job attitudes (e.g., Carmeli, Cohen-Meitar, & Elizur, 2007; Judge, Bono, & Locke, 2000). Moreover, the

proposition that organizations should create challenging jobs in order to avoid voluntary employee turnover is in line with theories of human resource management that view organizational initiatives for employee development as part of a strategy to increase employee commitment to the organization, and, thereby, to reduce voluntary turnover (Barrett & O'Connell, 2001; Heyes, 1996; Smith & Hayton, 1999).

However, providing challenging assignments, and thus learning opportunities, with the aim to build commitment in order to retain valued employees may also increase employees' opportunities for employment in other organizations (Benson, Finegold, & Mohrman, 2004; Campbell & Campbell, 2003; Ito & Brotheridge, 2005). According to human capital theory (Becker, 1962), organizational initiatives for employee development increase employees' productivity and, at the same time, enrich their value at the labor market, which could result in voluntary turnover. Investigating the consequences of providing employees with challenging assignments for their turnover intentions and behaviors seems thus warranted, not only from a scientific perspective, but also from a practical one.

In the current study, we examine the impact of providing employees with challenging assignments on on-the-job learning, turnover intentions, job-search behaviors, and actual voluntary turnover within the two years following Time 1 measurements. Specifically, we test a model in which challenging assignments lead to on-the-job learning, which in turn decreases employees' turnover intentions and job-search behaviors. Second, we employ a two-wave design in order to find some support for the causality of the proposed relationships. As job experiences, such as challenging assignments and on-the-job learning, are likely to change over time (McDaniel, Schmidt, & Hunter, 1988), we will examine the impact of changes in challenging assignments and on-the-job learning on voluntary turnover. Hereby, we will control for employees' turnover intentions and job-search behaviors at Time 1. In this way, we can explore whether changes in challenging assignments and on-the-job learning over time affect voluntary turnover above and beyond employees' initial turnover intentions and job-search behaviors.

Given the scarcity of research on organizational outcomes of providing employees with challenging assignments and the controversy on the relationship between employee learning and voluntary turnover, we aim to shed light on the role of challenging assignments in employee learning and retention. From a practical perspective, organizations are in essence able to manage the (challenging) characteristics of their employees' jobs and work assignments. Supervisors in particular have the opportunity to provide employees with challenging experiences by giving them challenging tasks and assignments (Cianni & Romberger, 1995; De Pater, Van Vianen, & Bechtoldt, 2010). The provision of challenging assignments by supervisors can thus be seen as a practical, manageable tool, for stimulating employee learning and retaining valuable employees.

Background and Hypotheses

Our first hypothesis concerns the relationship between challenging assignments and turnover intentions and job-search behaviors. Turnover intentions comprise the cognitive processes of thinking, desiring, and planning to leave a job (Mobley, Griffeth, Hand, & Meglino, 1979). Job-search behaviors encompass volitional, self-managed activities directed towards the goal of gaining employment (Kanfer, Wanberg, & Kantrowitz, 2001), such as applying for a job.

Job challenge has been conceptualized as "level of difficulty and stimulation" (Taylor, 1981, p. 255), as "being in dynamic settings with problems to solve and choices to make under conditions of risk and uncertainty" (McCauley, Ohlott, & Ruderman, 1999, p. 4), and as "having to meet performance expectations that are reasonably high" (Berlew & Hall, 1966, p. 209). Moreover, people are challenged if they are faced with an activity that is new, exciting, stimulating, demanding, and calls on their ability and determination (De Pater, Van Vianen, Humphrey et al., 2009, p. 565). More concrete, challenging activities: (a) are new and ask for non-routine skills and behaviors, (b) test one's abilities or resources, (c) give an individual the freedom to determine how to accomplish the task, and (d) involve a higher level of responsibility and visibility (Van Vianen et al., 2008).

Challenging assignments are believed to "encourage employees to put a greater amount of their cognitive and emotional resources into their job, which usually results in greater, more meaningful job experiences" (Carmeli et al., 2007, p. 3). Thereby, challenging assignments fulfill employees' intrinsic needs (Holmes & Srivastava, 2002) and help them to achieve organizational identification (Carmeli et al., 2007). Indeed, it has been shown that job challenge is positively related to job satisfaction (Judge et al., 2000) and organizational commitment (Buchanan, 1974; Hall & Schneider, 1972; Steers, 1977). Because job satisfaction and commitment are consistently found to be negatively related to turnover intentions, job-search behaviors**,** and voluntary turnover (Griffeth et al., 2000; Jaros, 1997), we believe that providing employees with challenging assignments may also decrease their turnover intentions and job-search behaviors. Hence, we propose:

> *Hypothesis 1. Challenging assignments will be negatively related to turnover intentions (1a) and job-search behaviors (1b).*

Although research has shown that people are attracted to challenging jobs (Boswell et al., 2003; Galinsky, Carter, Bond, & Bloom, 2008; Slaughter et al., 2006) and that job challenge positively relates to job attitudes (e.g., Buchanan, 1974; Carmeli et al., 2007; Hall & Schneider, 1972; Judge et al., 2000; Steers, 1977), research did not yet address the mechanisms underlying the relationships between job challenge and job attitudes. We propose that people are attracted to challenging jobs because these types of jobs provide them with opportunities for new learning and development.

Research has consistently shown that challenging assignments result in on-the-job learning (DeRue & Wellman, 2009; Dragoni et al., 2009; Lyness & Thompson, 1997, 2000; McCauley, Ruderman, Ohlott, & Morrow, 1994). On-the-job learning refers to "all implicit or explicit mental and/or overt activities and processes, performed in the context of work, leading to relatively permanent changes in knowledge, attitudes, or skills" (Berings, Poell, & Simons, 2008, p. 418). On-the-job learning has been recognized as being the most important type of learning within organizations (Clarke, 2004; Woodall, 2000). Challenging assignments enhance on-the-job learning as they often involve confrontations with new situations in which existing tactics and routines are inadequate and individuals have to develop new strategies and skills (Davies & Easterby-Smith, 1984; McCall, Lombardo, & Morrison, 1988). While doing these challenging activities people need to bridge a certain gap between their current skills and the skills that are required for the task. A challenging situation also creates an opportunity for learning on-the-job as it provides a platform for trying new behavior or reframing old ways of thinking or acting (McCauley et al., 1994).

Learning is important for people as it builds self-esteem and promotes competence and efficacy in approaching work-related problems (Gouillart & Kelly, 1998). Learning can satisfy basic, innate needs, such as the desire to acquire and exercise competence (e.g., Elliot & Dweck, 2005; Skinner, 1995), the need for self-actualization (Maslow, 1943; Rogers, 1951), and the need for achievement (McClelland, Atkinson, Clark, & Lowell, 1953). On-the-job learning is thus likely to be highly valued in an employee's decision to stay in or leave an organization. When individuals are not able to satisfy important needs, they will direct their attention and effort to fulfilling the unmet need (Mitchell & Daniels, 2003). In other words, when individuals do not learn in their jobs, inherent needs are not fulfilled and therefore they will look for challenging work environments in which they can learn, feel competent, and gain a sense of personal achievement. Moreover, employees may consider the acquisition of new skills, competencies, and experiences important for their employability and future career opportunities. Nowadays, individuals must take responsibility for their own learning opportunities (Gherardi, Nicolini, & Odella, 1998) and career futures (Arthur & Rousseau, 1996). Employees may thus also be inclined to leave their job if that job does not provide them with enough opportunities for learning and development because that may decrease their career opportunities.

In contrast with our suggestion that provided learning opportunities lowers voluntary employee turnover, human capital theory (Becker, 1962) proposes that organizational initiatives for employee development could result in voluntary turnover, as they increase employees' productivity and, thereby, enrich their value at the labor market. Indeed, several studies showed that human capital investments resulted in higher turnover intentions (Benson et al., 2004; Mueller & Price, 1990; Proudfoot et al., 2009). These studies examined consequences of formal training and education rather than consequences of on-the-job learning. Formal education and training is "highly institutionalized, bureaucratic, curriculum

driven, and formally recognized with grades, diplomas, or certificates" (Merriam, Caffarella, & Baumgartner, 2007, p. 29). Formal education and training often improve general skills and capacities that are likely to be recognized and valued by other employers (Cappelli, 2004) and may increase people's employability for other organizations (Lynch & Black, 1998). Although on-the-job learning can be more job specific of nature, on-the-job learning may also increase employees' own perceptions of their employability and job opportunities for other organizations, and possibly increase voluntary turnover. This would contradict our idea that on-the-job learning lowers employees' turnover intentions and behaviors. To deal with this issue, we will control for employees' perceived job alternatives in our analyses.

In line with our view that on-the-job learning lowers voluntary turnover, other researchers have also suggested that challenging, meaningful work that offers opportunities for learning and development decreases employees' turnover intentions and turnover behaviors (e.g., Kaye & Jordan-Evans, 2000; Lund & Borg, 1999), because people "care about the content of their work and whether there are opportunities to stretch and grow in the job and in the organization" (Kaye & Jordan-Evans, 2000, p. 30). Furthermore, research has shown that opportunities for on-the-job learning were positively associated with employee work satisfaction (Mikkelsen, Saksvik, Eriksen, & Ursin, 1999; Rowden, 2002) and commitment (Mikkelsen et al., 1999; Ng, Butts, Vandenberg, Dejoy, & Wilson, 2006). Hence, based on the above, we expect that organizations are better able to retain their employees when they provide their employees with challenging assignments, because such assignments enhance their on-the-job learning. We propose the following:

> *Hypothesis 2. On-the-job learning will mediate the negative relationships between challenging assignments and turnover intentions (2a) and job-search behaviors (2b).*

Both turnover intentions and job-search behaviors, which are directly under the control of the employee, are significantly, but not perfectly related to voluntary turnover (Gerhart, 1990a; Griffeth, Hom, & Gaertner, 2000). First, extraneous factors such as the availability of alternative jobs often interfere with individuals' ability to translate intentions into behavior (Campbell & Campbell, 2003; Griffeth et al., 2000; Hom, Roberson, & Ellis, 2008). Second, and more relevant for our purposes, in a predictive study, employees' work experiences, such as challenging assignments and on-the-job learning, are dynamic and may change during the time between the measurement of the predictor variables and the criterion variables (McDaniel et al., 1988). Therefore, McDaniel et al. (1988) suggested that with work experiences as central variable, it might be more appropriate to collect both the dependent and independent variables at the same time, as we did to test our first two hypotheses. However, such a cross-sectional approach does not allow for causal inferences.

The way in which challenging assignments and on-the-job learning evolve over time may affect whether employees ultimately act on their initial turnover intentions and follow up

on their job-search behaviors. With regard to the way employees act on their initial turnover intentions, four possible scenarios can be distinguished. Employees' initial intention to *stay* in the organization as measured at Time 1 may indeed result in longer organizational tenure (scenario 1), or in an unanticipated job change at Time 2 (scenario 2) if the challenging assignments and on-the-job learning decrease over time. Employees' initial intention to *leave* the organization as measured at Time 1 may indeed lead to a job change (scenario 3), or to an unanticipated organizational tenure at Time 2 (scenario 4) if the extent to which they have challenging assignments and learn on-the-job increases over time. In order to further examine relationships between challenging assignments, on-the-job learning, and voluntary turnover, we therefore examine the impact of the change in challenging assignments and on-the-job learning over time on turnover decisions, above and beyond the impact of turnover intentions and job-search behaviors at Time 1. Based on the argumentation for our first two hypotheses, we propose the following:

> *Hypothesis 3. Changes in challenging assignments will impact voluntary turnover above and beyond the influence of initial turnover intentions and job-search behaviors, such that an increase in challenging assignments will result in lower voluntary turnover and a decrease in challenging assignments will result in higher voluntary turnover.*

> *Hypothesis 4. The relationship between changes in challenging assignments and voluntary turnover will be mediated by changes in on-the-job learning.*

Methods

Research Design

To test our hypotheses, we used a two-wave panel study. We measured respondents' challenging assignments as obtained from their supervisor, on-the-job learning, turnover intentions, and job-search behaviors at Time 1. This was a first step to test our model predicting turnover intentions and job-search behaviors. It has been suggested that measuring predictor and criterion variables at the same point in time is appropriate especially if predictor variables are dynamic and thus may change during the time between the measurement of predictor and criterion variables (McDaniel et al., 1988). Employees' work experiences are indeed dynamic, so we decided to first establish the proposed relationships at one point in time. Yet, we realized that any causality between predictor variables and proxies of turnover (i.e., turnover intentions and job-search behaviors) could not be tested in this way. Moreover, we ultimately aimed to investigate whether challenging assignments and on-the-job learning could predict *actual* voluntary turnover. Hence, we measured actual voluntary turnover two years later (Time 2). Yet, changes in challenging assignments and on-the-job learning might have weakened the relationships between the initial predictor and criterion measures at Time

1 and actual turnover as measured at Time 2. Therefore, we also assessed challenging assignments and on-the-job learning at Time 2, which enabled us to examine whether changes in challenging assignments and on-the-job learning over time could account for how people acted upon their initial turnover intentions.

For employees who did not change jobs between Time 1 and Time 2, we assessed challenging assignments and on-the-job learning in their current job. For employees who voluntary changed jobs between Time 1 and Time 2, we assessed challenging assignments and on-the-job learning in their prior Time 1 job, thus the job they had recently left voluntarily. All in all, our research design allowed us to examine both cross-sectional and relationships over time between challenging assignments, on-the-job learning, turnover intentions, job-search behaviors, and actual voluntary turnover.

Sample

At Time 1, 689 employees (16% male) working in health care and welfare organizations in the Netherlands participated by filling out an online questionnaire. Mean age of the respondents was 35.5 years (*SD* = 10.56). Two hundred fourteen of the respondents held a bachelor's or master's degree (31%), 475 respondents held a professional or no degree (69%). Two years later (Time 2) respondents were asked to fill out a second online questionnaire. Three hundred ninety-four respondents participated in the second measurement. Fifteen of them indicated that they had changed jobs involuntary between the Time 1 and Time 2 measurements. Their questionnaires were excluded from our study. Hence, at Time 2, our sample consisted of 379 respondents (22% male; response rate = 55%). Mean age of the respondents was 36.8 years (*SD* = 10.56), 122 of the respondents held a bachelor's or master's degree (32%), 257 respondents held a professional or no degree (68%).

We compared our sample demographics with recent statistics of employees working in the Dutch healthcare and welfare sector (Van Essen, Paardekooper, Talma, & Van der Windt, 2006), which showed that 20% was male, the average age was 40.6 years, and that 38% of the participants held a bachelor's or a master's degree, while 62% had received professional or no education. These demographics are consistent with our sample demographics and may indicate that our sample is representative for employees working in the healthcare and welfare sector.

The attrition between Time 1 and Time 2 measurements was considerable. Even though the samples hardly differed regarding their demographics (age, gender, degree), we examined whether respondents who only filled out the Time 1 questionnaire differed from the respondents who participated in both measurements in the most important independent and dependent variables. ANOVA showed that the two groups did not differ regarding their challenging assignments ($F(1, 673) = .13$, $p = .72$), on-the-job learning ($F(1, 682) = .22$, $p = .64$), turnover intentions ($F(1, 685) = .28$, $p = .60$), and job-search behaviors ($F(1, 685) = .05$, $p = .83$) measured at Time 1.

Measures

Challenging assignments. The extent to which respondents obtained challenging assignments was measured with a six-item questionnaire (see Appendix A) derived from De Pater and colleagues (2009). Respondents indicated their agreement with the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alphas were .90 at Time 1 and .92 at Time 2. Confirmatory factor analyses showed that the six items loaded on one factor (Time 1: $\chi^2 = 30.24$, $p < .00$, $df = 7$, NNFI = 0.97, CFI = 0.98, IFI = 0.98, SRMR = 0.03; Time 2: $\chi^2 = 19.25$, $p < .01$, $df = 7$, NNFI = 0.99, CFI = 0.99, IFI = 0.99, SRMR = 0.02).

On-the-job learning. The extent to which respondents learned in their jobs was assessed with the four items: (1) "My job demands that I constantly learn new things", (2) "In my job I learn a lot", and (3) "In my job I can develop my talents and skills". Respondents indicated their agreement with the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alphas were .85 at Time 1 and .86 at Time 2.

Turnover intentions. Respondents' turnover intentions were measured with the item: "Given your choice, what are the chances that you will change your job in the next twelve months?". This item has often been used in previous research (e.g., Davy, Kinicki, & Scheck, 1997; Hom & Griffeth, 1991; Johnston, Griffeth, Burton, & Carson, 1993). Scale anchors ranged from 1 (*very unlikely*) to 5 (*very likely)*.

Job-search behaviors. The extent to which respondents engaged in job-search behaviors was measured with three items ($\alpha = .75$) derived from the employability activity scale (Van Dam, 2004) and the Job Search Behavioral Index (JSBI; Kopelman, Rovenpor, & Millsap, 1992). Participants indicated (1) how many times they had applied for a job in the previous year on a scale ranging from 1 (*0 times*) to 5 (*more than 3 times*), (2) the extent to which they stayed informed about vacancies for other jobs, and (3) the extent to which they were actively searching for ways to change their job situation on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An exploratory factor analysis with varimax rotation showed that the three items loaded on one factor (explaining 67.05 % of the variance).

Voluntary turnover. At Time 2, we assessed voluntary employee turnover with the questions "Did you, in the past two years, change from a job in one organization to a job in another organization?" (0 = *no*, 1 = *yes*) and, if they had changed jobs during the two previous years, "Was this a voluntary job change?" (0 = *non voluntary*, 1 = *voluntary*).

Control variables. We included respondents' age, education level (0 = *professional or no degree*, 1 = *bachelor's or master's degree*), and sex (0 = *female*, 1 = *male*) as control variables in our analyses to rule out some individual demographical differences that might alternatively explain our results (e.g., Cotton & Tuttle, 1986). As our respondents worked in the Dutch health care and welfare sector, where many alternative jobs are available (Van Essen et al., 2006), perceived job alternatives can explain turnover rates (e.g., Griffeth et al., 2000). We, therefore, also controlled for perceived job alternatives. Respondents' perception of job alternatives was measured with three items. They indicated how difficult it would be to

find a job in their (1) profession, (2) sector, and (3) region on a scale ranging from 1 (*not at all*) to 5 (*very*). Cronbach's alpha of this scale was .91.

Results

Table 2.1 reports the means, standard deviations, and inter-correlations of the variables measured at Time 1 and Time 2. Several demographic variables were significantly related to the dependent variables of this study. Older employees reported lower turnover intentions at Time 1 and less often changed their jobs than younger employees. Employees' level of education was significantly related to turnover intentions (r = .12, p < .01) and job-search behaviors (r = .10, p < .01), but not to actual turnover (r = .06, n.s.). Employees' perceptions of job alternatives at Time 1 were related to their turnover intentions (r = .12, p < .01) and job-search behaviors (r = .24, p < .01), but not to their actual turnover (r = -.00, n.s.). In all our further analyses we controlled for the demographic variables and perceived job alternatives.

Zero-order correlations between challenging assignments and on-the-job learning were substantial (r = .61 and r = .65 at Time 1 and Time 2, respectively). First, we examined whether these scales were different constructs with the larger sample at Time 1. The overall fit of the measurement model to the data was performed with LISREL 8.80. Furthermore, a two-factor model (including challenging assignments and on-the-job learning) was compared with a one-factor model (including all scale items). The two-factor model yielded a significantly better fit to the data (χ^2 = 109.15, p < .00, df = 26, NNFI = 0.96, CFI = 0.97, IFI = 0.97, SRMR = 0.05) than the one-factor solution (χ^2 = 273.08, p < .00, df = 27, $\Delta\chi^2$ = 163.93, Δdf = 1, NNFI = 0.89, CFI = 0.92, IFI = 0.92, SRMR = 0.08), which indicates that challenging assignments and on-the-job learning can be considered separate constructs.

Table 2.1
Means, Standard Deviations, and Correlations among Study Variables[a]

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Gender[b]	.16	.37	-										
2. Age (Time 1)	35.50	10.56	.13**	-									
3. Education[c]	.31	.46	.17**	-.12**	-								
4. Perceived job alternatives (Time 1)	2.96	1.14	.03	-.08*	.03	-							
5. Challenging assignments (Time 1)	3.08	.98	.12**	-.06	.09*	-.12**	-						
6. On-the-job learning (Time 1)	3.54	1.01	.07	-.02	.09*	-.09*	.61**	-					
7. Turnover intentions (Time 1)	2.65	1.33	.03	-.19**	.12**	.12**	-.18**	-.26**	-				
8. Job-search behaviors (Time 1)	2.71	.99	.08*	-.07	.10**	.24**	-.09*	-.17**	.54**	-			
9. Voluntary turnover (Time2)[d]	.16	.36	-.01	-.15**	.06	-.00	-.03	-.08	.31**	.22**	-		
10. Challenging assignments (Time 2)[e]	3.09	1.10	.13*	-.06	.06	.03	.39**	.32**	-.04	-.00	-.15**	-	
11. On-the-job learning (Time 2)[e]	3.44	1.01	.04	.00	.05	-.14**	.36**	.44**	-.15**	-.18**	-.26**	.65**	-

Note. [a] For variables 1-8, $N = 689$. For variables 9-11, $N = 379$, measures were taken two years later (Time 2). [b] Female = 0, male = 1. [c] Professional education or no degree = 0, bachelor's or master's degree = 1. [d] No = 0, yes = 1. [e] Respondents who changed jobs between Time 1 and Time 2 reported about the Time 1 job. * $p < .05$, ** $p < .01$.

In addition, it is important to investigate whether the measures of Time 1 reflect the same constructs as the comparable measures at T2. In order to examine equivalence of the challenging assignments and on-the-job learning constructs over time, we tested invariance of the factorial structure of these constructs (LISREL 8.80; Jöreskog & Sörbom, 2006) by estimating four models: a baseline model, a weak measurement invariance model, a strong measurement invariance model, and a strict measurement invariance model, respectively. These models are increasingly restrictive. No restrictions were imposed in the baseline model (Model 1, Table 2.2). The factor loadings (Λ) are constrained to be equal in the weak measurement invariance model (Model 2, Table 2.2). In addition, the factor loadings and the intercepts of observed variables (T) are constrained to be equal in the strong measurement invariance model (Model 3, Table 2.2). Finally, the factor loadings, the intercepts of observed variables, and residual variances (Θ_ε) are constrained to be equal in the strict measurement invariance model (Model 4, Table 2.2).

Table 2.2 shows that all models yielded an excellent fit to the data. Moreover, the fit of the strict factorial invariance model ($\chi^2 = 345.94$, $df = 143$, SRMR =.052, NNFI = .97, CFI = .98, IFI = .98) did not significantly differ from the fit of the baseline model ($\Delta\chi^2 = 39.75$, $\Delta df = 23$). Thus, the data showed statistical support for equivalence of the constructs over time. Cronbach's alpha for the change in challenging assignments was .88. Cronbach's alpha for the change in on-the-job learning was .78.

Table 2.2
Factorial Invariance Test

Model	Factorial invariance	χ^2	*df*	$\Delta\chi^2$	Δdf	NNFI	CFI	IFI	SRMR
1.	Baseline	306.19	120			.97	.98	.98	.044
2.	Weak[a]	314.97	127	8.78	7	.97	.98	.98	.051
3.	Strong[a]	324.14	134	17.95	14	.97	.98	.98	.051
4.	Strict[a]	345.94	143	39.75	23	.97	.98	.98	.052

Note. [a] The model is compared to Model 1.

Hypotheses Testing

We predicted that challenging assignments would be negatively related to turnover intentions (Hypothesis 1a) and job-search behaviors (Hypothesis 1b). We also proposed that on-the-job learning would mediate the relationship between challenging assignments and turnover intentions (Hypothesis 2a) and challenging assignments and job-search behaviors (Hypothesis 2b). We used hierarchical regression analyses to test these Hypotheses (see Table 2.3).

Together, the control variables and challenging assignments explained 10% of the variance in turnover intentions ($R^2 = .10$, $F(5, 641) = 14.42$, $p < .001$) and 8% of the variance in job-search behaviors ($R^2 = .08$, $F(5, 641) = 10.87$, $p < .001$). Age ($\beta = -.20$, $p < .001$) was

negatively and education (β = .11, p < .05) was positively related to turnover intentions. Education (β = .08, p < .05) and perceived job alternatives (β = .22, p < .001) were both positively related to job-search behaviors. Challenging assignments were negatively related to both turnover intentions (β = -.21, p < .001) and job-search behaviors (β = -.10, p < .01), thereby supporting Hypotheses 1a and 1b.

Table 2.3

Regression Analyses Predicting Turnover Intentions, Job-Search Behaviors, and On-the-Job Learning[a]

	Turnover intentions		Job-search behaviors		On-the-job Learning
Step and Variable	1	2	1	2	1
Step 1					
Gender[b]	.05	.05	.07	.07	-.00
Age	-.20***	-.20***	-.06	-.06	.02
Education[c]	.11**	.12**	.08*	.09*	.05
Perceived job alternatives	.07	.07	.22***	.21***	-.01
Challenging assignments	-.21***	-.07	-.10**	.01	.61***
Step 2					
On-the-job learning		-.23***		-.18***	
ΔR^2		.03***		.02***	
R^2	.10***	.13***	.08***	.10***	.38***

Note. [a] Standardized regression coefficients are reported, N = 689. [b] Female = 0, male = 1. [c] Professional education or no degree = 0, bachelor's or master's degree = 1. * p < .05, ** p < .01, *** p < .001.

For establishing mediation (Hypotheses 2a - 2b), four conditions should be met (Baron & Kenny, 1986). First, the independent variable (challenging assignments) should be related to the dependent variables (turnover intentions and job-search behaviors). This condition was met (see above). Second, the independent variable (challenging assignments) should be related to the mediator (on-the-job learning). This condition was tested with a regression analysis with on-the-job learning as the dependent variable and control variables and challenging assignments as independent variables (see column 5 in Table 2.3). Together, the control variables and challenging assignments explained 38% of the variance in on-the-job learning (R^2 = .38, F(5, 641) = 79.33, p < .001). Challenging assignments were positively related to on-the-job learning (β = .61, p < .001). Hence, the second condition was met.

According to the third condition, the mediator should affect the outcome variable when controlled for the independent variables. We tested this condition by adding on-the-job

learning in Step 2 of the regression analyses predicting turnover intentions and job-search behaviors. The addition of on-the-job learning in the second step of the regression analyses led to a significant increase in explained variance in turnover intentions (ΔR^2 = .03, F_{change} (1, 640) = 24.37, p < .001) and job-search behaviors (ΔR^2 = .02, F_{change} (1, 640) = 14.64, p < .001). On-the-job learning was negatively related to both turnover intentions (β = -.23, p < .001) and job-search behaviors (β = - .18, p < .001). Hence, the third condition was met.

The fourth condition requests that the relationship between the independent variable and the dependent variable significantly decreases when controlling for the proposed mediator. The size of the relationship between challenging assignments and turnover intentions reduced from β = -.21 (p < .001) in Step 1 to β = -.07 (p = .171) in Step 2. The bèta of the relationship between challenging assignments and job-search behaviors reduced from (β = -.10, p = .008) in Step 1 to (β = .01, p = .842) in Step 2. We subsequently performed two Sobel tests to examine the significance of the mediating effects. Results indicated that on-the-job learning mediated the relationship between challenging assignments and turnover intentions (Z = -4.79, p < .001) and challenging assignments and job-search behaviors (Z = -3.12, p < .001). Hence, Hypotheses 2a and 2b were supported.

We further proposed that changes in challenging assignments over time would be related to voluntary turnover when controlled for turnover intentions and job-search behaviors at Time 1 (Hypothesis 3) and that this relationship would be mediated by over the time changes in on-the-job learning (Hypothesis 4). Because the dependent variable (i.e., voluntary turnover) was dichotomous, we used logistic regression analysis for parameter estimation. Gender, age, education level, perceived job alternatives, turnover intentions, and job-search behaviors at Time 1, and the change in challenging assignments between Time 1 and Time 2 (i.e., delta challenging assignments) were entered in the first step (for similar procedures, see Brown & Swartz, 1989). Table 2.4 presents the results of the hierarchical logistic regression analysis for voluntary turnover.

Logistic regression analysis is a nonlinear regression model that does not provide an R^2 and F-statistic to test overall model fit. Instead, overall and improvement chi-square tests can be computed from the log-likelihood statistics (Hosmer & Lemeshow, 2000). Logistic coefficients (B) represent the degree to which the log odds of the event occurring are changed for each unit increase in the associated independent variable. The odds ratio for a variable indicates the change in odds for a case when the value of that variable increases by 1. The Wald statistic tells us whether the B-statistic for the corresponding independent variable is significantly different from zero. The results indicated that, together, the control variables, turnover intentions and job-search behaviors (T1), and delta challenging assignments could significantly explain variance in voluntary turnover, χ^2 (7, N = 335) = 51.20, p < .001. Turnover intentions at Time 1 was positively related to voluntary turnover (B = .63, *Wald* = 14.00, *Exp B* = 1.87, p < .001). Age (B = -.04, *Wald* = 4.50, *Exp B* = .96, p < .05) and change in challenging assignments (B = -.57, *Wald* = 12.93, *Exp B* = .57, p < .001) were negatively

related to voluntary turnover. The full model correctly predicted voluntary turnover of 84.8% of the respondents. These results indicate that the change in challenging assignments explained variance in voluntary turnover over and above turnover intentions and job-search behaviors respondents held at Time 1, suggesting that (a) respondents who initially had high turnover intentions may not have lived up to those intentions, due to an increase in challenging assignments between the Time 1 and Time 2 measurements; and (b) that respondents who initially had low turnover intentions may have left their organization, due to a decrease in challenging assignments. These results support Hypothesis 3.

We further examined whether the change in on-the-job learning between Time 1 and Time 2 (i.e. delta on-the-job learning) could explain the relationship between the change in challenging assignments and voluntary turnover (Hypothesis 4). We therefore subsequently examined whether the independent variable (change in challenging assignments) would be related to the mediator (change in on-the-job learning).

Table 2.4

Logistic Regression Analyses Predicting Voluntary Turnover[a]

Step and Variable	1			2		
Step 1	*B*	*Wald*	*Exp B*	*B*	*Wald*	*Exp B*
Gender[b]	-.20	.19	.82	-.18	.14	.84
Age (T1)	-.04	4.50*	.96	-.04	3.98*	.96
Education[c]	-.11	.09	.90	-.04	.01	.96
Perceived job alternatives (T1)	-.06	.14	.94	-.06	.12	.95
Turnover intentions (T1)	.63	13.90***	1.87	.70	15.89***	2.01
Job-search behaviors (T1)	.26	1.59	1.29	.24	1.27	1.26
Δ Challenging assignments	-.57	12.93***	.57	-.35	3.88*	.70
Step 2						
Δ On-the-job learning				-.52	6.79**	.59
–2 log-likelihood	231.15			224.05		
$\Delta\chi^2$	51.20***			7.09**		
χ^2	51.20***			58.29***		

Note. [a] Included were respondents who participated at Time 2 (N = 379). No = 0, yes = 1. [b] Female = 0, male = 1. [c] Professional education or no degree = 0, bachelor's or master's degree = 1. * $p < .05$, ** $p < .01$, *** $p < .001$.

A linear regression analysis with change in on-the-job learning as dependent variable, gender, age, and education as control variables, and change in challenging assignments as independent variable showed that together, these variables explained 28.4% of the variance in

the change in on-the-job learning, R^2 = .27, $F(4, 344)$ = 32.14, $p < .001$. Only change in challenging assignments was related to change in on-the-job learning (β = .52, $p < .001$). To examine whether the change in on-the-job learning mediated the relationship between the change in challenging assignments and voluntary turnover, we added change in on-the-job learning in the second step of the logistic regression analysis predicting voluntary turnover. The addition of change in on-the job learning accounted for a significant increment in model fit, $\Delta\chi^2$ (1, N = 335) = 7.09, $p < .01$. The size of the relationship between change in challenging assignments and voluntary turnover dropped from B = -.57 (*Wald* = 12.93, *Exp B* = .57, $p < .001$) in Step 1 to B = -.35 (*Wald* = 3.88, *Exp B* = .71, $p < .05$) in Step 2, suggesting that the change in on-the-job learning may function as a partial mediator in the relationship between the change in challenging assignments and voluntary turnover. A Sobel test (Z = -2.54, $p < .05$) confirmed this suggestion, thereby supporting Hypothesis 4.

Discussion

The goal of our study was to examine employees' challenging assignments and on-the-job learning as means to reduce turnover intentions, job-search behaviors, and actual voluntary turnover. Our study was motivated by the lack of research on manageable predictors of voluntary turnover (Morrow et al., 2005), the lack of research on the consequences of providing employees with challenging assignments for organizations, and the controversy in the literature on the possible outcomes of employee learning for voluntary turnover. Based on prior research findings and theoretical arguments, we hypothesized that challenging assignments are associated with lower intentions to leave the organization, less job-search behaviors, and lower voluntary turnover, and that on-the-job learning would mediate these relationships. The results support our hypotheses and support studies that showed that organizational initiatives for employee development as part of a strategy increase employee commitment to the organization (e.g., Barrett & O'Connell, 2001; Heyes, 1996; Smith & Hayton, 1999).

Contributions

The results offer several important contributions to literature on job challenge, learning opportunities, and voluntary turnover. First, we extended existing research on the consequences of job challenge by not only showing cross-sectional relationships between challenging assignments and on-the-job learning (Dragoni et al., 2009; Lyness & Thompson, 1997, 2000; McCauley et al., 1994), but also linking challenging assignments to employees' turnover intentions and job-search behaviors. Moreover, and perhaps more importantly, applying a two-wave design, we showed that changes over time in challenging assignments explained variance in voluntary turnover after controlling for turnover intentions and job-search behaviors measured at Time 1. This finding is novel and suggests that challenging

assignments are not only beneficial for individual employees, but may also be a useful tool for motivating and retaining valuable employees.

Second, our data suggest that the relationships between challenging assignments and turnover intentions, job-search behaviors, and actual voluntary turnover, are mediated by on-the-job learning. We believe that our findings are important for the literature that addresses the dilemma between providing employees with learning opportunities and concerns regarding their increased labor market opportunities and possibly higher intentions to leave the organization (e.g., Campbell & Campbell, 2003; Ito & Brotheridge, 2005; Mueller & Price, 1990). The results of our study indicate that challenging assignments are a means of providing employees with learning opportunities that result in both employee learning and retention.

Third, although a vast body of research examined determinants of voluntary turnover (for an overview, see Cotton & Tuttle, 1986; Griffeth et al., 2000; Maertz & Campion, 1998), this research has mainly focused on employees' alternative job perceptions (Arnold & Feldman, 1982; Gerhart, 1990b; Gerhart & Rynes, 1991) and their job attitudes (Jaros, 1997; Lee & Mitchell, 1991; Tett & Meyer, 1993). Although alternative job perceptions tend to be an established predictor of voluntary turnover (Griffeth et al., 2000), the nature of this variable does not provide a deep understanding of why people leave their jobs (Barrick & Zimmerman, 2005). People's general job attitudes such as their job satisfaction (e.g., Mobley, 1977; Tett & Meyer, 1993) and organizational commitment (e.g., Lee & Mitchell, 1991; Tett & Meyer, 1993) are also well established predictors of voluntary turnover (Griffeth et al., 2000). However, as these attitudes reflect broad feelings toward one's job or organization (Locke, 1976; Meyer & Allen, 1991), they hardly offer a starting point for what organizations can actually do to reduce voluntary employee turnover. Organizations' ability to predict, prevent, and understand voluntary turnover thus remains limited (Allen, Weeks, & Moffitt, 2005; Aquino, Griffeth, Allen, & Hom, 1997), which calls for new theories and models (Griffeth et al., 2000; Lee, Mitchell, Sablynski, Burton, & Holtom, 2004) that include other, significant antecedents of voluntary turnover that can be managed by organizations and their supervisors (Morrow et al., 2005). We believe that our findings, linking challenging assignments to voluntary turnover, makes a contribution in this regard.

Practical Implications

Our results have practical implications as well. First, the development and learning of employees can lead to organizational success (Barrie & Pace, 1998). Companies therefore spend billions on formal employee training and development programs (Frazis, Herz, & Horrigan, 1995). However, on-the-job experiences have been found to contribute more than formal classroom training programs to learning and development (e.g., Davies & Easterby-Smith, 1984; Lowy, Kelleher, & Finestone, 1986). Providing employees with challenging work assignments that contribute to employees' learning and development might thus be considered a good alternative for the expensive formal training programs.

Second, in today's highly competitive and dynamic labor market, it is of utmost importance for organizations to understand how to retain their valuable employees. In view of our findings that challenging assignments enhance on-the-job learning and lower voluntary turnover, organizations need to seek ways and opportunities to provide their employees with challenging assignments. Supervisors and managers in particular should play an active role in providing their employees with challenging tasks. Although we believe that many supervisors are actively involved in the allocation of challenging assignments, research has however indicated that supervisors are often hesitant in delegating challenging tasks as they believe this involves a certain risk for them (Van de Vliert & Smith, 2004). It has also been noted (Van Vianen et al., 2008) that supervisors often unconsciously delegate specific tasks to only a small proportion of their subordinates. We, therefore, advocate that supervisors pay close attention to their task allocation decisions in order to stimulate the learning opportunities for all rather than some of their employees.

Limitations

Like with any research, we should acknowledge several limitations associated with the present study. First, we relied on employees' self-reports of challenging assignments, on-the-job learning, turnover intentions, and job-search behaviors. It has been noted that the use of self-reports as indicators of the objective environment may decrease measurement accuracy (Spector & Jex, 1991). There is, however, considerable evidence that perceptual measures do reflect the objective environment (Spector, 1992). Moreover, people's attitudes and behaviors are mostly influenced by their *perceptions* of their work environment (Ferris & Judge, 1991). Therefore, the use of self-reports in our study may not have limited the reliability of our measures and the validity of our findings as much as sometimes is assumed.

A second possible limitation relates to the cross-sectional design we used to examine relationships between challenging assignments, on-the-job learning, turnover intentions and job-search behaviors. The cross-sectional nature of the data cannot provide conclusive evidence for causal relationships between challenging assignments and turnover intentions, and challenging assignments and on-the-job learning. However, in a predictive study, employees' work experiences may change during the time between the measurement of the predictor variables and the criterion variables, because employees' work experience is a dynamic variable. Therefore, with work experience as central variable, it seems more appropriate to collect both the dependent and independent variables at the same time (McDaniel et al., 1988). Moreover, by showing that changes over time in challenging assignments impact voluntary turnover above and beyond employees' turnover intentions and job-search behaviors as measured at Time 1, we were able to provide evidence for the causality of the relationship between job challenge and voluntary turnover.

A third potential limitation relates to the sample of our study, which consisted of employees working in health care and welfare organizations. This may have restricted the

generalizability of our findings to other occupations and industries. Yet, the professionals in our sample worked in a wide variety of health care and welfare institutions and jobs all over the Netherlands, and therefore showed natural variance with regard to our measures (Fox, Dwyer, & Ganster, 1993). Furthermore, an advantage of the use of a one-occupation sample is that there is only little variance in socio-economic status, which precludes confounding effects (de Jonge, Dormann, Janssen et al., 2001). A fourth possible weakness relates to the attrition between Time 1 and Time 2 measurements, which was considerable. However, respondents who participated in both measurements did not differ regarding their gender, mean age, and the main variables in our study (i.e., challenging assignments, on-the-job learning, turnover intentions, and job-search behaviors measured at Time 1) from the respondents who only filled out the Time 1 questionnaire. Therefore, it seems unlikely that attrition might have biased the results of the present study.

Finally, in our study we have exclusively focused on on-the-job learning as a mediator in the relationships between challenging assignments, turnover intentions, job-search behaviors, and actual voluntary turnover. Even though on-the-job learning seemed to function as a full mediator, other factors may underlie the negative relationship between challenging assignments and turnover intentions and behaviors as well. For instance, receiving challenging assignments from one's supervisor may be conceived of as a signal of supervisor's trust and appreciation, or as a form of supervisory support (Kottke & Sharafinski, 1988). These signals may elicit positive feelings and job attitudes and may therefore result in lower turnover intentions and voluntary turnover. This explanation and other possible explanations of the relationship between challenging assignments and voluntary turnover could be addressed in future research.

Future Research

In light of our finding that the provision of challenging tasks will reduce unwanted voluntary employee turnover, we believe that future research should also focus on gaining a thorough understanding of the factors that influence supervisors' task allocation decisions. To date, virtually no research has examined supervisors' decisions regarding the allocation of challenging tasks. However, several processes underlying allocation decisions seem relevant to investigate. First, as delegating assignments to subordinates involves risk (Van de Vliert & Smith, 2004), supervisors may try to reduce that risk by delegating assignments to only those subordinates they trust to be both willing (Hersey & Blanchard, 1993) and able (De Pater et al., 2010; Leana, 1986) to perform well. Furthermore, supervisors may tend to allocate challenging tasks to those subordinates they perceive as similar to themselves (De Pater et al., 2010). Perceptions of similarity influence initial interactions between managers and subordinates and support the development of leader-member exchange relationships. In addition, subordinates who are regarded as similar are also perceived as more trustworthy and capable, and may, therefore, be delegated more challenging assignments (Bauer & Green,

1996).

Previous research has suggested that challenging job experiences result in higher inner work standards (Berlew & Hall, 1966), greater ambition for higher level positions (Van Vianen, 1999), and more favorable promotability evaluations (De Pater, Van Vianen, Bechtoldt, & Klehe, 2009). Although these findings suggest that the performance of challenging assignments always has positive consequences, challenging tasks may also have negative effects, such as work stress, work overload, or even withdrawal behaviors, particularly if the challenge becomes too much. Hence, future research should scrutinize when challenge will "hurt" and is a "threat". Whether challenging task assignments have negative effects on employees might depend on individual differences in their beliefs about their own abilities (Bandura, 1997). People tend to set non-challenging, easy goals in their tasks when their task self-efficacy is low, and generally pursue challenging, difficult goals when their task self-efficacy is high (Bandura, 1986; Wofford, Goodwin, & Premack, 1992). Individuals who have low self-efficacy beliefs may perceive a challenging assignment as a threat, because they belief they lack capacities to fulfill the task. How people react to challenging tasks depending on these and other individual differences could be explored in future research.

To conclude, we believe that organizations and managers should consider the provision of challenging tasks as a tool that benefits the employee as well as the organization. By assigning employees challenging tasks and stimulating them to perform challenging tasks, employees will learn and develop their skills. Consequently, organizations are better able to retain their employees. In other words, the provision of challenging assignments may help organizations to stay successful in today's dynamic labor market and to anticipate future labor shortages due to the graying labor force and impending baby-boomer retirements (Hedge et al., 2006; Toossi, 2007).

CHAPTER THREE
TO SHRIVEL OR TO THRIVE ON LOW OR HIGH CHALLENGING TASKS: THE INFLUENCE OF GOAL ORIENTATION

Various theories and studies in the field of organizational psychology have emphasized the beneficial effects of job challenge. The literature on career success, for example, considers the performance of challenging assignments early in the career to be an important determinant of performance later in the career (e.g., Berlew & Hall, 1966; Bray, Campbell, & Grant, 1974; Campbell & Ilgen, 1976; Kaufman, 1974). Furthermore, the management development literature proposes that challenging assignments stimulate managerial development (e.g., DeReu & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009; Lyness & Thompson, 1997, 2000; McCauley, Ruderman, Ohlott & Morrow, 1994). Other research suggests that job challenge is positively related to positive job attitudes (e.g., Buchanan, 1974; Dixon, Cunningham, Wallace, Turner, & Kent, 2005; James & Jones, 1980; Kirk-Brown & Wallace, 2004), and positive motivational states (e.g., Csikszentmihalyi, 1990; Massimini & Carli, 1988).

Despite these positive outcomes, it has also been noted that challenging assignments increase the risk of job failure, which could have a negative psychological effect on employees, such as fear of failure, stress, and lower motivation (e.g., Taylor, 1981). Indeed, some employees react negatively to job challenge (Katz, 1978) or prefer low challenging rather than high challenging assignments (De Pater, Van Vianen, Fischer, & Van Ginkel, 2009). Actually, both high and low challenging assignments could have their pros and cons: high challenging tasks offer opportunities for learning but may be stressful; low challenging tasks are comfortable (as long as job demands are not too low) but may lead to deactivation and lower effort. Given that organizations provide their employees with low and high challenging assignments, it is important to examine factors that influence the psychological outcomes of these assignments.

We propose that people's responses to high and low challenging assignments are affected by the type of goals that people adopt and pursue in achievement situations, namely individuals' goal orientations (Dweck, 1986; Dweck & Leggett, 1988). Goal orientations create different perceptual-cognitive frameworks for how to approach, interpret, and respond to achievement situations (e.g., Barron & Harackiewicz, 2000; Duda, 2001; Dweck, 1999; Pintrich, 2000; Van Yperen, 2003a). Goal orientation theory argues that people pursue different types of goals and traditionally distinguishes between two types of goal orientations: a mastery or learning orientation and a performance orientation (e.g., Dweck, 1986; Dweck & Leggett, 1988). Mastery oriented people aim to develop competence by acquiring new skills

and mastering new situations, whereas performance oriented people aim to demonstrate and validate their competence by seeking favorable judgments and avoiding negative judgments. A mastery orientation seems to fit high challenging assignments, because these assignments involve new situations and the development of new skills. A performance orientation seems to fit low challenging assignments, because these assignments secure competence validation.

In this study, we examine whether and how individuals' goal orientation while performing an assigned high or low challenging task influences their affective responses and task motivation. Regarding one's affective responses, we distinguish between positive and negative activating mood states, because challenge is associated with positive moods such as being active and alert (e.g., Lazarus & Folkman, 1984; Meyer and Allen, 1988) as well as with negative moods such as feeling nervous, tensed, and stressed (Boswell, Olson-Buchanan, & Le Pine, 2004; McCauley et al., 1994).

To date, research on factors that influence people's affective and motivational reactions to high and low challenging work assignments is scarce. With this study, we aim to fill this void in the job challenge literature. Extant job challenge research has mainly focused on the mere consequences of job challenge for individual outcomes. Furthermore, extant studies were predominantly conducted in a field-setting (e.g., Campbell & Ilgen, 2000; De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1994), which limits the possibility of investigating directions of causality. We, therefore, employed an experimental setting to test our propositions. At the same time, we took care to use realistic assignments in order to improve the ecological validity of our findings.

Theory and Hypotheses

Job Challenge

Job challenge has been conceptualized as "having to meet performance expectations that are reasonably high" (Berlew & Hall, 1966, p. 209), as "level of difficulty and stimulation" (Taylor, 1981, p. 255), as "the extent to which a job gives the individual a chance to use his skills or abilities" (Walsh, Taber, & Beehr, 1980, p. 255), and as "being in dynamic settings with problems to solve and choices to make under conditions of risk and uncertainty" (McCauley et al., p. 4). Moreover, people are challenged if they are faced with an activity that is demanding, stimulating, new, and calls on their ability and determination (De Pater, Van Vianen, Humphrey et al., 2009, p. 565). More concrete, challenging activities: (a) are new and ask for non-routine skills and behaviors, (b) test one's abilities or resources, (c) give an individual the freedom to determine how to accomplish the task, and (d) involve a higher level of responsibility and visibility (Van Vianen, De Pater, & Preenen, 2008).

Job challenge has been associated with several positive outcomes such as learning and development (Dragoni, Tesluk, Russell, & Oh, 2009; Lyness & Thompson, 1997, 2000; McCauley et al., 1994), career opportunities (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009), future performance (e.g., Berlew & Hall, 1966; Bray et al., 1974; Campbell & Ilgen,

1976; Kaufman, 1974), and has been found to be related to job satisfaction (e.g., Judge, Bono, & Locke, 2000, Kirk-Brown & Wallace, 2004), organizational commitment (e.g., Buchanan, 1974; Dixon, et al., 2005), and higher intrinsic work motivation (e.g., Csikszentmihalyi, 1990). Together, these findings suggest that organizations should provide their employees with challenging assignments and avoid providing them with non-challenging assignments. Although this conclusion seems plausible, we believe that further investigation on the effects of task assignments is needed.

Some researchers have noted that challenging assignments may also have negative consequences, as they are likely to increase the incidences of job failure, which may produce feelings of fear and stress and lower work effort (e.g., Taylor, 1981; Van Vianen et al., 2008). Katz (1978), for example, has shown that new job entrants were insensitive or reacted negatively and less positive to challenging job characteristics. In the first evaluative stage of a job, employees want to perform well, are concerned about how they are evaluated, and how well they do as compared to their (more experienced) coworkers. This notion suggests that particularly employees who strongly adhere to proving their competencies toward others may react positively toward low challenging assignments and negatively toward high challenging assignments.

Goal Orientation

We propose that people's goal orientation influences their affective and motivational reactions toward high and low challenging assignments. The goal orientation construct originates from goal orientation theory (Dweck, 1986; Elliott & Dweck, 1988) and refers to the underlying goals that people adopt and pursue in achievement situations (Dweck, 1986; Dweck & Leggett, 1988). Goal orientation has been used to predict a wide variety of outcomes, such as learning, anxiety, goal-setting, and performance behaviors (for an overview, see Elliot, 2005; Payne, Youngcourt, & Beaubien, 2007). People with a mastery goal orientation want to develop competence whereas people with a performance goal orientation want to demonstrate and validate their competence. Mastery oriented individuals are focused on development; they are eager to learn, to acquire new skills, to master new situations, and to improve themselves. People with a performance orientation are ability focused; they want to demonstrate their superior competence in relation to others (Dweck, 1999; Nicholls 1984) and they are motivated either to outperform others or to avoid looking incompetent (e.g., Elliot, 1999; Elliot & Covington, 2001).

Researchers have combined theories on achievement motives and goal orientation by distinguishing mastery and performance goal orientations into approach and avoidance versions (e.g., Elliot & McGregor, 2001). Individuals with mastery-approach goal orientations focus on the development of competence through task mastery and gaining new skills, which is largely in line with the conceptualization of the traditional mastery orientation. Individuals with mastery-avoidance goal orientations strive to avoid deterioration, losing their skill, or

leaving the task incomplete or unmastered. Likewise, performance-oriented individuals can be motivated either to demonstrate superior competence relative to others and obtain favorable judgments about their achievements (performance-approach goal orientation), or to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (performance-avoidance goal orientation) (e.g., Elliot, 1999; Elliot & Church, 1997; VandeWalle, 1997). In the present study, we will exclusively focus on the approach goal orientations, thus, mastery-approach and performance-approach orientations.

Extant research on goal orientation has treated goal orientations as a somewhat stable individual difference variable (quasi-trait) that may be influenced by situational characteristics (e.g., Button, Mathieu, Zajac, 1996; Dweck, 1989; Farr, Hoffmann, & Ringenbach, 1993), and as a state that can be influenced by situational characteristics (e.g., Barron, & Harackiewicz, 2001; Harackiewicz, Barron, Carter, Leto, & Elliot, 1997; Jagacinsky & Nicholls, 1984). The latter types of studies suggest that goal orientations can be instructed when assigning tasks to employees.

Research has shown that goal orientation predicts how people react to achievement situations (Dweck, 1986; Nichols, 1984; Poortvliet; Janssen, Van Yperen, & Van de Vliert, 2009). Van Yperen and Janssen (2002) found that employees' perceptions of high job demands were negatively related to job satisfaction if they had a relatively strong performance orientation and a relatively weak mastery (-approach) orientation. Although high demanding jobs should not be equated with high challenging jobs (some demanding jobs are not challenging), similar effects may apply to employees who have to perform challenging tasks. Challenging jobs are particularly associated with positive feelings of activation, determination, and perceptions of learning (e.g., Lyness & Thompson, 2000). Yet, at the same time, they may involve feelings of fear of failure and nervousness.

In order to get a better insight into the overall consequences of high and low challenging assignments for individuals and organizations it is important to scrutinize the direct effects of these assignments together with people's goal orientations.

Mood

The types of tasks people perform affect their mood (e.g., Fisher, 2002; Saavedra & Kwun, 2000). The mood literature recognizes two underlying dimensions of mood - hedonic tone (positive vs. negative) and activation (activating vs. deactivating) (e.g., Baas, De Dreu, Nijstad, 2008; De Dreu, Baas, & Nijstad, 2008). Mood states that are high in activation and positive in hedonic tone concern mood states such as happy, active, and alert. Activating mood states with a negative tone concern states such as nervous, irritated, and tensed. Deactivating mood states include mood states such as calm and relaxed (positive) or sad and depressed (negative).

Challenging assignments are conceptualized as being stimulating (Taylor, 1981), and can thus be expected to trigger positive activating moods. Positive activating mood states are

beneficial for task performance and individual outcomes. For instance, De Dreu and colleagues (2008) have recently shown that cognitive flexibility was enhanced when individuals were in a positive activating mood. This warrants the investigation of task factors that may stimulate or impair positive activating mood.

However, because challenging assignments involve new activities and conditions of risk and uncertainty (McCauley et al., 1994), these assignments are also likely to trigger negative activating moods, such as nervousness and tension. De Dreu and colleagues (2008) have shown that a certain amount of negative activating mood state leads to more persistence on a task. There is, however, abundant research that has shown that the tension levels in people's jobs should not be too high, because this may lead to stress and burnout (Zellars, Hochwarter, Perrewe, Hoffman, & Ford, 2004). Moreover, high levels of negative arousal impair the processing and evaluation of information (e.g., Shapiro, MacInnis, & Park, 2002). Taken together, a certain level of negative activating mood will be beneficial for task performance (Baddeley, 1972; Cohen, 1980; Scott, 1966), but negative activating moods should not be that high that they exceed the positive ones. Given that low challenging assignments induce little negative activating mood and that high challenging assignments sometimes enhance too much negative activating mood, it is important to investigate what factors may influence the negative activating mood states when performing high and low challenging assignments.

We argue that people's mood reactions depend on the types of goals they pursue during such assignments, as having a mastery-approach or performance-approach goal. Low challenging assignments are unlikely to fit a mastery-approach orientation because they are routine, and there is relatively little to learn during task performance. Inducing a mastery-approach orientation when assigning a low challenging task will, therefore, be of little value for people's activating moods. Rather, people's activating moods will be enhanced when low challenging tasks are assigned with a performance-approach orientation. A performance-approach orientation cues individuals to focus on their superior competence relative to others and obtain favorable judgments about their achievements (Elliot & McGregor, 2001). People are sensitive to the evaluation of others and want to preserve their self-image in comparison to others (e.g., Bond, 1982; Covington, 1992). The wish to impress and outperform others will cause higher levels of positive arousal, such as attention and determination. In addition, although individuals master a low challenging task, they yet run the risk to fail as compared to others. Hence, a performance-approach orientation may lead to higher levels of negative arousal as well. We propose the following hypothesis regarding the mood effects of performing a low challenging assignment as being dependent on people's goal orientation:

> *Hypothesis 1*. Performing a low challenging assignment with a performance-approach orientation will lead to higher positive activating mood (*Hypothesis 1a*) and higher

negative activating mood (*Hypothesis 1b*) than performing this assignment with a mastery-approach orientation.

Challenging assignments seem logically fit to a mastery-approach orientation because individuals are confronted with activities from which they can learn. Individuals with a mastery-approach orientation seek opportunities to learn and to improve themselves (Elliot & McGregor, 2001). Challenging assignments provide them with these opportunities. However, challenging assignments may also trigger a performance-approach orientation because people may feel that their performance on these types of assignments is often highly visible and compared to others (De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1999), which means greater vulnerability to the evaluations of others and a feeling that they have to show their best to others. In accordance with research that evidenced the general beneficial effects of a mastery goal orientation for job satisfaction (e.g., Elliot, 1999; Janssen & Van Yperen, 2004; Van Yperen & Janssen, 2002), we expect that performing a challenging assignment with a mastery-approach orientation will positively activate people while not causing high negative affect. A performance-approach orientation while performing a challenging assignment, however, will be less beneficial for people's mood states. Individuals who are compared to others and have to perform better than others on a task that they have not fully mastered yet are likely to experience higher levels of tension and lower levels of positive activation due to the greater risk of failure in the eyes of others. We propose the following hypothesis:

Hypothesis 2. Performing a high challenging assignment with a mastery-approach orientation will lead to higher positive activating mood (*Hypothesis 2a*) and lower negative activating mood (*Hypothesis 2b*) than performing this assignment with a performance-approach orientation.

Motivation

Task motivation in this study is referred to as the amount of effort expended in work-related tasks (Campbell and Pritchard, 1976). Challenging assignments not only call on people's ability, they also require much effort (Berlew & Hall, 1966). Generally, people put effort in a task if they perceive the task as valuable (Eccles, 2005). Subjective task value is high if engaging in the task activity provides enjoyment, immediate or long-term rewards, and is not costly. Challenging assignments generally are perceived of as attractive and enjoyable (Csikszentmihalyi, 1990) as they can be expected to lead to positive rewards, such as a higher self efficacy (Bandura, 1986), learning of new skills (McCauley et al., 1994) and positive promotability evaluations (De Pater, Van Vianen, Bechtoldt et al., 2009), but they can also be conceived of as risky and costly (Taylor, 1981; Van Vianen et al., 2008). Task engagement is risky and costly to the extent that one experiences fear of failure and loss of one's positive

self-image. If engagement in a challenging assignment is perceived of as costly, people will tend to avoid performing this task (Covington & Omelich, 1979). If avoidance is no option because the task is assigned to them, they may respond in two different ways. They can put more effort in the task in order to decrease the possibility of actual failure, or they can put less effort in the task so that task failure cannot be attributed to one's lack of abilities but to suboptimal effort (Covington, 1992; Pyszczynski & Greenberg, 1983; Rhodewalt, 1994).

The amount of effort individuals put into an activity will be influenced by their goal orientation. A performance (-approach) orientation focuses people on the possible revelation of their inadequate abilities on tasks they have not fully mastered yet (VandeWalle, Brown, Cron, & Slocum, 1999). For this reason, they may report decreased interest in a challenging task and reduce their effort (VandeWalle et al., 1999). A mastery-approach orientation, on the other hand, focuses people on learning rather than success or failure. A challenging task is then viewed as an ideal opportunity to learn and develop new skills. People will, therefore, invest as much as they can in order to develop their knowledge, skills, and abilities. Hence, we propose that a mastery-approach orientation, as compared to a performance-approach orientation, will lead to higher motivation while performing a high challenging assignment.

With regard to the performance of low challenging assignments, we expect opposite motivational effects. Because low challenging assignments hardly provide employees with opportunities for learning, their mastery needs will remain unfulfilled. Moreover, low challenging assignments require relatively little effort for reaching a sufficient performance level. Hence, mastery-approach oriented individuals will be less motivated to execute this type of assignments. The same could be true for people with a performance-approach orientation. However, these individuals use other people instead of themselves as a reference of comparison. Thus, although the assignment does not challenge one's abilities and requires only little effort, individuals may want to show their best performance on the task in order to outperform others. The only option then is to invest more effort in the task in order to improve the quality and/or quantity of their achievement. Consequently, a performance-approach orientation while performing a low challenging task will lead to higher motivation. This proposition resonates well with goal-setting theory and research that was most successfully tested with people who used high standards of performance for their routine tasks (e.g., Locke & Latham, 1990).

The reasoning as presented above reflects a cognitive approach toward the working of people's goal orientations, that is, it assumes that people intentionally respond to their assignments. People may, however, also react in a more unconscious and less rational way. Steele-Johnson and colleagues (2000) argued that a performance orientation might interfere with the attentional resources that are needed for task performance. Challenging assignments require a lot of attentional resources in order to be performed well (Kanfer & Ackerman, 1989). People with a performance orientation may lose attentional resources as caused by their focus on external cues (Kanfer & Ackerman, 1989). This, in turn, may mentally block

them to put effort in the challenging assignment. In contrast, mastery-approach oriented people are less distracted by external cues. They are, thus, able to focus all the attentional resources to mastering the challenging assignment.

Low challenging assignments, on the other hand, do not require much attention and, therefore, people may experience little stimulation from these types of assignments. By focusing on the evaluation of and comparison with others, available resources will be activated and effort will increase. Altogether, we propose the following hypotheses:

Hypothesis 3. Performing a low challenging assignment with a performance-approach orientation will lead to higher task motivation than performing this assignment with a mastery-approach orientation.

Hypothesis 4. Performing a high challenging assignment with a mastery-approach orientation will lead to higher task motivation than performing this assignment with a performance-approach orientation.

Method

Participants and Design

One hundred seventy-nine students (119 females, 60 males) of the University of Amsterdam participated in this study. Mean age was 21.20 years (*SD* = 3.97) and they were on average in the second year of their studies (*SD* = 1.45). Participants received either a monetary reward (7 Euros) or partial credit for fulfillment of a course requirement. A 2 (task challenge: low vs. high) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) between subjects design was used. The no orientation (control) condition was included as the baseline against which the two experimental conditions can be judged. This offers the possibility to test the precise effects of the goal orientation manipulations. Subjects were randomly assigned to one of the six conditions.

Procedure

Upon arrival at the laboratory, participants were seated in a room where they received general information about the study and signed an informed consent form. Participants were then provided with either a low challenging or high challenging assignment in which they either received a mastery-approach orientation, performance-approach orientation, or no orientation instruction. After completion of the task, participants received a questionnaire in which they reported their perception of task challenge, the extent to which they were mastery-approach and performance-approach oriented during the task (manipulation checks), motivation during the task, current positive and negative activating mood, sex, age, and study year. They were then given their reward. The study lasted around 60 minutes.

Tasks

For our study, we developed a high challenging assignment and a low challenging assignment based on the types of assignments students are confronted with in their studies. Similar assignments were used in studies of De Pater, Van Vianen, Fisher et al. (2009). We designed the tasks to take 30 minutes, and to differ on multiple challenging aspects such as (1) being demanding and stimulating (2) being a test of one's abilities, and (3) being new and ambiguous (McCauley et al., 1999).

The high challenging assignment consisted of an evaluative speaking task (Saab, Matthews, Stoney, & McDonald, 1989) in which participants prepared and gave a presentation in front of a video camera. Such a task can be expected to be highly challenging and demanding (Al' Absi, Bongard, Buchanan, Pincomb, Licinio, & Lovallo, 1997; Egloff, Schmukle, Burns, & Schwerdtfeger, 2006). Participants were instructed to prepare a presentation about their opinion on the illegal downloading of music and on suggestions about how to deal with the illegal downloading of music. Participants were told that the experiment was part of an existing joint project of a record company, a government institute, and the University of Amsterdam. Their ideas could be viewed by the record company and government institute, and certain ideas would be used for future campaigns focused on the reduction of the illegal downloading of music. Furthermore, participants were informed that (a) they had about 30 minutes for completing the entire task, (b) the total length of the presentation should take no longer than 3 minutes, (c) they had to keep an eye on the time themselves, and (d) they had to indicate when they were ready to present. In preparation of the presentation, participants were asked to reflect on the illegal downloading of music by thinking of (a) reasons why people illegally download music, (b) positive and negative consequences of illegal downloading, and (c) suggestions for how to deal with illegal downloading. Papers and pencils were available. If the participant had not presented his or her ideas after 25 minutes, the experimenter would notify the participant to wrap things up. When the presentation was finished the experimenter thanked and debriefed the participant.

The low challenging assignment consisted of the alphabetically ordering of a long scientific reference list and checking the list for errors according to APA (American Psychological Association) –guidelines in a *Word* document. The list was not in alphabetical order and contained errors. Participants were told that they had 30 minutes for task completion. Participants were instructed to first read APA-guidelines regarding alphabetically ordering and displaying references. Thereafter, they could start with the alphabetically ordering of the list. If they finished this, they were asked to use the rest of the time to highlight errors in the list. Finally, the experimenter thanked and debriefed the participant.

All participants were told that those who had performed the task would participate in a lottery with three prices of 25 Euros to win.

Pretest: Scenario Study

To test whether our assignments could indeed be perceived as a low and high challenging assignment, we conducted a scenario study. Twenty-nine students (17 females, 12 males) with an average age of 24.20 (*SD* = 5.14) who were in their third study year (*SD* = 1.22), were randomly provided with a written description of the high challenging (*N* = 14) or low challenging (*N* = 15) assignment. Participants were asked to imagine that they performed the assignment. They then answered 10 items that assessed participants' perception of task challenge (See Appendix B). Items were based on aspects of task challenge aspects that are distinguished in the literature (e.g., Preenen, De Pater, Van Vianen, 2008; Van Vianen et al., 2008). Participants answered on a 7-point scale varying from 1 (*totally disagree*) to 7 (*totally agree*). Cronbach's alpha was .95. Perceived task challenge was low for the low challenging assignment (*M* = 2.05, *SD* = .81) and high for the high challenging assignment (*M* = 5.06, *SD* = .75). An independent sample *t*-test revealed that the difference between the means was significant, $t(27) = 10.37$, $p < .001$. Based on the absolute scores and the highly significant difference, we concluded that our assignments indeed can be perceived of as high and low challenging assignments.

Goal Orientation Manipulation

We manipulated participants' goal orientation using first verbal, and then written task instructions that were both the same. Similar goal orientation manipulations have been used in earlier research (e.g., Barron & Harackiewicz, 2001; DeShon & Gillespie, 2005; Gist & Stevens, 1998). No specific goal orientation instruction was provided in the control condition.

Mastery-approach goal orientation. In the mastery-approach goal orientation condition, participants were instructed that they should focus on learning the task and developing their skills and abilities. Furthermore, they were told that they should focus on their own task performance.

Performance-approach goal orientation. In the performance-approach goal orientation condition participants were instructed to focus on showing their superior competence and skill to others, and to demonstrate what they were worth to others. Furthermore, they were instructed to perform better than others on the assignment.

Measures

Task challenge. For the manipulation check of task challenge, we used the same 10 perceived task challenge items (See Appendix B) as in our scenario study for our manipulation check of task challenge. Subjects answered on a 7-point scale varying from 1 (*totally disagree*) to 7 (*totally agree*). Cronbach's alpha was .91.

Mastery-approach goal orientation. For the manipulation check of mastery-approach orientation, we used the following items: (1) "When performing the assignment, I

was focused on learning the task.", and (2): "When performing the assignment, I was focused on my personal development on the task". Cronbach's alpha was .85.

Performance-approach goal orientation. For the manipulation check of performance-approach orientation, we used the following items: (1) "When performing the assignment, I was focused on showing my superior competence to others.", and (2): "When performing the assignment, I was focused on performing better than others.". Cronbach's alpha was .52.

Positive activating mood was measured with the following discrete mood states: (1) interested, (2) determined, (3) attentive, (4) happy, and (5) active. Items were derived from the Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and have been used in earlier studies to assess positive activating mood states (e.g., De Dreu, et al., 2008). Subjects were asked to rate the extent to which they were experiencing each mood state on a 5-point scale, varying from 1 (*very slightly/ not at all*) to 5 (*extremely*). Cronbach's alpha of the scale was .85.

Negative activating mood was measured with the following 5 items: (1) nervous, (2), afraid, (3), scared, (4), jittery (5) stressed. Similar items have been used before to assess negative activating mood states (e.g., De Dreu et al., 2008). Subjects were asked to rate the extent to which they were experiencing each mood state on a 5-point scale, varying from 1 (*very slightly/ not at all*) to 5 (*extremely*). Cronbach's alpha of the scale was .77.

Task motivation was assessed with three items: (1) I was motivated during the task, (2) I tried my best on the task, and (3) I put effort in the task (De Pater, Van Vianen, & Humphrey et al., 2009). Items were measured on a 7-point scale varying from 1 (*totally disagree*) to 7 (*totally agree*). Cronbach's alpha was .81.

Results

Manipulation Checks

Task challenge. A 2 (task challenge: low vs. high) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of variance on perceived task challenge showed that participants perceived the high challenging assignment (M = 4.39, SD = .92) as more challenging than the low challenging assignment (M = 2.65, SD = .87), $F(1, 173) = 172.01$, $p < .001$, $\eta_p^2 = .50$. There was no significant effect of goal orientation, $F < 1$. However, the interaction effect of task challenge and goal orientation on perceived task challenge was significant, $F(2, 173) = 4.34$, $p = .014$, $\eta_p^2 = .05$. Simple effect contrast analyses showed that in the low challenge condition task challenge was higher for the performance-approach orientation condition (M = 2.90, SD = .81), than for the no orientation condition (M = 2.38, SD = .74), $t(173) = 2.31$, $p < .022$, $r = .17$. No other contrasts were significant (all t's < 1.8, n.s.). Altogether, we concluded that our manipulation of task challenge was successful.

Mastery-approach goal orientation. A 2 (task challenge: low vs. high) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of variance on the manipulation check of mastery-approach orientation revealed significant main effects for goal orientation, $F(2, 173) = 22.27$, $p < .001$, $\eta_p^2 = .21$, and for task challenge, $F(1, 173) = 16.18$, $p < .001$, $\eta_p^2 = .09$. The interaction effect was not significant, $F < 1.03$, n.s. Contrast analyses between the goal orientation conditions showed that participants in the mastery-approach condition ($M = 4.43$, $SD = 1.37$) were higher mastery-approach oriented than in the performance-approach condition ($M = 2.74$, $SD = 1.44$), $t(173) = 6.50$, $p < .001$, $r = .42$, and no orientation condition, ($M = 3.38$, $SD = 1.57$), $t(173) = 4.05$, $p < .001$, $r = .25$. In the performance-approach condition participants were significantly less mastery-approach oriented than in the no orientation condition, $t(173) = -2.50$, $p = .013$, $r = .20$. Task challenge induced a mastery-approach orientation, because participants in the high challenge condition were more mastery-approach oriented ($M = 3.93$, $SD = 1.38$) than those in the low challenge condition ($M = 3.06$, $SD = 1.62$).

Performance-approach goal orientation. A 2 (task challenge: low vs. high) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of the manipulation check of performance-approach orientation showed significant main effects for goal orientation, $F(2, 173) = 5.72$, $p = .004$, $\eta_p^2 = .06$, and task challenge, $F(1, 173) = 20.80$, $p < .001$, $\eta_p^2 = .11$. The interaction effect was not significant, $F < 1$, n.s. Contrast analyses between the goal orientation conditions showed that in the performance-approach condition ($M = 4.05$, $SD = 1.34$) participants were higher performance-approach oriented than in the mastery-approach condition ($M = 3.36$, $SD = 1.52$), $t(176) = -2.72$, $p = .007$, $r = .20$, and no orientation condition, ($M = 3.41$, $SD = 1.26$), $t(176) = 5.57$, $p = .011$, $r = .39$. No difference was found between the mastery-approach condition and the no orientation condition ($t < 1$, n.s.). Task challenge also induced a performance-approach orientation because participants in the high challenge condition were more performance-approach oriented ($M = 4.04$, $SD = 1.31$) than those in the low challenge condition ($M = 3.18$, $SD = 1.37$). All in all, we concluded that our manipulations of goal orientation were successful.

Primary Analyses

The means and standard deviations of the dependent variables as a function of task challenge and goal orientation are summarized in Table 3.1.

Table 3.1

Means and Standard Deviations of Task Challenge as a Function of Goal Orientation[1]

Task challenge	Dependent variable	Goal orientation: Mastery-approach orientation		Performance-approach orientation		No orientation	
		M	*SD*	*M*	*SD*	*M*	*SD*
Low	Positive activating mood	2.89_{a}	.82	3.42_{b}	.63	2.65_{a}	.79
	Negative activating mood	1.21_{a+}	.27	1.46_{b+}	.55	1.24_{a+}	.37
	Task motivation	4.73_{a+}	.89	5.32_{b}	.83	4.24_{c+}	1.12
	N	27		32		31	
High	Positive activating mood	3.58_{a}	.83	3.17_{b}	.67	2.98_{b}	.70
	Negative activating mood	1.56_{a}	.68	1.36_{a}	.56	1.53_{a}	.54
	Task motivation	5.28_{a}	1.02	4.51_{b}	1.21	4.38_{b}	.73
	N	30		29		30	

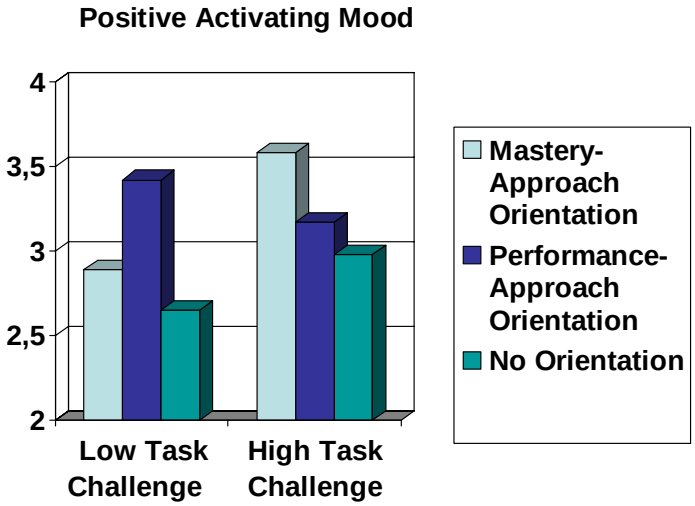
Note. [1] Means within a row not sharing the same subscript differ significantly at $p < .05$. or if indicated with $_{+}$ at $p < .10$.

Positive activating mood. In the low challenging task condition, we expected that participants with a performance-approach orientation would show higher positive mood than those with a mastery-approach orientation (Hypothesis 1a). In the high challenging task condition, we expected that participants with a mastery-approach orientation would show higher positive mood than those with a performance-approach orientation (Hypothesis 2a). A 2 (task challenge: high vs. low) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of variance showed main effects for task challenge, $F(1, 173) = 5.49$, $p = .020$, $\eta_p^2 = .03$, and goal orientation, $F(2, 173) = 7.62$, $p = .001$, $\eta_p^2 = .08$. Participants' positive mood was significantly higher in the high challenge condition ($M = 3.25$, $SD = .77$) than in the low challenge condition ($M = 2.99$, $SD = .81$). Furthermore, contrast analyses showed that participants in the no orientation condition reported lower positive mood ($M = 2.81$, $SD = .76$) than participants in the mastery-approach condition ($M = 3.25$, $SD = .89$), $t(176) = 3.12$, $p = .002$, $r = .23$, and performance-approach condition, ($M = 3.30$, $SD = .65$), $t(176) = 3.53$, $p = .001$, $r = .26$.

No main effect was found for goal orientation ($t < 1$, n.s.), but the interaction effect of task challenge and goal orientation on positive mood was significant, $F(2, 173) = 6.028$, $p = .003$, $\eta_p^2 = .07$. Contrast analyses were conducted to test Hypotheses 1a and 2a. In the low challenge condition, it was found that performance-approach oriented participants ($M = 3.42$, $SD = .63$) reported higher positive mood than mastery-approach oriented participants ($M = 2.89$, $SD = .82$), $t(173) = -2.74$, $p = .007$, $r = .20$. This result confirms Hypothesis 1a. In addition, positive mood was higher in the performance-approach condition than in the no orientation condition ($M = 2.65$, $SD = .79$), $t(173) = 4.14$, $p < .001$, $r = .30$, whereas no difference between the mastery-approach and no orientation condition was found ($t < 1.3$, n.s.).

In the high challenge condition, mastery-approach oriented participants ($M = 3.58$, $SD = .83$) reported higher positive mood than performance-approach oriented participants ($M = 3.17$, $SD = .67$), $t(173) = 2.11$, $p = .036$, $\eta_p^2 = .16$. This result supports Hypothesis 2a. In addition, participants in the mastery-approach condition reported higher positive mood than those in the no orientation condition ($M = 2.98$, $SD = .70$), $t(173) = 3.14$, $p = .002$, $r = .23$, whereas no difference was found between the performance-approach and no orientation condition. The results regarding positive activating mood are graphically displayed in Figure 3.1.

Figure 3.1. Effects of task challenge and goal orientation on positive activating mood



Negative activating mood. In the low challenging task condition, we expected that participants with a performance-approach orientation would report higher negative mood than those with a mastery-approach orientation (Hypothesis 1b). In the high challenging task condition, we expected that participants with a mastery-approach orientation would report lower negative mood than those with a performance-approach orientation (Hypothesis 2a). A 2 (task challenge: high vs. low) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of variance showed a main effect for task challenge, $F(1, 173) = 5.38$, $p = .021$, $\eta_p^2 = .03$. Participants in the high challenge condition reported higher negative mood ($M = 1.48$, $SD = .60$) than those in the low challenge condition ($M = 1.31$, $SD = .43$). There was no main effect of goal orientation ($F < 1$, n.s.). However, the interaction of task challenge and goal orientation was significant, $F(2, 173) = 3.28$, $p = .040$, $\eta_p^2 = .04$.

Contrast analyses were conducted to test hypotheses 1b and 2b. In the low challenge condition, the negative mood of performance-approach oriented participants ($M = 1.46$, $SD = .55$) and mastery-approach oriented participants ($M = 1.21$, $SD = .27$) was not significantly different, $t(173) = -1.85$, $p = .067$, $r = .14$. Also no significant difference was found between performance-approach oriented participants and no orientation participants ($M = 1.24$, $SD = .37$), $t(173) = 1.67$, $p = .096$, $r = .13$, and between mastery-approach and no orientation participants ($t < 1$, n.s.). Although our results pointed in the proposed direction, Hypothesis 1b was rejected.

In the high challenge condition, the negative mood of mastery-approach oriented participants ($M = 1.56$, $SD = .68$) and performance-approach oriented participants ($M = 1.53$, $SD = .54$) was not significantly different, $t(173) = 1.46$, $p = .146$, $r = .11$. Also no differences were found between the other goal orientation conditions (t's < 1.5, n.s.). Therefore, Hypothesis 2b was rejected.

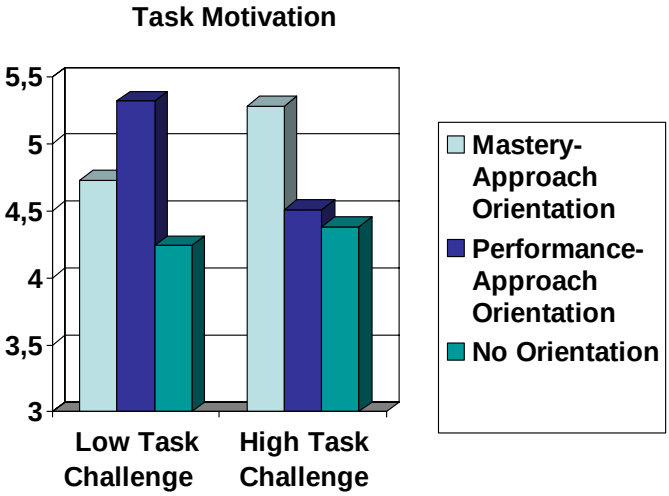
Task motivation. In the low challenging task condition, we hypothesized that participants with a performance-approach orientation would report higher task motivation than those with a mastery-approach orientation (Hypothesis 3). In the high challenging task condition, we hypothesized that participants with a mastery-approach orientation would report higher task motivation than those with a performance-approach orientation (Hypothesis 4). A 2 (task challenge: high vs. low) x 3 (goal orientation: mastery-approach vs. performance-approach vs. no orientation) univariate analysis of variance showed a significant main effect of goal orientation, $F(2, 173) = 8.81$, $p < .001$, $\eta_p^2 = .09$, but no main effect of task challenge ($F < 1$, n.s.). Participants in the no orientation condition were less motivated ($M = 4.31$, $SD = .94$) than participants in the mastery-approach condition ($M = 5.02$, $SD = .99$), $t(176) = 3.78$, $p < .001$, $r = .27$, and performance-approach condition ($M = 4.93$, $SD = 1.10$), $t(176) = 3.39$, $p = .001$, $r = .25$. There was no main effect of goal orientation ($t < 1$, n.s.).

The interaction effect of task challenge and goal orientation was significant, $F(2, 173) = 7.61$, $p = .001$, $\eta_p^2 = .08$. Contrast analyses were conducted to test our hypotheses. In the

low challenge condition, performance-approach oriented participants (M = 5.73, SD = .89) were more motivated than mastery-approach oriented participants (M = 5.32, SD = .83), $t(173) = -2.32$, $p = .021$, $r = .17$. This result supports Hypothesis 3. Furthermore, participants in the no orientation condition reported lower motivation (M = 4.24, SD = 1.12) than participants in the performance-approach condition, $t(173) = 4.38$, $p < .001$, $r = .32$. Motivation of participants in the no orientation condition was marginally lower than the motivation of participants in the mastery-approach condition, $t(173) = 1.89$, $p < .061$, $r = .14$.

In the high challenge condition, mastery-approach oriented participants reported higher motivation (M = 5.28, SD = 1.02) than performance-approach oriented participants (M = 4.51, SD = 1.21), $t(173) = 3.03$, $p < .003$, $r = .22$. This result supports Hypothesis 4. Mastery-approach oriented participants were also more motivated than participants in the no orientation condition (M = 4.38, SD = .73), $t(173) = 3.54$, $p < .001$, $r = .26$, whereas there was no difference between the performance-approach and no orientation condition ($t < 1$, n.s.). The results regarding task motivation are graphically displayed in Figure 3.2.

Figure 3.2. Effects of task challenge and goal orientation on task motivation



Discussion

It is generally expected that low challenging jobs undermine people's motivation and work pleasure, whereas high challenging jobs will boost motivation, positive mood, and learning. In this study, we proposed that people's task motivation and mood responses are affected by their goal orientation. We tested our propositions with an experimental design in

which participants were assigned a low or high challenging task and were provided with a general or goal-oriented (performance-approach or mastery-approach) task instruction. This design enabled us to test for causalities and to examine the precise effects of goal-oriented as compared to general (no goal-oriented) task instructions.

We found that a high challenging task led to higher positive and negative activating mood states. Individuals performing a high challenging task reported more interest and happiness, but also more nervousness and fear than those performing a low challenging task. Furthermore, on the high challenging task one's positive mood was highest with a mastery-approach orientation, whereas on the low challenging task one's positive mood was highest with a performance-approach orientation. Individuals' performance-approach orientation did not, however, affect one's negative activating mood. Hence, higher negative activating mood states seem a natural response to challenging tasks and seem not to be precluded by specific task instructions.

Participants' task motivation was not affected by the type of task they worked on but by their goal orientation. As hypothesized, task motivation was higher when performing a high challenging assignment with a mastery-approach orientation rather than a performance-approach goal orientation. Opposite results were found for the low challenging assignment. Task motivation in this assignment was highest with a performance-approach orientation.

To explore whether differences in positive mood and motivation could be mainly attributed to the working of one of the two goal orientations, we compared the outcomes of the two goal orientation conditions with those of the no goal orientation condition. Overall, findings suggest that when performing a challenging task, individuals with a mastery-approach orientation had a higher positive activating mood and were more motivated than individuals with a performance-approach orientation or no orientation. There were no differences in positive activating mood and motivation between individuals in the performance-approach orientation condition and the no orientation condition. When performing a low challenging task, individuals with a performance-approach orientation had a higher positive activating mood and were more motivated than individuals with a mastery-approach orientation or no orientation. There were no differences in positive activating mood and motivation between individuals in the mastery-approach orientation and the no orientation condition. This indicates that differences in activating mood and motivation in the high challenging condition can mainly be attributed to the mastery-approach orientation and that differences in activating mood and motivation in the low challenging condition can mainly be attributed to the performance-approach orientation.

Note, however, that our manipulation check revealed that individuals who had worked on the high challenging assignment reported higher levels of mastery-approach and performance-approach orientation than those who had worked on the low challenging assignment. This suggests that individuals tend to become more goal oriented when performing a high challenging task.

Theoretical Implications

This study contributes to theories and research regarding job challenge as well as goal orientation. First, extant research on the relationship between job challenge and individual outcomes was mainly conducted in field-settings (e.g., Campbell & Ilgen, 2000; De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1994), which limits testing for causality and direction. The sparse experimental research that investigated effects of job challenge used memory tasks and puzzles (e.g., Taylor, 1981). We, however, aimed to examine the effects of task challenge as found in reality. Furthermore, previous studies did not include possible moderators of the relationship between job challenge and individual outcomes (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009; Lyness & Thompson, 2000). They, for instance, neglected whether tasks were assigned to or chosen by individuals. Also, no attention was paid to the role of individuals' goal orientations while these orientations were found to have a strong impact on people's task performance in other research domains (for an overview, see Elliot, 2005; Payne et al., 2007).

This study convincingly shows that goal orientations affect individuals' positive mood and motivation. A performance-approach orientation promotes positive activation and motivation when performing a low challenging assignment, probably because individuals are then concerned with showing their superior competence toward others. In contrast, a mastery-approach orientation promotes positive activation and motivation when performing a high challenging assignment. Although this type of assignments tends to increase both individuals' mastery-approach and performance-approach orientations, an explicit mastery-approach instruction helps them to focus less on external cues, such as the opinion of others, that consume resources needed for task mastery (Kanfer & Ackerman, 1989). These findings corroborate prior research that suggested that the advantageous effects of a mastery orientation may be limited to tasks that are of higher complexity (Utman, 1997). They also resonate with studies that noted that mastery oriented employees tend to put more effort into their jobs when they are faced with obstacles (e.g., Dweck, 1999; Farr, Hofmann, & Ringenbach, 1993).

Our expectation that goal orientations would also affect negative activating mood was not confirmed. The high challenging assignment caused higher negative activating mood than the low challenging assignment, irrespective of individuals' goal orientation. Apparently, performing a low challenging assignment with a performance-approach orientation does not raise feelings of fear and tension. A plausible explanation may be that individuals' competence on the task was not seriously threatened by the behaviors of others. That is, the possible better performance of others does not automatically indicate that the individual him- or herself is incompetent. A performance-approach orientation, therefore, may only raise positive activating mood as one is stimulated to win, but may not affect negative activating mood as there is not so much to lose. Performing a high challenging assignment with a specific goal in mind did not affect negative mood either. As opposed to extant beliefs (e.g.,

Van de Walle et al., 1999; Van Yperen, 2003a), a mastery-approach orientation did not buffer against negative moods. Yet, the challenging task in this study was expected to evoke only modest feelings of uncertainty (Al' Absi et al., 1997; Egloff et al., 2006) as too much negative arousal would indicate that the assignment was perceived of as a 'mission impossible' rather than a challenge. Indeed, participants' modest levels of negative activating mood may suggest that they perceived the challenging assignment as demanding yet attainable. Hence, a modest level of negative activating mood not only contributes to flexibility and persistence on the task (Baas et al., 2008; De Dreu et al., 2008) but perhaps also to experiencing optimal challenge. All in all, goal orientations seem to affect one's pleasure but not necessarily one's pain.

This latter notion brings us to the contribution of this study to the goal orientation literature. Researchers in this domain have called on to include task characteristics in studies that examine the effects of people's goal orientations. Typically, details about task characteristics are absent in most of these studies or task characteristics do not vary across studies (Payne et al., 2007). Actually, this is the only study that investigated the interaction of task characteristics and approach goal orientations. We have shown that a mastery-approach goal orientation does not necessarily lead to better outcomes than a performance-approach goal orientation as is often suggested in extant research (e.g., Payne & Huffman, 2007). The performance-approach goal orientation led to less beneficial outcomes in the high challenging condition only.

A performance-approach orientation in a less challenging assignment on the other hand seems to stimulate positive mood and motivation. Prior studies on the working of performance-approach goals have shown mixed results (Midgley, Kaplan, & Middleton, 2001). Some of these studies found positive (e.g., Linnenbrink, 2005; Linnenbrink & Pintrich, 2002) whereas others found negative (e.g., Kaplan & Maehr, 1999; Meyer, Turner, Spencer, 1997; Middleton & Midgley, 1997; Payne et al., 2007) effects of performance-approach goals for individuals' mood states. These ambiguous findings are likely due to the type of tasks people worked on. Future studies could further investigate people's goal orientations when performing different (challenging) tasks and how this affects performance behaviors.

Limitations

This study involved students and employed an experimental design which both may have limited the generalizability of our findings to realistic organizational settings. As noted above, we have opted for an experimental rather than field design in order to be able to test for causality and direction. Most extant research failed to control for variables that could have influenced the study findings. We used students but we gave them realistic, pilot-tested assignments. The distinction between laboratory and field research becomes smaller to the extent that the content of an experiment reflects reality (Kanfer, 1994). We are, therefore, confident that the results are applicable to actual work-settings. Yet, we encourage researchers

to replicate our findings with (controlled) field research in which challenging tasks are assigned to employees while influencing their goal orientations.

Another limitation is that we used participants' self-reports to asses our dependent variables. Although similar measures have been used earlier (e.g., De Dreu et al., 2008), task motivation and activating mood states could be more objectively assessed with behavioral and physiological indicators. Therefore, future research could employ study designs that combine self-report with objective data.

Practical Implications

The findings of this study have implications for daily practices of organizations. As discussed above, job challenge contributes to employees' learning and is highly important for individual and organizational development (De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1994). Supervisors should, therefore, assign challenging tasks to their employees. As this study shows, these assignments should be explicitly communicated as an opportunity to learn and to develop skills and abilities. However, if supervisors assign low challenging tasks, they could emphasize that their employees should show superior competence on these tasks. In addition, employees themselves determine the extent to which an assignment is perceived as a challenge, depending on their self-efficacy beliefs (Wofford, Goodwin, & Premack, 1992) and their personal goal orientations (DeShon & Gillespie, 2005). Therefore, supervisors should be careful whom to assign what types of tasks.

Employees' mastery-approach orientation could be facilitated directly by supervisor communication but also indirectly by an HR system that emphasizes effort, personal improvement, skill development, and experimentation. A performance-approach orientation on the other hand could be facilitated by an HR system that offers performance-based compensation (Van Yperen, 2003b). In closing, both supervisors' behaviors and HR systems determine whether employees will shrivel or thrive in their jobs.

CHAPTER FOUR
PERFORMING CHALLENGING TASKS: THE ROLE OF EMPLOYEES' AND SUPERVISORS' GOAL ORIENTATIONS

The performance of challenging tasks has many beneficial consequences for employees and organizations. Performing challenging tasks is, for instance, important for managerial development (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009; McCauley, Ruderman, Ohlott, & Morrow, 1994; Lyness & Thompson, 1997, 2000; McCauley, Ohlott, & Ruderman, 1999; McCauley, Ruderman, Ohlott, & Morrow, 1994), career advancement (e.g., De Pater, Van Vianen, Bechtold et al., 2009; De Pater, Van Vianen, Fischer, & Van Ginkel, 2009), and future job performance (e.g., Berlew & Hall, 1966; Bray, Campbell, & Grant, 1974; Campbell & Ilgen, 1976; Kaufman, 1974; Taylor, 1981). Therefore, employees could benefit from performing challenging assignments and their supervisors should encourage them to do so.

Surprisingly, extant research has hardly addressed the factors that may cause employees to perform challenging tasks in their jobs. However, it has been noted that both employees and their supervisors can be hold accountable for the types of tasks employees perform (e.g., De Pater, Van Vianen, Bechtold et al., 2009). Employees often have the latitude to craft their jobs (Wrzesnieski & Dutton, 2001). They may initiate the performance of challenging activities if they feel attracted to these activities. Supervisors are also able to craft the jobs of their subordinates. They are often in the position to assign tasks to their subordinates and they can decide to assign them challenging or non-challenging tasks (De Pater, Van Vianen, Bechtoldt, 2010; Van Vianen, De Pater, & Preenen, 2008). Because both employees and supervisors can determine the content of people's jobs, it is important to simultaneously examine employee and supervisor factors that may influence the types of tasks employees perform.

The aim of the present study is to investigate possible individual employee and supervisor characteristics that influence the amount of challenging tasks employees perform. We will focus on what we believe is a fundamental driving force of both employees' performance of challenging tasks and supervisors' allocation behaviors of challenging tasks, namely people's goal orientation. Goal orientation concerns the type of goals that people adopt and pursue in achievement situations (Dweck, 1986; Dweck & Leggett, 1988). People create different perceptual-cognitive frameworks for how to approach, interpret, and respond to achievement situations (e.g., Barron & Harackiewicz, 2000; Duda, 2001; Dweck, 1999; Pintrich, 2000; Van Yperen, 2003). For example, individuals with a mastery-approach goal orientation aim to further develop their competence through task mastery and the learning of new skills (Elliot & McGregor, 2001). These employees may involve themselves in

challenging activities because these activities provide them the opportunity to learn. In contrast, employees with a performance-avoidance orientation are particularly motivated to avoid demonstrating inferior competence toward others (Elliot & McGregor, 2001). These employees may want to avoid challenging tasks they do not master yet, because they have a high risk of visible failure on these tasks.

In a similar vein, supervisors' goal orientations may affect the extent to which they motivate their subordinates to perform challenging tasks. For example, supervisors who have a mastery-approach orientation may not only wish to develop their own skills but also those of their subordinates. These supervisors may provide their subordinates with challenging assignments. It is, however, also conceivable that supervisors are mainly motivated to demonstrate their own excellence and superiority over others (i.e., having a performance approach-orientation). These supervisors may be reluctant to allocate challenging activities to their subordinates.

Based on goal orientation theory, we propose and test relationships between employees' (assessed) goal orientations and the performance of challenging tasks. In addition, we examine relationships between supervisors' goal orientations and employees' performance of challenging tasks. With this study, we extend existing job challenge and career research that was mainly concerned with individual and organizational outcomes rather than antecedents of job challenge. We will show that goal orientations are indeed crucial for the amount of challenging tasks that employees perform in their jobs. Moreover, we contribute to both the leadership literature and goal orientation research by linking supervisors' goal orientations to the challenging activities of their subordinates. To date, this is the first study that examines how supervisors' goal orientations are related to employee behavior.

Overview of the Present Study

Below, we first discuss the concepts of job challenge and goal orientation. Next, we develop our hypotheses about the relationships between individuals' goal orientations and the performance of challenging tasks. We first tested these hypotheses in a study (Study 4.1) among 216 respondents. In a second study, we replicated and extended our research by testing hypotheses about the relationships between supervisors' goal orientations and the challenging tasks of employees. Study 4.2 included a sample with 39 supervisors and 193 employees.

Theory

Challenging Tasks

Job challenge has been conceptualized as "having to meet performance expectations that are reasonably high" (Berlew & Hall, 1966, p. 209), as "level of difficulty and stimulation" (Taylor, 1981, p. 255), as "the extent to which a job gives the individual a chance to use his skills or abilities" (Walsh, Taber, & Beehr, 1980, p. 255), and as "being in dynamic settings with problems to solve and choices to make under conditions of risk and uncertainty"

(McCauley et al., 1999, p. 4). More specifically, a job can be qualified as challenging to the extent that the job: (a) is new and asks for non-routine skills and behaviors, (b) tests one's abilities or resources, (c) gives an individual the freedom to determine how to accomplish the task, and (d) involves a higher level of responsibility and visibility (Van Vianen et al., 2008).

The performance of challenging tasks has been associated with several positive outcomes such as learning, development, and career opportunities (e.g., De Pater Van Vianen, Bechtoldt, et al., 2009; McCauley et al., 1999). In addition, it is expected to lead to job satisfaction (e.g., Judge, Bono, & Locke, 2000; Kirk-Brown & Wallace, 2004), organizational commitment (e.g., Buchanan, 1974; Dixon, Cunningham, Sagas, Turner, & Kent, 2005), and higher intrinsic work motivation (e.g., Csikszentmihalyi, 1990). Altogether, extant literatures suggest that employees should perform challenging tasks in their jobs. Surprisingly, to date, little is known about factors that influence the amount of challenging tasks people perform in their jobs.

It has been suggested that there may be individual characteristics that predispose employees to seek challenging assignments (De Pater, Van Vianen, Fischer, et al., 2009). Moreover, research has shown that people differ in their preferences for and choice of performing challenging tasks. It was found that people's preferences for challenging tasks were related to their achievement motives, that is, whether these were approach-oriented or avoidance-oriented (De Pater, Van Vianen, Fischer, et al., 2009; Hirschfeld, Thomas, & Lankau, 2006). Approach-oriented individuals tend to pursue beneficial outcomes, whereas avoidance-oriented employees tend to avert detrimental outcomes (Nicholls, 1984). Approach-oriented individuals are responsive to achievement cues and are more likely to perform achievement tasks. Avoidance-oriented individuals are less willing to perform achievement tasks and easily change to non-achievement tasks (Atkinson & Birch, 1974). People who were motivated to approach success were more likely to engage themselves in challenging tasks than people who were motivated to avoid failure (De Pater, Van Vianen, Fischer, et al., 2009). People's achievement motive (approach or avoidance) represents one dimension of the four goal orientations that are distinguished in recent goal orientation theory (e.g., Elliot & McGregor, 2001).

Goal Orientations

Goal orientation refers to the underlying goals that people adopt and pursue in learning and performance situations (Dweck, 1986; Dweck & Leggett, 1988). Two types of goal orientations were initially distinguished: a mastery or learning orientation and a performance orientation. Individuals with a mastery goal orientation want to develop competence, whereas individuals with a performance goal orientation want to demonstrate and validate their competence. Mastery oriented individuals are mastery focused, that is, they are eager to learn, to acquire new skills, to master new situations, and to improve themselves. Individuals with a performance orientation are ability focused, that is, they want to

demonstrate their superior competence in relation to others (Dweck, 1999; Nicholls 1984). They are motivated either to outperform others or to avoid looking incompetent (e.g., Elliot, 1999; Elliot & Covington, 2001).

Researchers have proposed to bifurcate mastery and performance goal orientations into approach and avoidance versions (e.g., Elliot & McGregor, 2001). Individuals with a mastery-approach goal orientation are assumed to focus on the development of competence through task mastery and gaining new skills, which is largely in line with the conceptualization of the traditional mastery orientation. Individuals with a mastery-avoidance goal orientation strive to avoid deterioration, losing their skill, or leaving the task incomplete or unmastered. Likewise, performance-oriented individuals can be motivated either to demonstrate superior competence relative to others and obtain favorable judgments about their achievements (performance-approach goal orientation), or to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (performance-avoidance goal orientation) (e.g., Elliot, 1999; Elliot & Church, 1997; VandeWalle, 1997). In the present study, we will include the four goal orientations. The goal orientation literature has conceptualized the goal orientation construct in different ways. In the current study, we focus on the conceptualization of goal orientation as a rather stable individual difference variable that may be influenced by situational characteristics (e.g., Button, Mathieu, Zajac, 1996; Dweck, 1989; Farr, Hoffmann, & Ringenbach, 1993).

People's goal orientations have mainly been studied in learning and specific performance situations to predict learning and performance outcomes (e.g., Barron & Harackiewicz, 2000; Ford, Smith, Weissbein, Gully, & Salas, 1998; Pintrich, 2000). However, goal orientations have been found to influence several other factors as well (for an overview, see Elliot, 2005; Payne, Youngcourt, & Beaubien, 2007), such as selection (e.g., Roberson & Alsua, 2002), training (e.g., Brown, 2001), performance appraisal (e.g., VandeWalle & Cummings, 1997), leadership (e.g., Janssen & Van Yperen, 2004), feedback seeking (Janssen & Prins, 2007), and goal-setting (VandeWalle, Brown, Cron, & Slocum, 1999).

Although it is assumed that goal orientations will impact the amount of challenging tasks people perform (e.g., Dweck, 1986), this assumption has never been tested. Achievement motives affect people's task choices (e.g., De Pater, Van Vianen, Fischer et al., 2009) and may thus also affect the types of tasks they perform. For example, a person with a strong mastery-approach orientation will seek for, and prefer situations that provide opportunities for learning, whereas a person with a strong performance-approach orientation will aim for situations in which he/she can show superiority toward others. By performing certain tasks, individuals are able to fulfill their motivational needs. In a first study, we examined the relationships between people's goal orientations and the types of tasks they perform.

STUDY 4.1:
GOAL ORIENTATIONS AND PERFORMING CHALLENGING TASKS

Based on the earlier findings as presented above, we hypothesized that the performance of challenging activities would be related to people's approach and avoidance motives. Yet, we specifically expected that people with a strong mastery-approach goal orientation would pursue challenging activities, whereas people with a weak performance-avoidance goal orientation would avoid challenging assignments.

Individuals with a mastery-approach goal orientation focus on the development of competence through task mastery and gaining new skills (Elliot & McGregor, 2001). Challenging assignments include the development of new strategies and skills (e.g., McCauley et al., 1994) and, thus, provide mastery-approach oriented persons an ideal opportunity to fulfill their goal. The proposed link between a mastery-approach goal orientation and the performance of challenging tasks is supported by research that examined people's mastery orientation. It was found that individuals with a mastery orientation are open to and interested in learning from new experiences (VandeWalle, Cron, & Slocum, 2001), and perceive challenging activities as opportunities to learn (Dweck, 1986). Although these studies suggest that mastery-approach oriented individuals will perform challenging tasks, the link between goal orientations and actual task performance has never been tested.

We expected no specific relationship between a mastery-avoidance goal orientation and the performance of challenging tasks. Individuals with a mastery-avoidance goal orientation particularly strive to avoid deterioration and losing their current skills. They focus on avoidance of loss of competence and deterioration (Elliot & McGregor, 2001). Hence, a mastery-avoidance goal orientation may relate to behaviors that facilitate the preservation of existing competencies and skills, whereas a mastery-approach goal orientation will relate to behaviors that foster the learning of new skills. We propose the following:

> *Hypothesis 1.* A mastery-approach goal orientation is positively related to performing challenging tasks.

Individuals with a performance orientation (both approach and avoidance) tend to believe that people's capacities are fixed and can hardly be developed. In their view, exerting extra effort and working hard often indicate inadequate levels of competence (e.g., Duda, 2001; Dweck, 1999; VandeWalle, 2003). The performance of challenging tasks often takes much effort to succeed as these tasks are demanding and new. Performance-approach oriented people who are eager to demonstrate their superiority to others may view putting much effort in a task as something that signifies low ability to others. In addition, they may recognize a serious risk to fail on challenging tasks and to receive negative judgments from others, which is opposed to their goal. They may, therefore, be reluctant to engage themselves in

challenging tasks and preferably perform non-challenging tasks on which they can show their abilities. Indeed, performance-approach goals appear to be most adaptive under conditions of low task difficulty or low fear of failure (Darnon, Harackiewicz, Butera, Mugny, & Quiamzade, 2007).

Alternatively, it could be reasoned that performance-approach oriented people seek opportunities to excel and, thus, may want to take up the more exceptional, challenging tasks as a means to differentiate themselves from others who perform the more routine types of tasks. In addition, they may view a challenging task as an opportunity to obtain favorable judgments from others as these tasks are often highly visible to others (e.g., McCauley et al., 1999).

The two countervailing forces as described above may keep each other in balance. This notion is supported by a recent meta-analysis that showed that a performance-approach orientation was unrelated to the difficulty levels of the goals that people set for themselves (Payne et al., 2007). Hence, we did not propose a specific relationship between a performance-approach orientation and the performance of challenging tasks.

Individuals who are performance-avoidant are concerned about their possible failure in the eyes of other people. They tend to view achievement situations as a threat to other people's perceptions about their competence, because putting effort in the challenging task could signify low ability to others (Elliot & McGregor, 2001). Hence, we expect that performance-avoidance oriented individuals want to avoid the performance of challenging tasks. Support for this suggestion can be derived from research that indicates that a performance-avoidance goal orientation prompts people to fall into a maladaptive pattern of helplessness, which precludes optimal task engagement and is not conducive to either engaging in self-regulation, performing at high levels (e.g., Elliot & Church, 1997; Elliot & Sheldon, 1997), or the setting of high goals (Payne et al., 2007). Furthermore, the tendency to reduce effort and to withdraw after encountering setbacks and difficulty seems characteristic for individuals with a performance-avoidance orientation (Elliot, 1999; Pintrich, 2000). Based on goal orientation theory and research, we propose the following:

> *Hypothesis 2*. A performance-avoidance goal orientation is negatively related to performing challenging tasks.

Method Study 4.1

Participants and Procedure

The sample of this study comprised of two hundred sixteen students from a University in the Netherlands (169 females, 47 males). Mean age was 20.24 years (*SD* = 3.22). As part of a course requirement, they participated in several test sessions during a period of three weeks. As a procedural remedy to reduce common method bias, we collected the data at two points in time. Goal orientations and demographics were measured at Time 1 whereas performance of

challenging tasks was measured two weeks later (Time 2). The respondents filled out the questionnaires on a computer.

Measures

Goal orientations were assessed using a 20-item scale developed by Biemond and Van Yperen (2001). This scale is based on measures developed by Elliot and McGregor (2001) and Van Yperen and Janssen (2002), and has been used in previous studies (e.g., Janssen & Prins, 2007). Each of the four goal orientations was assessed with five items. The respondents indicated on a seven-point scale ranging from 1 *(not at all important)* to 7 *(very important)* how important the goal orientation statements were to them. Cronbach's alphas were .81 for the performance-approach, .71 for the performance-avoidance, .81 for the mastery-approach, and .64 for the mastery-avoidance goal orientation. These reliabilities correspond with those that were found in earlier studies.

Performing challenging tasks. With a nine-item questionnaire participants were asked to what extent they performed challenging tasks in their daily life. This scale was derived from De Pater and colleagues (De Pater, Van Vianen, Bechtoldt, et al., 2009) and Preenen and colleagues (Preenen, De Pater, & Van Vianen, 2008). An example item is: "In my daily life, I perform tasks that are challenging.". Another example item is: "In my daily life, I perform tasks in which I have to deal with new situations and changes.". Participants indicated their agreement with the items on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha was .89.

Results Study 4.1

Table 4.1 reports the means, standard deviations, and inter-correlations of the study variables. Mean correlation among the four goal orientations was .37. Furthermore, only mastery-approach orientation was significantly correlated with the performance of challenging tasks ($r = .30$, $p < .001$). Age had significant but small correlations with mastery-approach orientation ($r = .14$, $p < .05$) and mastery-avoidance orientation ($r = -.14$, $p < .05$).

Hypotheses Testing

To test the hypothesized relationships between goal orientations and performing challenging tasks, we conducted a hierarchical regression analysis in which the performance of challenging tasks was regressed on the four goal orientations. The four goal orientations together explained 11% of the variance in performing challenging tasks ($R^2 = .11$, $F(4, 211) = 6.23$, $p < .001$), see Table 4.2. As hypothesized (Hypothesis 1), a mastery-approach goal orientation was positively related to performing challenging tasks ($\beta = 32$, $p < .001$). Hence, Hypothesis 1 was supported. However, no significant relationship was found between a performance-avoidance goal orientation and the performance of challenging tasks ($\beta = -.12$, $p < .19$). Thus, Hypothesis 2 could not be supported.

Table 4.1

Means, Standard Deviations, and Correlations among Study Variables of Study 1[a]

Variables	*M*	*SD*	1	2	3	4	5	6	7
1. Gender[b]	.22	.41	-						
2. Age	20.24	3.22	.12	-					
3. Mastery-approach orientation	5.41	.85	-.05	.14*	-				
4. Mastery-avoidance orientation	4.03	1.02	-.01	-.14*	-.01	-			
5. Performance-approach orientation	3.88	1.23	-.01	.00	.30**	.47**	-		
6. Performance-avoidance orientation	4.78	1.03	-.06	-.11	.34**	.51**	.60**	-	
7. Performing challenging tasks	4.56	.92	-.04	.04	.30**	-.11	.03	-.02	-

Note. [a] $N = 216$. Goal orientations were measured at Time 1 and performance of challenging tasks was measured two weeks later (Time 2). [b] For gender, female = 0, male = 1. * $p < .05$, ** $p < .01$.

Table 4.2

Regression of Performing Challenging Tasks on Goal Orientations[a]

Predictor	β
Mastery-approach orientation	.32***
Mastery-avoidance orientation	-.07
Performance-approach orientation	.04
Performance-avoidance orientation	-.12
$F(4, 211)$	6.23***
R^2	.11

Note. [a] $N = 216$. Standardized regression coefficients are reported. *** $p < .001$.

Discussion Study 4.1

In a first study, we investigated possible relationships between people's goal orientations and the performance of challenging tasks. We measured the independent and dependent measures two weeks apart as a procedural means to minimize the possibility of common method bias. The relatively short temporal separation between the measurements should have reduced bias due to respondents' consistency motives while it should not have introduced contaminating factors that mask true relationships between the variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

As proposed, we found that a mastery-approach goal orientation was positively related to performing challenging tasks. Apparently, a mastery-approach orientation stimulates people to perform more challenging tasks. However, no support was found for the hypothesized negative relationship between a performance-avoidance orientation and performing challenging tasks. This latter finding does not corroborate with earlier research that found that performance-avoidant individuals are reluctant to set high goals (see Payne et al., 2007) and, instead, tend to underperform (e.g., Elliot & Church, 1997; Elliot & Sheldon, 1997). Interestingly, the latter research mostly concerned evaluative specific performance contexts (e.g., classrooms, educational settings) in which people could compare their performance with the performance of others. In these situations, it can be expected that performance-avoidant individuals set lower goals, perform less, and withdraw from performing challenging activities. However, in our study, we did not specifically refer to performance contexts in which people could compare their task performances or were evaluated. This may explain why we failed to find a negative relationship between a performance-avoidance orientation and the performance of challenging tasks.

In addition, our results have shown that the performance of challenging tasks was mainly linked to the learning rather than the performance dimension of people's goal orientations. The performance of challenging tasks seems not related to employees' fear of failure or their wish to outperform others. In a second study, we aim to replicate and extend

these first findings in a work context. In the second study, we also examine the role that supervisors may play in the types of tasks that their employees perform.

STUDY 4.2: PERFORMING CHALLENGING TASKS: SUPERVISORS' GOAL ORIENTATIONS

In Study 4.2, we again investigated the relationships between goal orientations and the performance of challenging tasks, but this time with a sample of employees from a company. This sample allowed us to also examine the role of supervisors' goal orientations as possibly related to the tasks of their subordinates.

The extent to which employees are involved in challenging tasks may not only depend on their own initiatives but on those of their supervisors as well. Supervisors have the opportunity to facilitate employees' challenging experiences, for example, by the assignment of challenging tasks (Cianni & Romberger, 1995). Little is yet known about supervisors' task allocation behaviors and what causes them to assign specific types of tasks to their subordinates, but supervisors' task allocation decisions may influence the extent to which employees encounter challenging experiences in their jobs (De Pater, Van Vianen, & Bechtoldt, 2010). The delegation literature has primarily examined employee characteristics as determinants of supervisors' task delegation (Leana, 1986; Yukl & Fu, 1999). To date, no studies have focused on supervisor characteristics that may influence the types of tasks that employees perform.

In this study, we explored the possible link between supervisors' goal orientations and the types of tasks their subordinates perform. People's goal orientations do not only affect their own learning and performance behaviors but may affect the outcomes of others as well. For example, a person with a performance-approach orientation, thus motivated to show superiority and outperform others, will likely engage in behaviors that maximize their own chances and minimize the chances of others to excel. An individual's goal orientations will particularly affect the outcomes of others if their (work) relationships are highly interdependent, as is the case with supervisors and subordinates. That is, supervisors' goal orientations will most likely affect employees' outcomes if supervisors have a great impact on the types of activities their employees perform, whereas this influence will be less strong or absent if supervisors do not determine the content of employees' jobs.

In this study, we proposed that supervisors' goal orientations would be related to employees' performance of challenging tasks, but that the strength of this relationship would depend on the extent to which employees' work activities are determined by their supervisor, which we label as: supervisors' task impact. Based on goal orientation theory, we reasoned that employees' performance of challenging tasks would be influenced by supervisors' mastery-approach, performance-approach, and performance-avoidance orientations.

Individuals with mastery-approach goal orientations focus on the development of competence through task mastery and gaining new skills (Elliot & McGregor, 2001) and they will, therefore, pursue the performance of challenging tasks as was shown in Study 1. Supervisors with a mastery-approach orientation may find the development of new competencies as important for themselves as for their subordinates. These supervisors may stimulate their employees to seek opportunities for learning and, if possible, they may provide them with actual learning experiences by assigning challenging tasks.

The literature on mentoring seems to support this contention by arguing that mentors with a mastery goal orientation will provide their protégées with challenging assignments in order to stimulate their development (Kim, 2007). Employees are more likely to perform challenging tasks if their supervisor has a mastery-approach goal orientation, particularly if the supervisor has a say in employees' tasks. We propose:

> *Hypothesis 1*. Supervisors' mastery-approach goal orientation is positively related to employees' performance of challenging tasks depending on supervisors' task impact.

Individuals with a mastery-avoidance orientation are mainly concerned with the preservation of their current skills, as we have outlined earlier. Due to its focus, this orientation seems not to affect the initiation of challenging tasks as we have argued and, indeed, found in Study 4.1. In a similar vein, there is no theoretical rationale of why and how supervisors' mastery-avoidance orientation would relate to their task allocation behaviors. We, therefore, did not expect any specific relationship between supervisors' mastery-avoidance orientation and the challenging tasks of their subordinates.

Performance-approach oriented individuals are motivated to demonstrate their superior competence relative to others (Elliot & McGregor, 2001). Challenging tasks are often highly visible to others (e.g., McCauley et al., 1994), and they signal competence (De Pater, Van Vianen, Bechtoldt, et al., 2009; Humphrey, 1985). If supervisors want to look more competent than their subordinates, they may purposely withhold their subordinates challenging tasks in order to optimize their own chances to excel in the eyes of others. Similarly, these supervisors may be less likely to stimulate their employees to take on challenging tasks. They may not want their employees to 'steal the show' with the performance and accomplishment of challenging assignments because this could be a threat to their own superior position. Managers who use their power to aggrandize themselves and satisfy their strong need for esteem and status, seek to dominate employees by keeping them weak (Yukl, 2006). These notions are empirically supported by research that has shown that managers with a high need for achievement often prefer to retain important tasks rather than delegate them to employees (Miller & Toulouse, 1986). Performance-approach oriented supervisors may not stimulate their employees to perform challenging tasks. We propose:

Hypothesis 2. Supervisors' performance-approach goal orientation is negatively related to employees' performance of challenging tasks depending on supervisors' task impact.

Supervisors who hold a performance-avoidance goal orientation will be mainly motivated to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (Elliot & McGregor, 2001). These supervisors may be concerned about those activities in their job on which they might fail. Because supervisors, as opposed to employees, may have the authority to delegate tasks, they may pass these risky and threatening activities to their subordinates. If, eventually, subordinates indeed fail on or withdraw from these tasks, they rather than their supervisor are to be blamed. Based on this reasoning, we assume that supervisors' performance-avoidance goal orientation will be associated with employees' performance of challenging tasks. We propose:

Hypothesis 3. Supervisors' performance-avoidance goal orientation is positively related to employees' performance of challenging tasks depending on supervisors' task impact.

In addition to Hypotheses 1 tot 3, we expected to replicate our Study 4.1 finding that employees' own mastery-approach orientation is positively related to the performance of challenging tasks. We, thus, expected that the proposed relationships in Hypotheses 1 to 3 would hold when controlling for employees' mastery-approach orientation.

Method Study 4. 2

Participants and Procedure

All employees (N = 332) and their direct supervisors (N = 47) working for a Dutch distribution company with locations in Australia, Belgium, Singapore, the Netherlands, and United Kingdom were invited by e-mail to fill out an online questionnaire. A total of 226 employees (68%) and 41 supervisors (87%) responded. Thirty-three employees worked for a supervisor who did not fill out the questionnaire, and two supervisors participated while none of their employees had filled out the survey. They were removed from our sample, leaving a total of 193 employees (138 males, 55 females) and 39 supervisors (37 males, 2 females). On average, 4.95 (SD = 2.69) employees responded per supervisor. Each supervisor supervised on average 7.06 employees. The mean response rate per supervisor was 70%. Average age of the employees was 41.60 years (SD = 11.21). One hundred thirty-three employees held a bachelor's or master's degree, and 60 respondents held a professional or no degree. Mean job tenure of the employees was 5.12 years (SD = 7.81). Supervisors' average age was 46.54 (SD = 8.34), 31 held a bachelor's or master's degree, and 8 held a professional or no degree. Mean job tenure was 7.98 years (SD = 7.30).

Measures

The employee survey included questions about demographics, and items that measured goal orientations, the performance of challenging tasks, supervisors' impact on their work activities, and other measures that were part of a larger study on employees' work experiences and attitudes. Only measures used in the present study are described. Supervisors were asked about their goal orientations.

Goal orientations. Employees' and supervisors' goal orientations were assessed in the same way as in Study 4.1. Cronbach's alphas were .78 for the performance-approach, .84 for the performance-avoidance, .84 for the mastery-approach, and .67 for the mastery-avoidance goal orientation. These reliabilities correspond with the ones that were found in Study 4.1.

Performing challenging tasks. Employees filled out the same nine items to assess the performance of challenging assignments as in Study 4.1, but now participants were asked to what extent they performed challenging tasks in their job. Cronbach's alpha was .89.

Supervisor task impact was measured by asking employees what percentage of their work activities was determined by their supervisors. Mean percentage was 32.40% (*SD* = 25.67).

Results Study 4.2

Table 4.3 displays the means, standard deviations and correlation coefficients among the employee variables of this study. Small to modest correlations were found among the goal orientations (mean r = .29), which correspond with correlations that were found in earlier studies (Janssen & Prins, 2007). No significant correlations were found between performing challenging tasks and the demographic variables. Furthermore, performing challenging tasks had a significant negative correlation with supervisors' task impact (r = -.25, p < .05), indicating that employees reported more challenge in their jobs if their supervisor had a lower impact on their tasks.

As we collected our data from different locations and work groups, the data in this study were multilevel in nature. Hypotheses 1 to 3 were, therefore, tested with linear mixed modeling with maximum likelihood estimation. As a first step, we examined whether there were differences between the different locations. We estimated a null model without any predictors in order to test for possible variance in challenging tasks across locations. This model with random intercepts showed an intraclass coefficient (ρ) of .04, indicating that the proportion of total variance in challenging tasks explained by between-location differences was negligible. Also, there were no location effects with regard to the independent variables.

Table 4.3

Correlations and Descriptive Statistics of Study Variables[a]

		M	*SD*	1	2	3	4	5	6	7	8	9
1.	Gender[b]	0.28	0.45									
2.	Age	41.61	11.21	-.09								
3.	Tenure	61.47	93.75	-.04	.33							
4.	Performing challenging tasks	4.63	1.21	-.13	-.01	.00						
5.	Mastery-approach	5.69	.95	-.08	-.02	-.07	.55					
6.	Mastery-avoidance	4.72	1,08	.19	.04	.05	.05	.13				
7.	Performance-approach	4.06	1,24	-.04	.04	.11	.23	.22	.29			
8.	Performance-avoidance	4.83	1,08	.04	.07	.11	.15	.25	.42	.41		
9.	Supervisor task impact	32.42	25.67	.05	-.15	-.14	-.25	-.13	-.08	-.10	-.17	-

[a] Correlations greater than .15 are significant at $p < .05$. $N = 193$. [b] Men = 0, women = 1.

Secondly, we estimated a null model to test for possible variance in challenging tasks across work groups. A null model with random intercepts showed an intraclass coefficient (ρ) of .13. This indicates differences between work groups which warrant multilevel regression analyses with two levels. Employees' goal orientations and supervisors' task impact are at the individual level of analysis (level 1) and supervisors' goal orientations are at the group level (level 2). Prior to analyses, all the predictor variables were standardized at the grand mean of level-1 and level-2 predictors, respectively (see Kreft, De Leeuw, & Aiken, 1995).

The next mixed model regression analysis was performed to explore the relationship between employees' goal orientations and the performance of challenging tasks. A level-1 model was run to examine the contribution of each of the four goal orientations to the performance of challenging tasks. We tested whether the slopes were random or fixed by comparing the statistics of a random model with a fixed model. A random slope indicates that level-1 relations vary across groups, whereas a fixed slope indicates that level-1 relations are homogeneous across groups. A model with random slopes for mastery-approach and performance-approach goal orientations, and fixed slopes for mastery-avoidance and performance-avoidance goal orientations was better fit to the data than a model with fixed slopes for all four goal orientations (ΔX^2 (-2 Log Likelihood) = 6.25, $df = 2$, $p < .05$). In all further analyses we first tested whether models with random slopes were better fit to the data than models with fixed slopes. A mixed model regression analysis with performing challenging tasks as the dependent variable and the four goal orientations (level 1) as the independent variables showed that only mastery-approach orientation was significantly related to the performance of challenging tasks ($\gamma = .60$, $p <. 001$), see Table 4.4, model 1. This result supports the findings of Study 4.1.

In addition, we tested a second model in which we also included supervisors' task impact and the interactions between supervisors' task impact and employees' goal orientations. Although not hypothesized, we wanted to explore whether relationships between employees' goal orientations and the performance of challenging tasks would be moderated by supervisors' task impact. As can be seen in Table 4.4 (model 2), supervisors' task impact was negatively related to the performance of challenging tasks (γ = -.19, p <. 05), indicating that employees reported less challenge in their job if their supervisor had an impact on their tasks. There were no significant interaction effects. This means that a mastery-approach goal orientation was related to the performance of challenging tasks irrespective of supervisors' task impact.

Table 4.4

HLM Analysis Predicting Performing Challenging Tasks

Level		Model 1	Model 2	Model 3	Model 4
1	Intercept γ_{00}	4.67	4.70	4.69	4.69
	Mastery-approach (MAP) γ_{10}	.60**	.63**		.61**
	Mastery-avoidance (MAV) γ_{20}	-.01	.02		
	Performance-approach (PAP) γ_{30}	.16	.14		
	Performance-avoidance (PAV) γ_{40}	-.04	-.12		
	Supervisor task impact (STI) γ_{50}		-.19*	-.21*	-.16*
	MAP x STI γ_{60}		.05		
	MAV x STI γ_{70}		-.05		
	PAP x STI γ_{80}		.07		
	PAV x STI γ_{90}		.04		
2	Mastery-approach γ_{01}			.02	
	Mastery-avoidance γ_{02}			.22	
	Performance-approach γ_{03}			-.16	-.07
	Performance-avoidance γ_{04}			.10	.11
2 x 1	MAP x STI γ_{51}			.08	
	MAV x STI γ_{52}			.10	
	PAP x STI γ_{53}			-.43**	-.21*
	PAV x STI γ_{54}			.36**	.24*

** p < .01, * p < .05.

Hypotheses Testing

We hypothesized that supervisors' goal orientations would be related to employees' performance of challenging tasks depending on supervisors' task impact. We expected positive relationships for supervisors' mastery-approach goal orientation (Hypothesis 1) and supervisors' performance-avoidance goal orientation (Hypothesis 3), and we expected a negative relationship for supervisors' performance-approach goal orientation (Hypothesis 2). These hypotheses were tested with a mixed model regression analysis with performing challenging tasks as the dependent variable and supervisors' goal orientations (level 2), supervisors' task impact (level 1), and the cross-level interactions of these variables as the independent variables (see Table 4.4, model 3).

No significant effect was found for the interaction between supervisors' mastery-approach goal orientation and supervisors' tasks assignments (γ = .08, n.s.). Hence, Hypothesis 1 was not supported. Significant effects were found for the interactions between supervisors' performance-approach goal orientation and supervisors' task impact (γ = -.43, p <. 01), and between supervisors' performance-avoidance goal orientation and supervisors' task impact (γ = .36, p <. 01). As shown in Figures 4.1 and 4.2, these cross-level effects were in the proposed direction: if supervisors had an impact on employees' tasks, their performance-approach goal orientation was negatively related to employees' task challenge (simple slope, p < .05) and their performance-avoidance goal orientation was positively related to employees' task challenge (simple slope, p < .01). These results provide support for Hypotheses 2 and 3.

Finally, we performed a mixed model regression analysis with relevant level-1 and level-2 predictors in order to estimate whether the level-2 interaction effects would hold when including employees' mastery-approach goal orientations. We entered employees' goal orientations and supervisors' task impact as the level-1 independent variables, supervisors' performance-approach and their performance-avoidance goal orientations as the level-2 independent variables, and the cross-level interactions of supervisors' goal orientations and supervisors' task assignments. Table 4.2 (Model 4) shows that, in addition to the significant effects of employees' mastery-approach goal orientations and supervisors' task impact, level-2 interaction effects became smaller but remained to be significant.

Figure 4.1. Cross-level interaction of supervisor performance-approach goal orientation and supervisor task impact

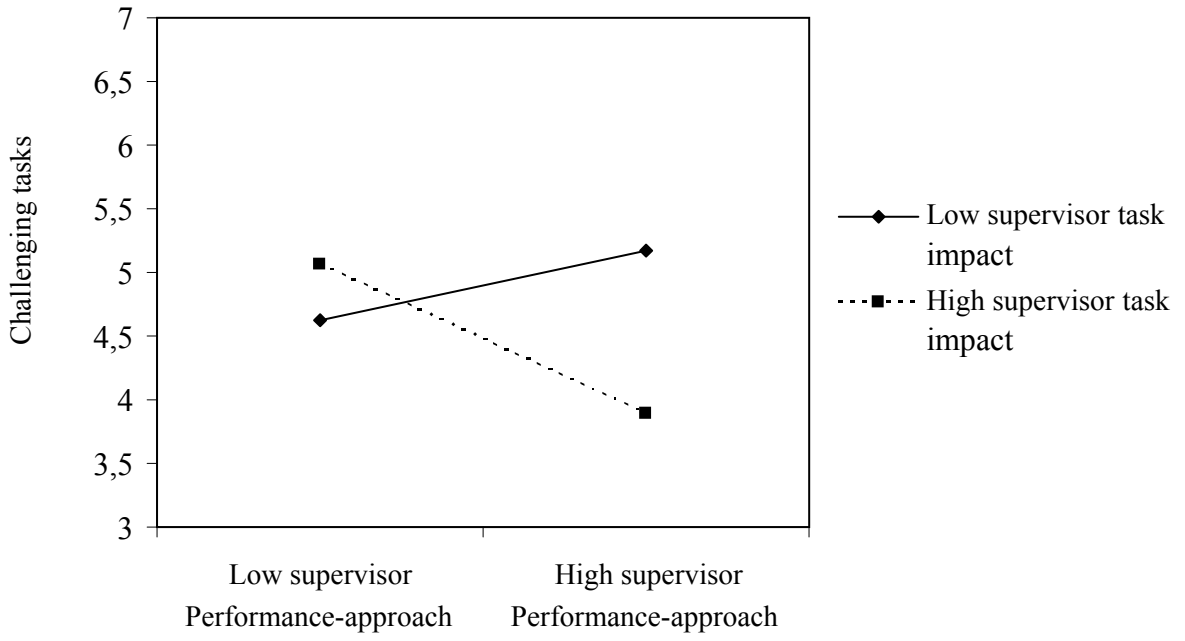
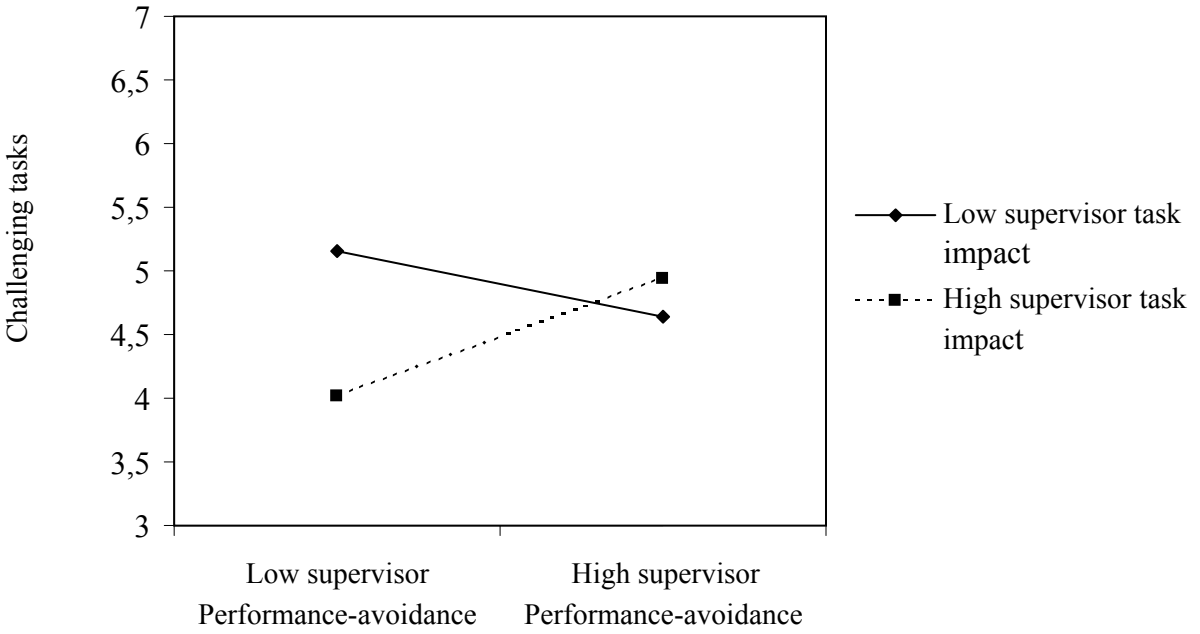


Figure 4.2. Cross-level interaction of supervisor performance-avoidance goal orientation and supervisor task impact



Discussion Study 4.2

In our second study, we replicated our Study 4.1 finding that individuals' mastery-approach orientation is positively related to the performance of challenging tasks. In addition, we showed that supervisors' task impact and some of their goal orientations were related to employees' performance of challenging tasks. Although not proposed, we found that supervisors' task impact was negatively related to employees' performance of challenging tasks. Hence, if supervisors allocate tasks to their subordinates these tasks tend to be of a non-challenging rather than challenging nature. Yet, this tendency is stronger when the supervisor has a performance-approach goal orientation whereas this tendency is weaker when the supervisor has a performance-avoidance goal orientation. Thus, employees who are dependent on their supervisors' task assignments will perform less challenging assignments if the supervisor has a strong performance-approach goal orientation and they will perform more challenging assignments if the supervisor has a strong performance-avoidance goal orientation.

Unexpectedly, the findings did not support our proposition that supervisors' mastery-approach goal orientation would be positively related to employees' performance of challenging tasks. Supervisors' own focus on learning seems not to convert into supervisory behaviors that facilitate the learning and developmental opportunities of their subordinates.

General Discussion

This study was motivated by a lack of research on factors that influence the amount of challenging tasks that employees perform. Examining these factors is highly important because prior research has shown that people's challenging experiences have many beneficial outcomes (e.g., De Pater, Van Vianen, Bechtoldt, et al., 2009). We investigated relationships between people's goal orientations and the performance of challenging tasks. Furthermore, in an organizational context we examined relationships between supervisors' goal orientations and employees' performance of challenging tasks. We have shown that employees' as well as supervisors' goal orientations are related to the amount of challenging assignments that employees perform. Individuals who have a strong mastery-approach goal orientation perform more challenging tasks than individuals who have a weaker mastery-approach goal orientation (Studies 1 and 2). This finding corroborates the widely accepted (Dweck, 1986) but never investigated suggestion that a mastery orientation (i.e., mastery-approach) is positively related to the performance of challenging tasks, because these types of tasks help mastery oriented persons in reaching their goal to develop competence and new skills. To date, this is the first study that provides empirical evidence for this relationship.

Individuals' mastery-avoidance, performance-avoidance, and performance-approach goal orientations were not related to the performance of challenging tasks. These goal orientations neither stimulate nor discourage the performance of challenging tasks. This result may be due to the dualistic character of challenging tasks: on the one hand they provide

opportunities to excel and learn, but on the other hand they involve higher risks of noticeable failure.

Furthermore, we found that supervisors' performance-approach goal orientations were related to employees' performance of challenging tasks when supervisors had an impact on the content of employees' jobs. This finding seems to support the idea that supervisors who have a strong wish to excel and outperform others may seek to dominate subordinates by keeping them weak and dependent (Yukl, 2006). As opposed, supervisors with a performance-avoidance goal orientation may, if possible, delegate challenging activities to subordinates. They wish not to fail and receive negative feedback and may, therefore, pass on this risk to their employees. Our results could not confirm our expectation that supervisors' mastery-approach goals would lead to better learning opportunities for subordinates. People's mastery-approach goal orientations seem indeed ego-focused because they concern one's own learning opportunities and not necessarily those of others.

Theoretical Implications

This study contributes to three important domains of research: job challenge and career development, goal orientations, and leadership. Job challenge and career research has been mainly focused on the beneficial career outcomes of job challenge (e.g., Dragoni et al., 2009). Only recently, researchers have begun to pay attention to possible determinants (e.g., De Pater, Van Vianen, Fischer, et al., 2009) and processes (Preenen et al., 2008) of job challenge. We expect that the scientific interest in the antecedents of job challenge will further increase because career researchers have recognized its potential importance for future 'boundaryless' careers (e.g., Arthur, Khapova, & Wilderom, 2005; Van Vianen, et al., 2008). Current career literatures tend to emphasize employees' own responsibilities for planning and directing their career (Gherardi, Nicolini, & Odella, 1998; Hall, 2002). Our findings have indeed shown that people's job experiences and subsequent development depend on their own mastery-approach goal orientations. However, the findings of this study suggest that the development and careers of employees also relate to managers' goal orientations. Hence, employees may often be hampered in their own choice options to perform specific types of tasks if tasks are assigned to them (Van Vianen et al., 2008).

This study also contributes to theory and research on goal orientations. To date, extant goal orientation research has shown that people's goal orientations affect their own outcomes (see Elliot & Dweck, 2005; Payne et al., 2007). However, hardly any goal orientation study has focused on interpersonal contexts (Janssen & Van Yperen, 2004) and on how people's goal orientations may influence other people's opportunities and behaviors. Moreover, there is no previous research that has related goal orientation to the amount of challenging tasks people perform. The present study has shown that people's performance goal orientations are related to the outcomes of others as well, particularly if they are in higher power positions in which they can influence the activities of other people. Our finding that supervisors with a

performance-avoidance goal orientation seem to facilitate employees' job challenge sheds new light on the consequences of a performance-avoidance orientation. A performance-avoidance orientation is usually associated with negative consequences for individuals (e.g., Payne et al., 2007). Our results suggest that a performance-avoidance orientation could have beneficial consequences for others. This notion warrants further investigation because organizations may nevertheless not prefer performance-avoidant managers.

Finally, this study also adds to theory and research on leadership. Relatively little attention has been paid to managers' daily behaviors as recent leadership studies were mostly concerned with the "heroic leader" (Yukl, 2006), such as transformational or charismatic leaders. Dyadic leadership processes have been investigated as well, but these studies primarily examined leader-member relationships, that is, the mutual trust and supportive relationships between leaders and followers (e.g., Graen & Uhl-Bien, 1995). However, "effective leaders plan and schedule activities in a way that will make better use of people, resources, information, and equipment. They assign tasks, determine resource requirements, and coordinate interrelated activities" (Yukl, 2006, p. 477). These concrete leadership skills and behaviors are obviously related to leaders' personality characteristics, such as their goal orientations, as the findings of this study suggest.

Effective leaders in today's changing organizations should seek to empower their employees by delegation. Indeed, most managers consider the development of employee skills and confidence as the main reason for delegating tasks to employees (Yukl & Fu, 1999). Leaders with a performance-approach goal orientation may also express this view but may nevertheless be less effective in stimulating their employees' development. How leader goal orientations direct leadership attitudes and behaviors, and influence leader effectiveness should be further investigated in future research.

Strengths, Limitations, and Future Research

This study has several strengths. We found similar relationships between individuals' goal orientations and the performance of challenging tasks in two studies that differed in their design and samples. Moreover, in Study 4.2 we combined measures from different sources: employees' goals orientations and supervisors' goals orientations. Finally, our respondents were clearly unaware of the purpose of this study and our interest in the relationships between goal orientations and performing challenging tasks, which diminishes the possibility that our findings are due to people's tendency to respond in a social desirable or consistent way.

Yet, as with all research, also these studies have some limitations that should be discussed. First, although we believe that our study findings do not suffer from social desirability and consistency effects, common method variance among the self-report measures may still be an issue. Concerns about common method bias are a logical consequence of using self-reports which are the basis of research that studies people's motives, goals and attitudes. The relationships between goal orientations and the performance of challenging tasks could

be flawed because our dependent variable (challenging tasks) was also based on self-reports. However, the zero-order correlations with the dependent variable vary from -.11 to .30 in Study 4.1, and from -.25 to .55 in Study 4.2, which reduces the probability "that common method variance is an inflator of correlations" (Spector, 2006, p. 224). We, therefore, assume that common method bias is not a serious problem in this study. Nevertheless, we want to encourage other researchers to include objective measures of task challenge in their future research. This could be done by employing methods for job and task analyses (e.g., Dierdorff, 2003). Another way of associating supervisors' goal orientations to employees' job experiences is to longitudinally collect data on employees' development and job advancements.

A second, theoretically important limitation relates to the logic underlying our Study 4.2 hypotheses. We did not measure the processes that we described as the basis of our hypotheses and findings. For instance, we suggested that supervisors' performance goal orientation affect the types of tasks they assign to their subordinates. Whereas our hypotheses were supported, we did not explicitly test supervisors' allocation behaviors. Hence, there may be alternative explanations for our findings. Employees may, for example, refrain from performing challenging tasks if they know that their supervisor is eager to outperform others and, thus, may want to perform these tasks him or herself. Future research should focus on these and other explanations when studying relationships between supervisors' goal orientations and employees' task challenges.

Finally, future studies could pay attention to interpersonal relationships between supervisors and employees and how these affect employees' tasks. For example, perceptions of supervisor-employee similarity may support the development of good exchange relationships between supervisors and employees. Supervisors may perceive some of their employees as more trustworthy and capable and, therefore, delegate them more challenging assignments (Bauer & Green, 1996; De Pater et al., 2010). These interpersonal factors together with supervisors' goal orientations should be further explored.

Practical Implications

Mastery-approach oriented employees are eager to learn and develop. An organization's flexibility and adaptability is highly dependent on employees' willingness to learn (Allen & Poteet, 1999). Moreover, a mastery-approach orientation is associated with many other beneficial outcomes (e.g., Payne et al., 2007). Therefore, organizations could pay attention to applicants' goal orientations during selection. However, although goal orientations are rather stable personal characteristics, they are not indifferent to contextual factors (e.g., Ames, 1992; Dweck, 1999; Elliot, 1999; Pintrich, 2000). Hence, organizations should create a culture that promotes mastery goal orientations in employees (Nauta, Van Vianen, Van Der Heijden, Van Dam, & Willemsen, 2009).

The sparse research on task delegation has emphasized subordinate characteristics as a determinant of a leader's decision to delegate responsibilities and tasks to subordinates (Graen & Uhl-Bien, 1995). The findings of this study suggest that supervisors' delegating behaviors are also determined by supervisor characteristics. Supervisors with strong performance-approach orientations may be less effective with regard to the development of their subordinates as they withhold them developmental opportunities. Organizations that have competitive cultures may seek for performance-approach goal orientations in their managers. These organizations consider their competitive values as a prerequisite for staying innovative and being able to survive in a turbulent market. Yet, this externally focused strategy may result in less development of internal human capital, which ultimately undermines an organization's competitive strategy. Organizations are called upon to facilitate life-long employee learning in order to be able to grow and adapt, which is essential for an organization's competitiveness (e.g., Barrie & Pace, 1998). Moreover, for an organization's survival it is important to attract and retain competent employees. Organizations may be able to do so if they offer interesting, challenging, and meaningful jobs (e.g., Preenen et al., 2008; Slaughter, Richard, Martin, 2006). A manager's reluctance to delegate challenging tasks could eventually lead to loss of valuable human resources. Performance-approach oriented managers seem less of a good match with organizations' competitive strategies than many employers may assume.

CHAPTER FIVE
JOB CHALLENGE: A BOTTOM-UP CONCEPTUALIZATION

Organizations often try to attract employees by offering challenging jobs. Moreover, they try to retain their valuable employees by creating challenging jobs for them (Loquercio, 2006; Salopek, 2000). But how can one create these jobs? What makes a job more challenging than another one? What are the characteristics of a challenging job? And, what do people precisely mean with a "challenging" job? Unfortunately, the conceptualization and operationalization of job challenge in organizational research is far from coherent and consistent. For example, job challenge has been defined in terms of "difficulty and stimulation" (Taylor, 1981, p. 255), as "being in dynamic settings with problems to solve and choices to make under conditions of risk and uncertainty" (McCauley, Ohlott, & Ruderman, 1999, p. 4), and as being "faced with an activity that is new, exciting, stimulating, and demanding and calls on their ability and determination" (De Pater, Van Vianen, Humphrey et al., 2009, p. 565).

Remarkably, no research has actually examined what it is that individuals consider challenging in a job. To date, definitions of job challenge seem to be mainly based on the (different) opinions of researchers. As a consequence, no clear, consistent, and empirically grounded conceptualization of job challenge yet exists. This is an unfortunate state of affairs, not only from the practical perspective of organizations, but also from a scientific perspective. If the conceptual grounding of job challenge is unclear, the content domain of scales aimed to measure this concept may not accurately reflect the phenomenon under study (Rosas & Camphausen, 2007), which in turn may result in inconsistencies and misinterpretation of research findings.

In the current study, we therefore aim to reach a grounded understanding and conceptualization of job challenge by exploring and categorizing the aspects that people consider to be challenging in a job. Specifically, we asked our study participants to describe an assignment they recently performed and experienced as challenging. We then asked them to describe why they considered this task to be challenging. We used concept mapping to analyze and categorize participants' responses. Concept mapping is a technique that is widely used for specifying conceptual frameworks (Trochim, 1989) and coding qualitative data aimed at scale development (Jackson & Trochim, 2002).

As an overview of the things to come, we will first review existing theory and research on job challenge. Thereafter, we will explain the steps we have taken in our investigation, and present the results of our study. Finally, we will propose a categorization of challenging job aspects, and provide a conceptualization of job challenge.

Theoretical Overview of Job Challenge

As we observed above, job challenge has been extensively studied, but has often been conceptualized in different ways (e.g., McCauley et al., 1999; Taylor, 1981; Walsh, Taber, & Beehr, 1980). Some researchers used the term job challenge, but did not provide a definition of the construct in their studies (e.g., Bandura, 1986; Csikszentmihalyi, 1997; Maurer & Tarulli, 1994). Other researchers have referred to job challenge as being a work characteristic (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009; McCauley et al., 1999; McCauley et al., 1994), a cognitive appraisal (e.g., Cuneen & Sidwell, 1994; Walsh et al., 1980), and a (physiological) mood state (e.g., Meyer & Allen, 1988; Taylor, 1981).

Job Challenge as a Work Characteristic

Several organizational theories have conceptualized job challenge as a work characteristic. For instance, goal-setting theory (e.g., Locke & Latham, 1990) proposes that goals should be both specific and challenging in order to increase employees' performance on the task. From this theoretical perspective, a challenging goal is defined as being difficult but obtainable. This conceptualization corroborates Berlew and Hall's (1966) definition of job challenge: "having to meet performance expectations that are reasonably high" (p. 209).

The Job Demands Model (Karasek, 1979) also considers job challenge to be a characteristic of the job. This model defines job challenge in terms of quantitative (i.e., the degree to which employees are required to work fast and have a lot of work to do in a short time) and qualitative (i.e., having to deal with role ambiguity and/or with conflicting roles) role demands (Janssen, 2001).

Flow theory (Csikszentmihalyi, 1997) considers challenge to be one of the most important *situational* conditions of flow, but it does not provide a clear definition of this condition. Flow is described as a state of consciousness where people become totally immersed in an activity and enjoy it intensely. The occurrence of flow is most likely when people perceive a balance between the challenge of a situation and their own skills to deal with this challenge (e.g., Clarke & Haworth, 1994).

The management development literature views challenging jobs in terms of a set of developmental job aspects (e.g., DeRue & Wellman, 2009; McCauley et al., 1994; McCauley, et al., 1999). McCauley and colleagues identified five clusters of job components that represent challenging aspects of work: (a) job transitions, with individuals being confronted with new tasks and situations in which existing tactics and routines are inadequate, (b) creating change, with individuals having a clear goal to change a situation, but a loosely defined role that gives them the freedom to determine how to accomplish the goal, (c) managing at high levels of responsibility, characterized by increased visibility, the opportunity to make a significant impact, dealing with broader and more complex problems, and higher stakes, (d) managing boundaries, in which case employees have to work with people over whom they have no direct authority and have to develop strategies for influencing

them and gaining their cooperation, and (e) dealing with diversity, that is, working with people who are different from themselves regarding their values, backgrounds, experiences, and needs.

Job Challenge as a Cognitive Appraisal or Mood State

Literature on work (re-)design often describes job challenge in terms of the use and development of skills, talents, or capacities. Hackman and Oldham (1976, p. 257), for example, defined job challenge as "the degree to which a job requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person". In concordance with this conceptualization of job challenge, several researchers conceptualized job challenge as the appraisal of skill use, skill variety, or learning. For instance, Cuneen and Sidwell (1994) defined job challenge as "an opportunity to learn new skills and apply theoretical concepts to the work world". Walsh and colleagues (1980) defined job challenge as "the degree to which the knowledge, skills, and abilities of the role incumbent are engaged or enlarged by the job" (p. 255), and Jones and James (1979) described job challenge as "the extent to which a job gives the individual a chance to use his skills or abilities" (p. 212).

Literature on work stress also considers job challenge to be a cognitive appraisal of the situation. For instance, the challenge-threat literature conceptualizes challenge as "appraising a situation as having the potential for growth, mastery, or gain" (Folkman & Lazarus, 1985, p. 152). In addition, this research domain has associated job challenge with pleasurable activated emotions such as eagerness, excitement, and exhilaration (e.g., Lazarus & Folkman, 1984). For example, Meyer and Allen (1988) defined job challenge as "the extent to which the job is challenging and exciting" (p. 198).

Altogether, job challenge can be considered a characteristic of the job, a cognitive appraisal, and an affective response. These different conceptualizations of job challenge do not necessarily contradict each other but may complement each other. The conceptualizations clearly differ with respect to the chosen perspective (job challenge as being a work characteristic, cognitive appraisal, or mood state). However, they all seem to fit into a *work characteristic-psychological state* model of job challenge. To clarify, a specific work characteristic, such as for example task variety, can be seen as an antecedent that induces psychological states, such as the appraisal of a situation as being developmental (cognitive appraisal), and/or a state of excitement (physiological arousal). Thus, the different viewpoints of job challenge may well coexist together.

The diverse operationalizations of job challenge are mainly based on the opinions of researchers. As a consequence, definitions and measures of job challenge lack empirical grounding in the discourse of "ordinary" people. What types of meanings do individuals associate with job challenge? Do they think of specific combinations of task characteristics, skills, or emotions? This study employs a concept mapping approach to examine the job

challenge construct. Concept mapping is a suitable method to investigate the mental schemes that people have about the concepts they use in daily life (Jackson & Trochim, 2002). We particularly aim to examine people's mental schemes about the task characteristics that constitute a challenging job and the cognitive and affective responses they associate with these types of jobs.

Method

Participants

The survey sample consisted of 132 students of a Dutch university. The students (59% women, 41% men) had an average age of 21.73 years and were in the third year of their study. Participants received either a monetary reward (7 Euro's) or partial credit for fulfillment of a course requirement.

Procedure

Upon arrival at the laboratory, each participant was seated in a separate room. Participants were given the following instructions: "Please describe in detail a task you recently performed and that you considered to be challenging. This task or assignment can be related to your (part-time) job, volunteer work, or study". Participants subsequently wrote down why they considered this task to be challenging, and they indicated how many weeks ago they performed this task (M = 26.71, SD = 46.21). Finally, participants indicated their age, gender, and study year. We instructed participants to take their time to vividly remember a challenging task. They had a maximum of 1 hour to complete the survey. The qualitative data were analyzed both by students and academic experts depending on the step in the data analysis process.

Qualitative Data Analysis

We used concept mapping to analyze and categorize the written responses. Concept mapping is widely used for specifying conceptual frameworks (e.g., Behfar, Peterson, Mannix, & Trochim, 2008; Trochim, 1989) and coding qualitative data aimed at, for example, scale development (Jackson & Trochim, 2002). Concept mapping as applied to qualitative data analysis combines exploratory statistical analyses with participants' judgments to create clusters of similar thematic categories (Jackson & Trochim, 2002). We chose this method because it allowed us to understand how individuals describe and characterize job challenge. The concept mapping process consists of five steps. First, researchers create units of analysis (i.e., words or sentences) from participants' statements. Second, at least 10 individuals sort these units into piles of similar concepts. As a third and fourth step, researchers run a multiple dimensional scaling analysis and a subsequent hierarchical cluster analysis to decide on cluster solutions. Finally, the researchers label and interpret the clusters (Jackson & Trochim, 2002). Below, we will describe in detail the different steps that were taken.

Step one: determining units of analysis. Units of analysis were created from the keywords and statements generated by the question: "Why did you consider this task to be challenging?". The answers were typically displayed in a list of words and sentences. The length of the answers was on average half a page long. The sentences were broken down into single statements that contained only one concept. Exact descriptions of the concrete task at hand were filtered out. For example, a participant's statement was: "Playing the piano at this concert was challenging for me because it was difficult and my performance was visible to others.". This sentence was broken down into the following two statements: "difficult", and "performance is visible to others". Another example is the sentence: "It was challenging because I was insecure whether I would be able to prepare this dinner.". This sentence was shortened into the following statement: "I was insecure if I could make it.". Three researchers were involved in the sentence decomposition process, which resulted in 473 statements and keywords related to job challenge. Because having to accurately sort 473 statements seemed impossible (Jackson & Trochim, 2002), we had to remove statements that were given more than once. For example, 2 participants mentioned their task to be "stimulating", but we only once used this keyword in the sorting task. We did not remove synonyms or closely related words such as: "energizing" and "encouraging." In a similar vein, statements such as: "The performance is visible to others." and "being visible to important others" were both included. A majority of the statements was phrased in the exact same way more than once. We were therefore able to reduce the total amount of statements to 233. Hence, we had an average of 1.73 unique statements per participant. Each statement (i.e., unit of analysis) was given a random number to ensure that each statement would be considered to be independent from the others and placed on a 2-inch by 4-inch card.

Step two: sorting of units of analysis. To avoid introducing researcher bias in the actual sorting, 12 students (5 female, 7 male) who were unaware of the goal of our study participated as decision makers in the sorting process. The average age of these students was 23.2 years (SD = 3.08) and they were in the fourth year of their studies. Students with virtually the same demographics as the initial respondents were chosen so that they would be a close proxy of the respondent group. We gave each student a shuffled set of cards with the statements on them, and instructed them to sort the cards containing similar concepts together into one pile (cf., Jackson & Trochim, 2002). The students worked independently. They could make as many piles as they wanted with the restriction that they could not create a miscellaneous pile. In the end they were asked to give every pile a name that best fitted the combination of statements. On average it took the sorters two hours to categorize the statements, for which they were paid 14 Euros. On average, students created 28.17 piles (SD = 7.43) with on average 8.27 statements per pile (SD = 3.55).

Step three: multidimensional scaling analysis. We created a 233 x 233 binary square matrix (rows and columns represent statements) for every sorter. Cell values represented whether or not a particular student sorted a pair of statements into the same pile

(i.e., yes vs. no; 1 vs. 0 coding). These individual matrices were then aggregated by adding them together. We conducted a multidimensional scaling analysis from the aggregated matrix in order to create a map of conceptual similarity between the statements that visually displayed the similarity judgments of the sorters. This map can help to interpret the subsequent cluster analysis. The multidimensional scaling (MDS) created a two-dimensional map of distances between the statements based on the aggregated sorts of the 12 students. We chose for a two-dimensional solution because this provides the most useful foundation for a cluster analysis (Kruskal & Wish, 1978).

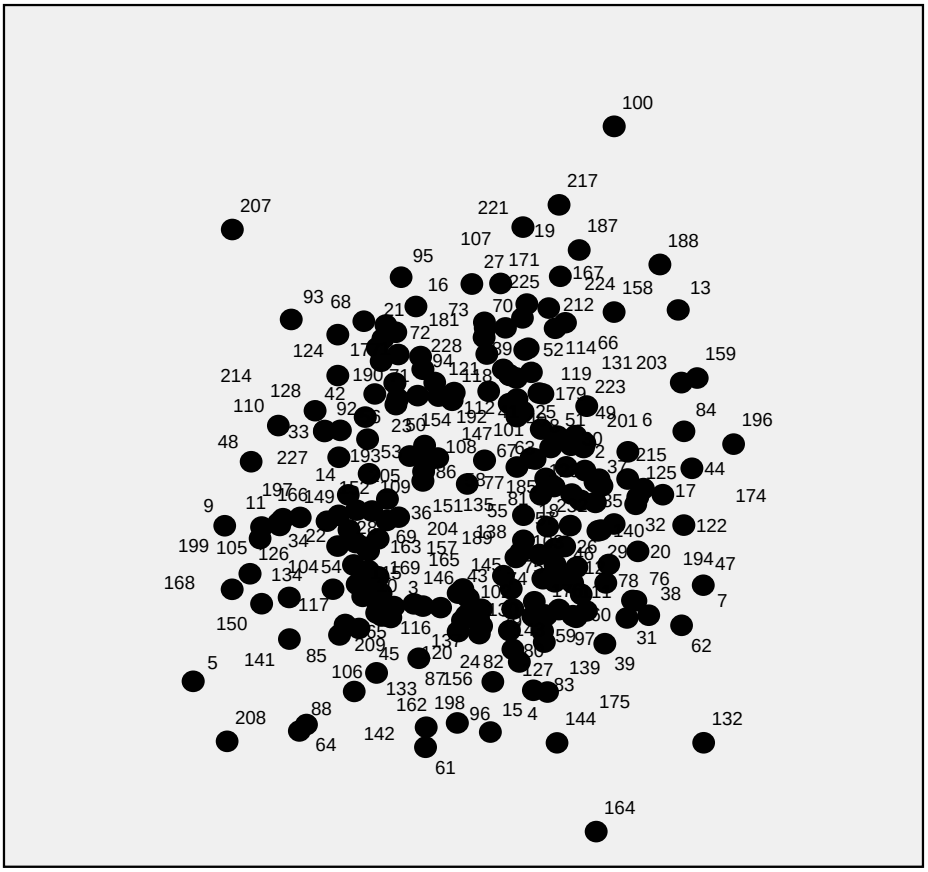
Step four: cluster analysis. We subsequently performed a hierarchical cluster analysis using Ward's method on the aggregated matrix to create a *dendogram*, which visually displays the possible cluster solutions. This dendogram is used as a judgment tool in the decision process related to the number of clusters that can be distinguished. The dendogram is used because there is no sensible mathematical criterion that can be used to select the optimal number of clusters. The optimal number of clusters depends on the level of specificity and the context at hand, and can only be judged subjectively (Jackson & Trochim, 2002). Therefore, three researchers first independently chose a cluster solution, and then worked together to choose the final cluster solution that most accurately represented the structure of the data. They made their final decisions by looking at the MDS map and the cluster dendogram, and discussing the conceptual similarity of the contents of clusters merging at each solution.

Step five: labeling and categorizing the clusters. After reaching agreement on the final cluster solution, the researchers re-examined the statements in each cluster together with the names the sorters had given to their piles (in Step 2) to determine a label that best represented the statements in each cluster. The researchers then chose how to label each cluster, and how each cluster should be described. Labels were chosen from the cluster statements and names provided by the sorters, or newly formed. Occasionally, in a cluster there were one or two statements that were found to be conceptually different from the others. In that case the cluster label was based on the majority of the statements that was found to be conceptually the same.

The researchers categorized the clusters as follows: (a) task characteristics that induce the experience of job challenge (task characteristics), (b) contextual or social characteristics that induce the experience of job challenge (context characteristics), (c) the cognitive experience of job challenge or the appraisal of a situation as being challenging (cognitive appraisals), and (d) mood states of job challenge, that is feelings, emotions and attitudes that are associated with the experience of job challenge (mood states). Of notice is that *work characteristics*, as mentioned in the literature review, could be divided in (a) task and (b) contextual characteristics.

Results

Figure 5.1. Multidimensional scaling point map of statements[a]



Note. [1] Similar statements are closer together.

The Multidimensional Scaling Map

The map from the multidimensional scaling analysis of the statements related to job challenge is presented in Figure 5.1. When interpreting the map, note that each statement generated by the respondents is represented as a point on the map. The position on the map of each statement is not meaningful, only the distance or spatial relationship between them is relevant. The proximity of the statements to each other represents how similar the sorters judged the statements that were sorted together. Statement 164 (the point at the bottom of Figure 5.1) for example, was never sorted with statement 100 (the point at the top of Figure 5.1), and is thus viewed conceptually different. The multidimensional scaling map helps to make decisions on the final cluster solution. However, as can be seen in Figure 5.1, it is difficult to directly distinguish separate clusters from this plot because of the large number of statements. To further examine which points really cluster together we looked at the output of the cluster analysis (dendogram).

Cluster Solution

The analysis of the statements resulted in 37 clusters of statements about what people consider to be challenging in a task. We did not graphically display the clusters in the multi dimensional scaling map as the large amount of clusters could not be orderly displayed. However, the cluster labels, a label description and their representative statements are displayed in Appendix C. We distinguished the following clusters: (1) facilities and guidance, (2) self-knowledge and self-esteem, (3) opportunity for learning and development, (4) feedback on task, (5) time pressure, (6) task significance, (7) proving yourself, (8) high stakes and goals, (9) creativity and improvisation, (10) dynamic work conditions, (11) test of abilities, (12) stretching yourself, (13) task absorption, (14) concentration, (15) overcoming obstacles, (16) fear of failure, (17) task importance, (18) evaluation and visibility, (19) being heard, (20) personally rewarding, (21) decision latitude, (22) personal and unique contribution, (23) personal responsibility and autonomy, (24) attractive, (25) stimulating, (26) demanding and effortful, (27) additional tasks and jobs, (28) variety and change, (29) difficulty (30) multiple skills, (31) organizing and structuring, (32) room for trying out new things, (33) problem solving and strategic thinking, (34) novel situations and experiences, (35) task ambiguity, (36) inspiring colleagues, and (37) working together.

Categorizing Clusters

In Appendix D, we categorized the clusters in (a) 'objective' task characteristics that induce the experience of job challenge (task characteristics, N = 17), (b) contextual work characteristics that induce the experience of job challenge (context characteristics, N = 4), (c) the cognitive experience of job challenge or the appraisal of a situation as being challenging (cognitive appraisals, N = 12), and (d) mood states of job challenge, that is feelings, emotions and attitudes that are associated with the experience of job challenge (mood states, N = 4).

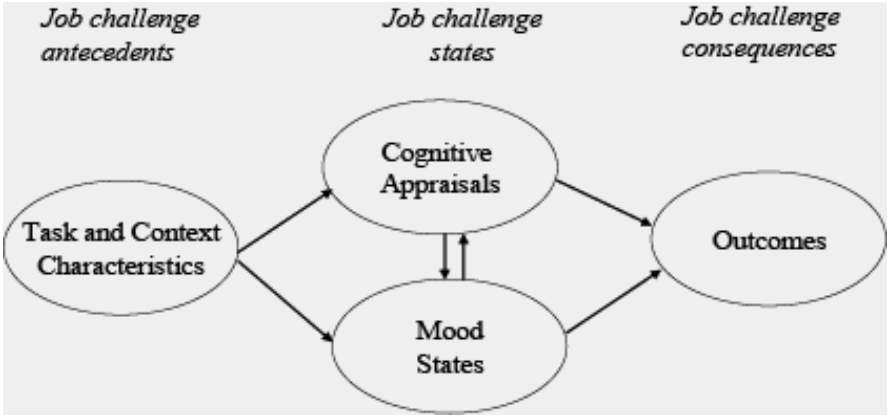
Discussion

In this paper, we sought to develop a comprehensive conceptualization of the job challenge construct. Our study was motivated by the wide variety of conceptualizations and operationalizations of job challenge in extant research, which may result in inconsistent research findings and misinterpretations of the results. We collected qualitative data on what individuals consider as a challenge and used concept mapping to explore the mental schemata that individuals have about this concept.

Our analyses revealed that job challenge is a multi-faceted construct that includes: (a) objective task characteristics that induce the experience of job challenge (task characteristics), (b) contextual characteristics that induce the experience of job challenge (context characteristics), (c) the cognitive appraisal of job challenge (cognitive appraisals), and (d) mood states of job challenge, that is feelings, emotions and attitudes that are associated with the experience of challenge (mood states).

These four conceptualizations can be integrated into a comprehensive framework of job challenge, in which the task and contextual characteristics are antecedents of cognitive appraisals and mood states (see Figure 5.2). In other words, the objective characteristics of the work environment (i.e., task and contextual characteristics) induce the cognitive experience of job challenge, or the appraisal of a situation as being challenging (cognitive appraisals), as well as specific feelings and emotional states. We should note, however, that the difference between objective characteristics and cognitive appraisals may be debatable in some occasions. For example, the aspect *high stakes and goals* (i.e., having to deal with high stakes and high goals) may also be argued to be a general cognitive appraisal of a challenging experience instead of a specific task characteristic. Hence, although our framework merits further discussion, we believe that this framework may encourage researchers to more clearly define the job challenge construct, and to operationalize it in analogous ways. Depending on the study's focus, researchers may want to measure job challenge as a work characteristic that can be manipulated. Or, researchers may be more interested in individuals' cognitive and emotional appraisals of job challenge because these subjective experiences are strong predictors of people's work behaviors.

Figure 5.2. Job challenge model



Limitations

There are several limitations of this study that merit discussion. First, all our participants were students, which may raise concerns regarding the generalizability of our results. However, most of the students in our sample reported having a (part-time) job, volunteer job, or internship and are thus part of the working population. Furthermore, when considering the descriptions of the cognitive and affective appraisals of job challenge, we believe these to be fundamental and applicable to both students and employees. Yet, differences between students and employees may exist with regard to the task and contextual characteristics. Future research could focus on this matter.

Another limitation is that we had to eliminate statements due to the large amount of statements (473) provided (Step 1), as they were otherwise impossible to sort. It might thus be that some eliminated statements should have been weighted more when developing the final cluster labels. However, we only removed statements that were exactly the same, and thus statements such as: "overcoming myself", and "overcoming my fears", were both left in. Most important, the amount of deleted statements was fairly equally divided among all statements.

Implications

This study was an initial attempt to provide a grounded, bottom-up conceptualization of job challenge in order to clarify the construct. Our results provide further insight into the core elements that people associate with challenge, that is, the specific task and contextual characteristics, cognitions, and affective responses that are involved.

To begin with, the task characteristics of a challenging job concern task aspects that refer to Hackman & Oldham's (1980) job characteristics model (JCM), which includes five core job dimensions: skill variety, task identity, task significance, autonomy, and feedback. Hence, a challenging job contains the basic five characteristics that were found to lead to positive outcomes such as increased motivation, higher-quality performance and work satisfaction (Fried & Ferris, 1987). However, a challenging job involves more than only these five core job dimensions. Our findings show that a challenging job includes several of the following characteristics as well: time pressure, high stakes and goals, creativity and improvisation, dynamic work conditions, visibility to evaluators, problem solving, interdependence, and task ambiguity. Future research could examine whether these challenging job aspects are indeed necessary for transforming a "rich" job (according to JCM) into a "challenging" job. Moreover, future research could further explore whether specific contextual characteristics, such as facilities and guidance, response from others, multiple tasks, and inspiring colleagues, contribute to the experience of job challenge.

The cognitive appraisals that are associated with challenging jobs have been measured in prior studies (e.g., Hall & Lawler, 1970; Walsh et al., 1980), but these measures were mostly restricted in their focus. The findings of the current study offer a comprehensive set of cognitions that people have about challenging activities. These cognitions concern self-knowledge, learning and development, proving and stretching oneself, overcoming obstacles, rewarding, attractive, demanding and effortful, difficulty, and novelty. In addition, the experience of challenge is associated with positive as well as negative activating mood states, such as task absorption, concentration, stimulation and excitement, and fear of failure. To date, there is no well established measure of cognitive and affective appraisals of job challenge that incorporates all these responses. Hence, researchers are not yet able to assess optimal levels of challenge, that is, where positive appraisals and moods outweigh the negative ones. We, therefore, want to encourage researchers to further explore the dimensionality of experienced

challenge and to relate these dimensions to important outcomes such as individual well-being and work attitudes.

To conclude, the findings of this study with regard to the task and environmental characteristics of challenging jobs may help organizations to create challenging jobs for their employees. In addition, the information on people's cognitive and affective appraisals clearly points to the possible beneficial but also detrimental aspects of challenging jobs.

CHAPTER SIX
PERCEIVED JOB CHALLENGE: DEVELOPMENT AND INITIAL VALIDATION OF A MEASURE

In our previous chapter, we aimed to reach a better understanding of the concept of job challenge. We showed that job challenge is a multi-faceted construct that can be viewed from four different perspectives: (a) job challenge as an objective task characteristics that induces the experience of job challenge (task characteristics), (b) job challenge as a contextual characteristic that induces the experience of job challenge (context characteristics), (c) job challenge as a cognitive appraisal (cognitive appraisal), and (d) job challenge as a mood state, that is, feelings, emotions and attitudes that are associated with job challenge (mood states). Job challenge can thus be defined in terms of a more or less objective work characteristic and/ or as a subjective experience.

Job challenge as an objective work characteristic has received considerable research attention. For instance, challenging work characteristics have been related to outcomes such as management learning and development (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009; McCauley, Ruderman, Ohlott, & Morrow, 1994), promotability (De Pater, Van Vianen, Bechtoldt, & Klehe, 2009), and job attitudes (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Podsakoff, Lepine, & Lepine, 2007). Although objective work characteristics predict individual outcomes, they mostly do so through people's perceptions of these characteristics. It is widely recognized that people's job perceptions are the strongest predictors of their attitudes and behaviors (e.g., Hulin & Blood, 1968; Judge, Bone, & Locke, 2000). Therefore, it is important to examine individuals' perceived job challenge because perceived job challenge will be a proximal predictor of certain outcomes.

Several researchers have included perceived job challenge as a predictor in their studies (e.g., de Jonge, Dollard, Dormann, Le-Blanc, & Houtman, 2000; Hall & Lawler, 1970; Holmes & Srivastava, 2002; Idsoe, 2006; Walsh, Taber, & Beehr, 1980). However, the measures these researchers used to assess perceived job challenge were far from optimal, especially in light of the results we presented in the previous chapter. For instance, Walsh et al.'s (1980) measure seems to reflect skill variety and learning opportunities rather than perceived challenge ("On my job I get a chance to use my skills and abilities" and "My job requires that I keep learning new things"). De Jonge et al. (2000) assessed perceived job challenge with only one item, and Hall and Lawler's (1970) measure of perceived job challenge comprised items that are, amongst others, related to learning opportunities (e.g., "My job gives me the opportunity to learn new skills and techniques"), job control (e.g., "I have little control and final say about what I do on my job"), and demand-ability fit (e.g., "In

the light of my training, education, and preparation, my job is very appropriate for my abilities").

The aim of the current study is to develop and validate a reliable, theoretically well-grounded measure for assessing perceived job challenge, the *Perceived Job Challenge Measure* (PJCM). We generated items based on the concept mapping analysis of job challenge we described in the previous chapter. Specifically, we generated items related to the cognitive appraisal of job challenge and associated mood states. The PJCM was tested in two studies among employees working for different organizations. In Study 6.1, we investigated the underlying factor structure and reliability of the measure. In Study 6.2, we further examined the factorial validity and internal consistency of the PJCM, assessed its test-retest reliability, and examined its construct validity. The procedures we used to develop the PJCM closely resemble those described in the psychometric literature (e.g., Cortina, 1993; Robinson, Shaver, & Wrightsman, 1991; Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993; Schwab, 1980).

STUDY 6.1

The main purpose of Study 6.1 was to develop a measure of perceived job challenge and to explore and define its factor structure. Based on our earlier analysis of job challenge (see Chapter 5), we expected that perceived job challenge would be a two-dimensional concept: cognitive appraisals and mood states. We derived the items for the PJCM from these two dimensions. This resulted in a first set of 113 items. To reduce the pool of items to a more manageable number and because some items appeared to overlap, we combined several items into one item. For example, we summarized the statements "I want to prove to myself that I'm able to do it" and "Having to prove yourself" into the item: "In my work I perform tasks in which I have to prove myself", and we summarized the challenging task statements "Hard", "Tough", and "Difficult" into "In my work I perform tasks that I find difficult". Moreover, we excluded items that had low face validity. For instance, we excluded the cognitive appraisal item "Doing something I always wanted to do" as we felt this item was stated too strongly and didn't necessarily reflect the actual experience of job challenge. Finally, this resulted in a set of 19 items. Fourteen items reflected cognitive appraisals and five items reflected mood states[1]. We adjusted several of these items to fit the Likert questionnaire format, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

To examine whether the dimensions cognitive appraisals and mood states indeed could be distinguished, we conducted an exploratory factor analysis. Furthermore, we tested

[1] As there were more statements related to job challenge as a cognitive appraisal (85 statements) than statements related to job challenge as a mood state (28 statements), we generated most items from the cognitive appraisal statements.

the internal consistency of the PJCM, that is, the extent to which scores were free from measurement errors (Schwab, 1980). Finally, we examined the inter-correlations among the factors that emerged.

Method Study 6.1

Participants and Procedure

We invited 500 members of an internet panel to participate in our study. Two hundred twenty-two (123 males, 99 females) of them responded and filled out the PJCM and provided demographical information (response rate: 44%). Mean age of the respondents was 42.05 years (*SD* = 8.53) and their organizational tenure was on average 5.42 years (*SD* = 5.87). One hundred eighty-two participants held a bachelor's or master's degree, and 40 respondents held a professional or no degree. Participants worked an average of 34.34 hours a week (*SD* = 5.73).

Results Study 6.1

Exploratory Factor Analysis

We performed an exploratory factor analysis using Varimax rotation (principal component method) to investigate the underlying factor structure of the items. The analysis resulted in a three-factor solution, which explained 67.78% of the variance. Two items ("In my job, I perform tasks in which I have new experiences and impressions" and "In my job, I perform tasks in which I have to overcome obstacles") loaded high on two factors and were therefore excluded. This resulted in a final measure of 17 items. An additional exploratory factor analysis on the 17 items showed a clear three-factor solution in which there were no cross loadings. This solution explained 68.73% of the variance. Factor loadings, Eigenvalues, and explained variance are presented in Table 6.1.

The first factor includes mostly items related to positive mood states and one item related to cognitive appraisal ("In my job, I perform tasks that are useful"). All six items reflect positive stimulating experiences and we labelled this factor as *positive stimulation*. The second factor consisted of six items related to the cognitive appraisal of job challenge. These items refer to experiences of being tested and having to prove oneself. We labelled this factor as *competence testing*. The third factor consisted of five items that reflect the extent to which people perceive their work tasks as being difficult, risky, and new, and refer to feelings of uncertainty. We labelled this factor *uncertainty*.

Table 6.1

Exploratory Factor Analysis of The Perceived Job Challenge Items (Study 6.1)[a]

Item	Factors		
In my work, I perform tasks:	Positive stimulation	Competence testing	Uncertainty
that are attractive	**.86**	.06	-.06
that interest me	**.86**	.10	.03
that are challenging	**.80**	.18	.33
that stimulate me	**.78**	.19	.28
that are useful	**.85**	.09	-.02
that are fascinating	**.90**	.09	.05
in which I have to prove myself	.22	**.74**	.21
in which I have to overcome myself	-.08	**.67**	.29
in which my abilities are tested	.28	**.83**	.06
that put me to the test	.08	**.89**	.15
in which I have to go further than usual	.08	**.77**	.33
in which I have to give a lot	.22	**.67**	.36
of which I'm not sure I can accomplish them	-.03	.17	**.78**
in which I run the risk of failure	-.17	.35	**.68**
that are difficult	.42	.31	**.59**
that are hard to accomplish	.13	.31	**.62**
in which I have to deal with new issues and situations	.35	.13	**.73**
Eigenvalues	6.92	3.37	1.39
Percentage of explained variance	40.69	19.84	8.20

Note. [a] *N = 222.*

Reliability and Inter-Correlations

Means, standard deviations, inter-correlations, and reliability coefficients of the three subscales are displayed in Table 6.2. Positive stimulation correlates moderately with both competence testing and uncertainty (both .33, $p < .01$). A higher correlation was found between competence testing and uncertainty (.60, $p < .01$). The correlations indicate that the scales are related to each other, which could be expected because they represent the same, broader, construct of perceived job challenge. The internal consistencies of the three

perceived challenge scales are good: Cronbach's alpha were .93 for positive stimulation, .89 for competence testing, and .80 for uncertainty.

Table 6.2

Means, Standard Deviations, and Reliabilities of, and Intercorrelations between Positive Stimulation, Competence Testing, and Uncertainty (Study 6.1)[a]

	M	*SD*	1	2	3
1. Positive stimulation	5.26	.85	(.93)		
2. Competence testing	4.48	.98	.33	(.89)	
3. Uncertainty	4.17	.93	.33	.60	(.80)

Note. [a] All correlations are significant at the $p < .01$ level. Cronbach's alphas are displayed on the diagonals (between brackets).

STUDY 6.2

In Study 6.1, we explored and defined the factor structure of the PJCM, and investigated the internal consistency of the three subscales. Building further on these findings, we conducted a second study in which we performed a confirmatory factor analysis to test whether the three-factor structure, as found in Study 6.1, could be replicated. In addition, we examined the internal consistencies and test-retest reliabilities of the PJCM subscales over a six-month time interval. Finally, we tested the convergent, discriminant, and concurrent validities of the PJCM. The convergent validity was examined by relating the PJCM to extant measures of job challenge and variables that are closely related to job challenge. We examined the discriminant validity of the PJCM by investigating relationships between the PJCM subscales and measures that we expected not to relate to perceived job challenge. The concurrent validity of the PJCM was tested by examining relationships between the PJCM and job satisfaction, affective commitment, turnover intentions, and job performance.

Convergent validity refers to the extent to which alternative measures of a construct share variance (Schwab, 1980). Convergent validity is present when there is a high correspondence between scores on the PJCM and scores on other measures of job challenge, such as the work challenge items used by Ettington (1998) and the challenging assignments subscale of the Mentor Role Instrument (MRI) developed by Ragins and McFarlin (1990). As research has shown that autonomy, ("the degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out", Hackman & Oldham, 1975, p. 162) and skill variety ("the degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee", Hackman

& Oldham, 1975, p. 161) are related to perceived job challenge (e.g., Evans & Kersh, 2004; Hackman & Oldham, 1980), the PJCM should also positively relate to autonomy and skill variety. Moreover, autonomy and skill variety appeared as challenging task characteristics in our concept mapping study.

Discriminant validity refers to the requirement that a test should not correlate too highly with measures from which it is supposed to differ (Campbell, 1960). Discriminant validity of the PJCM will be investigated by correlating the three PJCM subscales with two scales of a Big Five personality scale (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997): neuroticism, which reflects the tendency to be anxious, defensive, insecure, and emotional (McCrae & Costa, 1987), and agreeableness, which refers to the tendency to be altruistic, warm, generous, trusting, and cooperative (Costa & McCrae, 1992; McCrae & Costa, 1987). To date, there is neither theoretical rationale nor empirical evidence to assume relationships between the PJCM and these personality traits. One might argue that neurotic individuals will avoid challenging situations and therefore experience less challenge. But as they tend to feel insecure, they might also feel more easily challenged by their work. Hence, no or small relationships between the PJCM and neuroticism and agreeableness are to be expected, which will support the discriminant validity of the PJCM.

Concurrent validity refers to the relationship between the PJCM and criterion scores obtained at about the same time (Cronbach & Meehl, 1955). Several studies have shown that job challenge relates to job attitudes such as job satisfaction (e.g., Judge, Bono, & Locke, 2000, Kirk-Brown & Wallace, 2004), affective commitment (e.g., Allen & Meyer, 1990; Dixon, Cunningham, Sagas, Turner, & Kent, 2005), and turnover intentions (e.g., Podsakoff, LePine, & LePine 2007; Preenen, De Pater, Van Vianen, 2008). Therefore, the PJCM is expected to positively relate to job satisfaction and affective commitment, and to negatively relate to turnover intentions.

Of interest is the relationship between the PJCM and supervisor evaluations of employees' job performance. On the one hand, it is likely that the subscales competence testing and uncertainty are negatively related to job performance as these scales refer to situations where employees perceive a gap between the task demands and their capacities and are thus uncertain about task accomplishment. On the other hand, it is conceivable that the positive stimulation subscale is positively related to job performance as the experienced stimulation might induce employers to exert more effort and motivate them to develop effective strategies to complete their tasks. We will therefore explore the relationship between the PJCM and supervisor evaluations of employees' job performance.

Method Study 6.2

Participants and Procedure

We collected data at two points in time. At Time 1, 773 employees working for several Dutch companies were invited by e-mail to fill out an online questionnaire. In total,

468 people participated (response rate 61%). Two hundred twenty-five participants were male (48%), 243 were female (52%). The mean age was 30.38 years (*SD* = 10.65) and average organizational tenure was 4.30 years (*SD* = 6.44). Three hundred sixty-one of the employees held a bachelor's or master's degree (77%), 107 respondents held a professional or no degree (23%). Participants worked on average 28.19 hours a week (*SD* = 12.68).

Supervisors (*N* = 16) of 48 of the responding employees indicated how satisfied, affectively committed, and effective these employees were. Thirty-two of these employees were male (67%), 16 were female (33%). Their mean age was 35.06 years (*SD* = 10.6) and, on average, their organizational tenure was 3.53 years (*SD* = 3.25). Twenty-four of these employees held a bachelor's or master's degree (50%) and 24 respondents held a professional or no degree (50%). They worked an average of 35.34 hours a week (*SD* = 9.67).

At Time 2, six months later, we emailed 119 follow-up questionnaires to respondents who indicated at Time 1 to be interested to participate in a follow-up study. Respondents were asked to fill out the PJCM a second time. In total, 59 respondents (response rate: 50%) participated. Twenty-eight participants were male (48%), 31 were female (52%). Their mean age was 35.96 years (*SD* = 11.96) and, on average, their organizational tenure was 6.14 years (*SD* = 7.58). Respondents worked on average 32.21 hours a week (*SD* = 10.33). Fifty-two of them held a bachelor's or master's degree (88%), seven of them held a professional or no degree (12%).

Measures

Perceived job challenge. The subscales positive stimulation, competence testing, and uncertainty were measured with the same 17 items as reported in Study 6.1 (Table 6.1). Participants indicated their agreement with the items on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alphas for positive stimulation were .95 (T1) and .95 (T2), for competence testing .89 (T1) and .90 (T2), and for uncertainty .86 (T1) and .89 (T2).

Work challenge was measured with the perceived work challenge scale used by Ettington (1998), who derived the items from the work content sub-scale of Smith, Kendall, and Hulin (1969). Respondents were asked how often they would use the following five words to describe their work: (1) fascinating, (2) routine, (3) boring, (4) creative, and (5) challenging. Response options ranged from 1 (*never*) to 5 (*always*). Responses to items 2 and 3 were recoded so that higher scores indicated higher perceived work challenge. Cronbach's alpha was .83.

Challenging assignments was measured with the three-item challenging assignments subscale of the Mentor Role Instrument (MRI) developed by Ragins and McFarlin (1990). Respondents were asked to indicate to what extent their supervisor assigns them (1) challenging assignments, (2) tasks that push them into developing new skills, and (3) tasks

that require them to learn new skills. The response scale ranged from 1 (*never*) to 5 (*always*). Cronbach's alpha was .93.

Job autonomy was assessed with the autonomy subscale of the Job Diagnostic Survey (Hackman & Oldham, 1975). An example item is: "My job gives me considerable opportunity for independence and freedom for how I do the work.". Respondents indicated how accurate the three items described their jobs on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach's alpha was .73.

Skill variety was assessed with the skill variety subscale of the Job Diagnostic Survey (Hackman & Oldham, 1975). An example item is: "My job requires me to use a number of complex or high-level skills.". Respondents indicated how accurate the three items described their jobs on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach's alpha was .74.

Neuroticism was assessed with the six-item neuroticism scale of the Big Five adjective-marker (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). Respondents indicated how accurate the items: (1) unhappy, (2) insecure, (3) self-confident (reverse-coded), (4) cheerful (reverse-coded), (5) joyless, and (6) moody described themselves on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach's alpha was .65.

Agreeableness was measured with the six-item agreeableness scale of the Big Five adjective-marker set (Sheldon et al., 1997). Participants indicated how accurate the items: (1) considerate, (2) kind, (3) friendly, (4) cooperative, (5) patient, and (6) self-centered (reverse-coded) described themselves on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach's alpha was .65.

Turnover intentions. Employees' turnover intentions were measured with five items (Wayne, Shore, & Liden, 1997). An item example is: "I am seriously thinking about quitting my job.". Employees responded on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The internal consistency was .85.

Job satisfaction. Job satisfaction was measured with five of the most used items of Brayfield and Rothe's (1951) Job Satisfaction Scale. This scale is a global measure of job satisfaction. Participants indicated their agreement with the items on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An item example for the employee questionnaire (α = .86) is: "I feel fairly well satisfied with my job.". An item example for the supervisor questionnaire (α = .79) is: "This employee feels fairly well satisfied with his / her job.".

Affective organizational commitment was measured with the Dutch version (De Gilder, van den Heuvel, & Ellemers, 1997) of Allen and Meyer's (1990) affective organizational commitment scale consisting of five items. Participants indicated their agreement with the items on a scale varying from 1 (*strongly disagree*) to 5 (*strongly agree*). An item example for the employee questionnaire (α = .90) is: "This organization has a great deal of personal meaning for me.". An item example for the supervisor questionnaire (α = .94) is: "This organization has a great deal of personal meaning for this employee.".

Perceived performance was measured with five items of the work effectiveness measure (Denison, Hooijberg, & Quinn, 1995). Supervisors indicated on a seven-point scale, with 1 being the lowest indicator and 7 the highest indicator of effectiveness, to what extent their employees (1) were successful as compared to their peers, (2) have met their performance standards, (3) were a role model for others, (4), were successful, and (5) were effective overall. Cronbach's alpha was .93.

Results Study 6.2

Confirmatory Factor Analysis

We conducted several confirmatory factor analyses with maximum likelihood estimation (LISREL 8.80; Jöreskog & Sörbom, 2006) to compare the three-factor model with alternative models: three two-factor models, and a one-factor model, respectively. We used several indices to estimate model fit, such as chi-square (χ^2), the root mean square error of approximation (RMSEA), the non-normed fit index (NNFI), the comparative fit index (CFI), the incremental fit index (IFI), and the standardized root mean square residual (SRMR). An acceptable fit of the model to the data is achieved if RMSEA and SRMR are < .10 and NNFI, CFI, and IFI are > .95. Table 6.3 shows that the three-factor model[2] with correlations between the three latent variables yielded a significantly better fit to the data than the alternative models (see the chi-square difference test in Table 6.3). The factor loadings of positive stimulation ranged from .76 to .90, factor loadings of competence testing ranged from .70 to .82, and factor loadings of uncertainty ranged from .65 to .85. Thus, the data showed statistical support for distinguishing the three factors of perceived job challenge.

Test-Retest Reliability and Inter-Correlations

Table 6.4 displays the means, standard deviations, inter-correlations, and reliability coefficients of the three subscales of the PJCM measured at Time 1 and Time 2. Correlations between positive stimulation, competence testing, and uncertainty are moderate to high, both at Time 1 and Time 2.

Valid measures warrant internal consistency and test-retest reliability. In the current study, Cronbach's alphas of the three subscales are good in both samples (between .86 and .95), and are similar to the ones found in Study 6.1. These results indicate that the three subscales of the PJCM are internally consistent. The test-retest reliability was determined by looking at the correlations between the Time 1 and Time 2 measures of those respondents who filled out the PJCM both at Time 1 and Time 2. Test-retest correlations for positive

---

[2] The covariance between the residuals of some of the items (items 1, 2, 5, 6, 13 and 14 respectively) were freed in each of the analyses because modification indices showed that these items had something in common, which is likely due to the similar form or meaning of these items. The modification indices of the factor loadings were, however, relatively small.

stimulation (r = .65), competence testing (r = .46), and uncertainty (r = .58) were moderately high and all significant at the $p < .01$ level. These results suggest that each of the perceived challenge scales has decent test-retest reliability.

Convergent, Discriminant, and Concurrent Validity

The convergent validity of the PJCM was investigated by correlating the three subscales of the PJCM with the work challenge items (Ettington, 1998), the challenging assignments subscale of the Mentor Role Instrument (Ragins & McFarlin, 1990), work autonomy, and skill variety. As can be seen in Table 6.5, the three subscales of the PJCM correlated moderately high to high with Ettington's (1998) work challenge items and the challenging assignments subscale of the Mentor Role Instrument (correlations ranged from .46 to .80, all p's < .01). In a similar vain, all subscales of the PJCM correlated moderately to high with job autonomy and skill variety (correlations ranged from .22 to .69, all p's < .01). These results indicate that the convergent validity of the subscales is adequate.

We investigated the discriminant validity of the PJCM by correlating its three subscales with measures of neuroticism and agreeableness. As shown in Table 6.5, apart from the small positive correlation between the uncertainty subscale and neuroticism, there were no significant correlations between the three subscales of the PJCM on the one hand and neuroticism and agreeableness on the other hand (all absolute correlations between .05 and .08, all p's < n.s.). Taken together, these findings indicate that the PJCM scales have good discriminant validity.

For investigating the concurrent validity of the PJCM we correlated its three subscales with employees' job satisfaction, affective commitment, and turnover intentions. As can be seen in Table 6.5, all three subscales of the PJCM correlated moderately to high with employees' job satisfaction, affective commitment, and turnover intentions (absolute r's range between .22 and .68, all p's < .01), thereby indicating that the concurrent validity of the PJCM is adequate.

As the PJCM and the criteria were both measured from the same source, inter-correlations might be inflated due to common method variance. Therefore, we also examined relationships between the subscales of the PJCM and supervisors' perceptions of employees' job satisfaction, affective commitment, and job performance. Table 6.5 shows that the positive stimulation subscale positively related to supervisors' perceptions of employees' job satisfaction (r = .25, $p < .10$) and affective commitment (r = .41, $p < .01$), whereas the competence testing subscale negatively related to supervisors' perceptions of employees' job performance (r = .-27, $p < .10$). Despite the small samples size, these results provide some additional support for the concurrent validity of the PJCM.

Table 6.3

Confirmatory Factor Analysis Fit Indices

		χ^2	*df*	RMSEA	NNFI	CFI	IFI	SRMR	$\Delta\chi^{2a}$	Δdf^a	p^a
1	3-Factor Model[a]	503.87	113	.09	.97	.98	.98	.06			
2	2-Factor Model[b]	1990.75	115	.19	.92	.93	.93	.10	1486.88	2	.001
3	2-Factor Model[c]	1293.88	115	.15	.94	.95	.95	.11	790.01	2	.001
4	2-Factor Model[d]	676.66	115	.10	.96	.97	.97	.07	172.79	2	.001
5	1-Factor Model[e]	2111.11	116	.19	.90	.92	.92	.10	1607.24	3	.001

Note. [a] Models 2 to 5 are compared with model 1; [b] includes uncertainty, and a factor combining stimulation and competence testing; [c] includes competence testing, and a factor combining stimulation and uncertainty; [d] includes stimulation, and a factor combining uncertainty and competence testing; [e] includes one factor combining uncertainty, stimulation, and competence testing.

Table 6.4

Means, Standard Deviations, Reliabilities of and Intercorrelations Between Positive Stimulation, Competence Testing, and Uncertainty (Study 6.2)[a]

	Time	*M*	*SD*	1	2	3	4	5	6
1.Positive stimulation	1	5.09	1.30	(.95)					
2. Competence testing	1	4.68	1.26	.57	(.89)				
3. Uncertainty	1	4.16	1.30	.54	.72	(.86)			
4. Positive stimulation	2	5.05	1.31	.65	.45	.40	(.95)		
5. Competence testing	2	4.64	1.30	.31*	.46	.38	.53	(.90)	
6. Uncertainty	2	4.21	1.32	.41	.46	.58	.49	.74	(.89)

Note. [a] $N = 468$ for Time 1, and $N = 59$ for Time 2. All correlations are significant at the $p < .01$ level, except for the correlation marked with *, this correlation was significant at the $p < .05$ level. Cronbach's alphas are on the diagonals between brackets.

Table 6.5

Correlations between Positive Stimulation, Competence Testing, Uncertainty and Study 6.2 Variables [a]

	Positive stimulation	Competence testing	Uncertainty
Convergent validity			
Work challenge	.80**	.53**	.51**
Challenging assignments	.52**	.46**	.49**
Autonomy	.44**	.22**	.24**
Skill variety	.69**	.49**	.52**
Discriminant validity			
Neuroticism	-.08	.05	.09*
Agreeableness	.04	-.00	-.04
Concurrent validity			
Job satisfaction (self-ratings)	.68**	.26**	.22**
Affective commitment (self-ratings)	.43**	.23**	.23**
Turnover intentions (self-ratings)	-.53**	-.25**	-.25**
Job satisfaction (supervisors' perceptions) [b]	.25†	.02	.10
Affective commitment (supervisors' perceptions) [b]	.41**	.07	.04
Job performance (supervisors' perceptions) [b]	.04	-.27^{+}	-.16

Note. [a] For all variables, $N = 468$ except for supervisors' perceptions: [b] $N = 48$. ** $p < .01$, * $p < .05$, † $p < .10$.

General Discussion

The central goal of the current study was to develop and validate a measure assessing employees' perceived job challenge, the *Perceived Job Challenge Measure*. Items were developed based on the results of a concept mapping study in which we examined the concept of job challenge (see Chapter 5). We tested the PJCM in two studies among Dutch employees working in a variety of professions. In Study 6.1, we investigated the factor structure of the PJCM and its reliability. In Study 6.2, we tested its factor structure, examined its test-retest reliability, and its convergent, discriminant, and concurrent validity.

The results of the first study indicated that three factors of perceived job challenge can be distinguished: (1) *positive stimulation*, which refers to positive mood states and attitudes that are associated with job challenge, (2) *competence testing*, which refers to the extent that people are put to the test by their work tasks, and have to stretch and prove themselves in their work tasks, and (3) *uncertainty*, which reflects the extent to which people appraise their work tasks as being difficult, risky, and new, and are uncertain about task accomplishment. Study 6.2 results confirmed the three factor structure of the PJCM. The three perceived challenge scales correlated moderately high to high with each other. Of note is the relatively high correlation between competence testing and uncertainty (*r*'s range from .60 to .72), which

suggests that employees who feel that their competencies are tested in their jobs are also uncertain about their ability to accomplish their tasks.

The reliabilities (internal consistencies) of the three subscales are good in both studies, and the test-retest correlations were moderate. It should be noted that there was a relatively long period of time between T1 and T2 measurements, during which employees' work experiences, such as job challenge, are likely to change (De Pater et al., 2009; McDaniel, Schmidt, & Hunter, 1988). Hence, future research should further examine the test-retest reliability of the PJCM within a shorter time frame.

Results from the second study also showed that the subscales of the PJCM correlated moderately high to high with two other scales measuring job challenge and with job autonomy and skill variety, indicating good convergent validity. These findings are in line with earlier research that related job challenge to job autonomy (e.g., DeWettinck & Buyens, 2006; Hackman & Oldham, 1980; Karasek, 1979) and skill variety (e.g., Evans & Kersh, 2004; Hackman & Oldham, 1980). The (mainly) non-significant relationships between the subscales of the PJCM and agreeableness and neuroticism suggest that the PJCM has adequate discriminant validity. Furthermore, Study 6.2 found support for the concurrent validity of the PJCM by showing moderate to high correlations between its three subscales and job satisfaction, affective commitment, and turnover intentions. Additionally, we showed that positive stimulation correlates positively with supervisor-rated job satisfaction and affective commitment. These findings are in line with earlier research that related job challenge to job satisfaction (e.g., Judge et al., 2000, Kirk-Brown & Wallace, 2004), organizational commitment (e.g., Allen & Meyer, 1990; Buchanan, 1974; Dixon et al., 2005), turnover intentions, and actual turnover (e.g., Podsakoff et al., 2007; Preenen et al., 2008).

We also explored the relationship between the PJCM and supervisor-rated job performance. We found a marginally negative relationship between competence testing and supervisor-rated performance. Apparently, employees who experience that their competencies are put to the test are evaluated lower on their job performance. This seems understandable because these employees may not fully master the skills yet that are necessary for optimal task performance, which will be observed by their supervisor. We should note, however, that our sample size was small. Given the lack of research on the relationship between job challenge and job performance future research should further explore this issue.

Theoretical Implications

In the introduction section we criticized existing measures of job challenge for being restricted in scope. Of interest is that the subscales of the PJCM seem to cover the diverse conceptualizations and operationalizations of job challenge. First, the subscale positive stimulation is consistent with operationalizations used in the literature that associates (job) challenge with pleasurable activated emotions such as eagerness, excitement, stimulation, and exhilaration (e.g., Lazarus & Folkman, 1984; Meyer & Allen, 1988). Second, the subscale

competence testing is consistent with operationalizations of job challenge in the literature on work (re-)design that defines job challenge in terms of the use and development of skills, talents, or capacities (e.g., Hackman & Oldham, 1976; Jones & James, 1979; Walsch et al., 1980).Third, the uncertainty subscale of the PJCM seems to resonate with operationalizations used in the career literature. For example, De Pater and colleagues (2009) defined job challenge as the experience of activities that are demanding, stimulating, new, and calls on one's ability and determination, and McCauley et al. (1999, p. 4) defined job challenge as "being in dynamic settings with problems to solve and choices to make under conditions of risk and uncertainty". All in all, the results of our study show that existing conceptualizations of job challenge felt short in that they were focused only on one of the three dimensions of perceived job challenge that emerged from this study. Perceived job challenge is best operationalized as a three-dimensional concept comprising positive stimulation, competence testing, and uncertainty.

Limitations

We should acknowledge some limitations associated with our studies. A first limitation relates to the cross-sectional design we used, which did not allow us to examine the predictive validity of the PJCM. However, in a predictive study, employees' challenging work experiences may change during the time between the measurement of the predictor variables and the criterion variables (De Pater et al., 2009; Preenen, De Pater, Van Vianen, & Keijzer, 2010). Therefore, with work experiences as the focal variable, it seems more appropriate to collect both dependent and independent variables at the same time (McDaniel et al., 1988). Although people's challenging experiences may fluctuate over time, these experiences together may yet predict future individual outcomes. We, therefore, encourage future researchers to replicate our findings in a longitudinal design to try to establish evidence for the predictive value of the PJCM.

Second, we mainly relied on self-reports stemming from one source (employees) to examine the relationships between the PJCM and the study variables. Therefore, common method variance may be an issue (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We also examined relationships between the PJCM and supervisor-rated job satisfaction, affective commitment, and performance, but the sample size was small. Future research should combine data from various sources to further examine the psychometric properties of the PJCM.

Future Research

Our study was a first attempt to develop and validate a measure to assess perceived job challenge. Although the results of our studies provided initial evidence for the reliability and validity of our measure, more research is needed to refine the PJCM and to better understand its relationships with criterion variables. In addition, future research may also

focus on investigating relationships between the PJCM and other relevant work related outcomes, such as supervisory promotability ratings (e.g., De Pater et al., 2009), managerial development and learning (e.g., De Rue & Wellman, 2009; Dragoni et al., 2009; McCauley et al., 1994), and people's employability (Fugate, Kinicki, & Ashforth, 2004). Furthermore, although job challenge is mostly associated with positive outcomes, future research could investigate perceived job challenge as related to possible negative outcomes, such as burnout (Maslach & Jackson, 1986).

Other interesting avenues for future research are to examine the antecedents of perceived job challenge and possible moderators in the relationship between objective task characteristics and perceived job challenge (Preenen, De Pater, Van Vianen, 2008b). Investigating these issues is both of theoretical as well as practical importance, because it is in the organization's interest to know how to (better) challenge their employees.

CHAPTER SEVEN
GENERAL DISCUSSION

Job challenge is an interesting and important subject to study. It is popular among today's employees and employers, whereas there is relatively little research on this subject. The present dissertation aimed to provide a better understanding of job challenge by examining its conceptualization, determinants, processes, and outcomes.

In this final chapter, I will first summarize the main findings as reported in the empirical chapters. Then, I will discuss the theoretical and practical implications of the study findings and I will address some limitations of the studies in this dissertation. Finally, I will conclude with a discussion of avenues for future research.

Summary of Main Findings

Chapter Two

Chapter 2 examined relationships between employees' challenging assignments, on-the-job learning, turnover intentions, and job-search behaviors. Moreover, with a two-wave design, we investigated the impact of changes in challenging assignments and on-the-job learning on actual voluntary turnover. Based on research about the attractiveness and positive outcomes of challenging jobs (Boswell, Roehling, LePine, & Moynihan, 2003; Carmeli, Cohen-Meitar, & Elizur, 2007; Judge, Bono, & Locke, 2000; Slaughter, Richard, & Martin, 2006) and extant theories about learning, we hypothesized that challenging assignments would be related to lower withdrawal intentions and behaviors, and that on-the-job learning would mediate this relationship. However, people's job experiences, such as their challenging assignments and on-the-job learning, likely change over time (McDaniel, Schmidt, & Hunter, 1988). We, therefore, also examined the impact of changes in challenging assignments and on-the-job learning on actual voluntary turnover. We expected that an increase in challenging assignments and learning would result in lower voluntary turnover whereas a decrease in challenging assignments and learning would lead to higher voluntary turnover.

The results confirmed our propositions. Challenging assignments were negatively related to turnover intentions and job-search behaviors, which was due to the mediating role of on-the-job learning. In addition, a change in challenging assignments was negatively related to voluntary turnover above and beyond Time 1 turnover intentions and job-search behaviors. This implies that an increase in challenging assignments resulted in lower voluntary turnover even when employees had initial turnover intentions. In a similar vein, a decrease in challenging assignments resulted in higher voluntary turnover even when employees initially did not have the intention to leave the organization. Changes in on-the-job learning could largely explain these findings. All in all, challenging assignments enhance on-the-job learning which, in turn, reduces voluntary turnover.

Chapter Three

Chapter 3 examined the joint impact of task challenge and goal orientation (as experimentally induced) on individuals' positive and negative activating mood, and motivation. We hypothesized that mastery-approach and performance-approach orientations would affect individual's mood and motivational responses to high and low challenging tasks, respectively. Low challenging tasks are routine and easy, and there is relatively little to learn during task performance. Yet, a performance-approach orientation motivates individuals to outperform others. Therefore, we expected that people's activating moods (positive as well as negative ones) and motivation would be higher when performing a low challenging task with a performance-approach orientation instead of a mastery-approach orientation.

With regard to the performance of a challenging task, we proposed that a mastery-approach orientation would positively activate and motivate people, while not causing high negative affect. A performance-approach orientation was expected to negatively affect people's mood states and motivation. People are more likely to experience higher levels of tension and lower levels of positive activating mood when their performances are compared to those of others, particularly when they have to perform well on a task that they have not fully mastered yet. Moreover, people with a performance-approach orientation may lose attentional resources as caused by their focus on external cues (Kanfer & Ackerman, 1989), which in turn, may mentally block them to put effort in the challenging task. In sum, we expected that a performance-approach orientation as compared to a mastery-approach orientation would lead to higher positive activating mood and motivation, and higher negative activating mood when performing a low challenging task. In contrast, we expected that a mastery-approach orientation as compared to a performance-approach orientation would lead to higher positive activating mood and motivation, and lower negative activating mood when performing a high challenging assignment

We tested our propositions with an experimental design in which participants were assigned a low or high challenging task and were provided with a general or goal-oriented (performance-approach or mastery-approach) task instruction. This enabled us to test for causalities and to examine the precise effects of goal-oriented as compared to general (no goal-oriented) task instructions.

The study findings largely supported our expectations. We found that a performance-approach orientation resulted in higher positive activating mood and motivation than a mastery-approach orientation, or no goal orientation in the low challenging task condition. In contrast, a mastery-approach orientation led to higher positive activating mood and motivation than a performance-approach orientation, or no goal orientation in the high challenging task condition. We should note that individuals who had worked on the high challenging task reported higher levels of mastery-approach and performance-approach orientations than those who had worked on the low challenging task. This finding suggests that individuals tend to become more goal oriented when performing a high challenging task.

Finally, individuals performing a high challenging task reported more nervousness and fear than individuals performing a low challenging task. Hence, higher negative activating mood seems a natural response to challenging tasks and cannot be precluded by specific goal instructions. Interestingly, we found no combined effects of task challenge and goal orientation on negative activating mood.

Chapter Four

Chapter 4 examined the extent to which the performance of challenging tasks is related to employees' and supervisors' goal orientations.

Study 4.1. In the first study, we investigated the relationships between people's goal orientations and the performance of challenging tasks. Individuals with a mastery-approach goal orientation aim to develop competence through task mastery and the learning of new skills. These individuals were expected to involve themselves in challenging activities because these activities facilitate their goal to develop their competence. In contrast, individuals with a performance-avoidance orientation are particularly motivated to avoid demonstrating inferior competence toward others. We expected that they would avoid challenging activities because of a higher risk of visible failure.

The findings showed a significant relationship between individuals' mastery-approach orientation and the performance of challenging tasks. However, no relationship was found between a performance-avoidance orientation and the performance of challenging tasks.

Study 4.2. In this study, we proposed that supervisors' goal orientations would be related to employees' performance of challenging tasks, but that the strength of this relationship would depend on the extent to which supervisors influenced the tasks of their employees (supervisors' task impact). Based on goal orientation theory, we reasoned that employees' performance of challenging tasks would relate to supervisors' mastery-approach, performance-approach, and performance-avoidance orientations. We argued that supervisors with a mastery-approach orientation may find the development of new competencies as important for their subordinates as for themselves. These supervisors may provide their employees with actual learning experiences through the assignment of challenging tasks. In contrast, performance-approach oriented supervisors want to look more competent than others. These supervisors may be less likely to stimulate their employees to take on challenging tasks. Performance-avoidant supervisors, on the other hand, are motivated to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (Elliot & McGregor, 2001). These supervisors may pass on challenging and risky activities to their employees.

As in Study 4.1, we found that employees' mastery-approach orientation was positively related to performing challenging tasks. Although not proposed, we found that supervisors' task impact was negatively related to employees' performance of challenging tasks. This finding may suggest that supervisors tend to allocate rather non-challenging tasks

to their subordinates. As expected, we found that supervisors' goal orientations were related to employees' performance of challenging tasks. Employees who were dependent on their supervisors' task assignments performed less challenging tasks when their supervisor had a higher performance-approach orientation, and they performed more challenging assignments when their supervisor had a higher performance-avoidance orientation. Our proposition that supervisors' mastery-approach goal orientation would be positively related to employees' performance of challenging tasks was not confirmed.

Chapter Five

The aim of Chapter 5 was to reach a grounded, bottom-up understanding and conceptualization of job challenge. We asked one hundred and thirty-two respondents to describe a recently performed task they considered to be challenging and to explain why they found this task challenging. We used *concept mapping* to analyze and categorize participants' responses.

Our analyses showed that job challenge is a multi-faceted construct. Thirty-seven aspects of job challenge were distinguished and categorized as task characteristic, contextual characteristic, cognitive appraisal, and mood state. These four conceptualizations were integrated into a comprehensive model of job challenge in which task and contextual characteristics are antecedents of cognitive appraisals and mood states.

Chapter Six

Chapter 6 describes the development and validation of a reliable, theoretically well-grounded measure of perceived job challenge, the *Perceived Job Challenge Measure* (PJCM). We generated the cognitive appraisal and mood state items from the concept mapping analysis as described in Chapter 5. The PJCM was examined in two studies among employees working for a variety of organizations.

Study 6.1. A first set of items was tested in Study 6.1. Based on our earlier analysis in Chapter 5, we expected that perceived job challenge would be a two-dimensional concept including cognitive appraisals and mood states. An exploratory factor analysis showed three instead of two factors: *positive stimulation*, *competence testing*, and *uncertainty.* The positive stimulation factor includes items that refer to positive mood states and attitudes associated with job challenge. The competence testing factor includes items about being tested and having to stretch and prove oneself. The uncertainty factor includes items about work tasks being risky, new, and feeling insecure about accomplishing them. Apparently, the expected *mood states* dimension is to some extent separated in a positive (positive stimulation) and negative component (uncertainty). The three PJCM subscales were found to be reliable.

Study 6.2. The PJCM was further tested in a second study. Its three-factor structure was confirmed. Of note is the relatively high correlation between competence testing and uncertainty (*r*'s range from .60 to .72), which suggests that employees who feel that their

competencies are tested in their jobs are also uncertain about their ability to accomplish their tasks. The reliabilities (internal consistencies) of the three subscales were good. The test-retest reliabilities of the PJCM subscales as measured over a six-month time interval were moderate. We also tested the convergent, discriminant, and concurrent validities of the PJCM. The convergent validity was examined by relating the PJCM to extant measures that are closely related to job challenge, such as measures from Ettington (1998) and Ragins and McFarlin (1990). In addition, we examined whether the PJCM was related to autonomy and skill variety (e.g., Evans & Kersh, 2004; Hackman & Oldham, 1980). The results supported the convergent validity of the PJCM, because it correlated moderately high to high with other job challenge measures, job autonomy, and skill variety.

The discriminant validity of the PJCM was examined by correlating the PJCM subscales with neuroticism and agreeableness (McCrae & Costa, 1987; Costa & McCrae, 1992) as these Big Five traits were expected to be unrelated to perceived job challenge. The relationships between the subscales of the PJCM and these traits were indeed mainly not significant, showing adequate discriminant validity.

The concurrent validity of the PJCM was tested by examining relationships between the PJCM and job satisfaction, affective commitment, turnover intentions, and job performance. The concurrent validity of the PJCM was supported. Moderate to high correlations between its three subscales and job attitudes were found. In addition, the positive stimulation scale correlated positively with supervisor-rated job satisfaction and affective commitment. Finally, we found a marginally negative relationship between the competence testing scale and supervisor-rated performance, which shows that supervisors rated employee performance lower when employees experienced their tasks as a test of their competencies.

Altogether, the results of these two studies suggest that the PJCM is reliable and valid.

Theoretical and Practical Implications

The studies as presented in the previous chapters addressed the concept, consequences, and antecedents of job challenge as well as moderators that influenced the relationship between job challenge and its consequences. The remainder of this dissertation will discuss the theoretical and practical implications of these studies.

Theoretical Implications

Consequences of job challenge. Some literatures have proposed, but never examined empirically, that job challenge could lower voluntary turnover (e.g., Carmeli, 2005; Conklin & Desselle, 2007; Loquercio, 2006; Salopek, 2000). Empirical studies were mostly focused on the positive consequences of job challenge for employees and less explicitly on its benefits for organizations. The study presented in Chapter 2 shows a negative relationship between job challenge and employees' turnover intentions and behaviors. This study furthermore revealed that changes over time in challenging assignments affect employees' actual turnover

behaviors. The link between job challenge and turnover intentions and behaviors can be explained by employees' learning experiences. Job challenge positively influences on-the-job learning, which, in turn, lowers turnover. It is this on-the-job learning that employees seem to value and the performance of challenging tasks is an excellent opportunity to learn (Lyness & Thompson, 1997, 2000; McCauley et al., 1994). The desire to acquire and exercise competence is a basic human need (e.g., Elliot & Dweck, 2005; Skinner, 1995) that can be fulfilled by performing challenging activities. In addition, employees may consider learning (through the performance of challenging tasks) important for their employability and future career opportunities. For this reason, it has been argued that organizations may lose rather than retain their valuable employees when offering them opportunities for learning (Benson, Finegold, & Mohrman, 2004; Campbell & Campbell, 2003; Ito & Brotheridge, 2005). The findings in Chapter 2 oppose this view: challenging work activities and learning seem to increase employees' commitment to the organization and make them stay. As such, job challenge can be conceived of as a vital job characteristic that affect people's work attitudes and behaviors.

Moderators. Chapter 3 introduced moderators that could impact the consequences of challenging and non-challenging tasks. Whether people experience positive outcomes of job challenge may depend on their goals. The study described in Chapter 3 is one of the first studies testing this proposition by using an experimental design that mirrors realistic task assignments as found in field-settings. This study shows that the consequences of job challenge for one's mood and motivation are most positive when individuals have a mastery-approach rather than performance-approach orientation. In contrast, a performance-approach orientation is most beneficial for the performance of non-challenging tasks.

The results of this study corroborate prior goal orientation research that suggested that the advantageous effects of an individual's mastery-approach orientation may be limited to tasks that are of higher complexity (Utman, 1997). They also resonate with studies that noted that mastery-approach oriented employees tend to put more effort into their jobs when they are faced with obstacles (e.g., Dweck, 1999; Farr, Hofmann, & Ringenbach, 1993). Finally, this study has shown that a mastery-approach orientation does not necessarily lead to better outcomes than a performance-approach orientation, as has often been suggested (e.g., Heyman & Dweck, 1992; Miller, Behrens, & Greene, 1993; Utman, 1993). A performance-approach orientation lowers outcomes in high challenging conditions only.

Antecedents of job challenge. The study in Chapter 3 has shown that individuals' goal orientations can be manipulated. However, goal orientations are also conceived of as a relatively stable trait (e.g., Button, Mathieu, Zajac, 1996; Dweck, 1989; Farr et al. 1993). The studies in Chapter 4 examined individuals' goal orientation as an antecedent of job challenge. The findings show that only mastery-approach goal orientations are related to the performance of challenging tasks. This result further substantiates the idea that individuals appreciate challenging tasks because of the learning that is involved in these tasks (see

Chapter 2).

The types of tasks that people perform do not only depend on people's own goal orientations but also on the goal orientations and behaviors of others upon whom they depend. Chapter 4 has shown that supervisors' performance-approach and performance-avoidance orientations relate to the tasks that employees perform, particularly when supervisors have a greater say in what employees do in their job. To date, this was the first study that linked supervisors' goal orientations to the activities of their employees. Hence, this study extends goal orientation research that associated people's goal orientations to their own outcomes only (see Elliot & Dweck, 2005; Payne et al., 2007). This study has shown that the consequences of goal orientations may differ for people themselves and for others.

The job challenge construct. The study presented in Chapter 5 aimed to empirically ground the concept of job challenge from the discourse of "ordinary" people. Laypersons associate challenge with specific task and contextual characteristics, cognitions, and mood states. Interestingly, the task characteristics show some overlap with those of Hackman & Oldham's (1980) job characteristics model (JCM: skill variety, task identity, task significance, autonomy and feedback), but they also expand the JCM with characteristics such as time pressure, high stakes and goals, creativity and improvisation, and task ambiguity. These characteristics should be included in a more comprehensive task characteristics model predicting employees' cognitions, affective states, and work attitudes.

Chapter 6 reported about the development and test of the Perceived Job Challenge Measure. The PJCM comprises three subscales: stimulation, competence testing, and uncertainty. The positive stimulation subscale of the PJCM is consistent with operationalizations used in the literature that associates (job) challenge with pleasurable activated emotions such as eagerness, excitement, stimulation, and exhilaration (e.g., Lazarus & Folkman, 1984; Meyer & Allen, 1988). The competence testing subscale is consistent with operationalizations of job challenge in the literature on work (re-)design that defines job challenge in terms of the use and development of skills, talents, or capacities (e.g., Hackman & Oldham, 1976; Jones & James, 1979; Walsch et al., 1980). The uncertainty subscale resonates with operationalizations used in the career literature that refer to risks and uncertainty (McCauley et al., 1999).

Altogether, the PJCM seems to integrate the different approaches in the literature. The PJCM may help to clarify incompatible research findings and may lead to the consistent use of definitions and measurements of perceived job challenge in future research. Moreover, the three-factor structure of this measure provides better options for explaining specific outcomes of job challenge. Most optimal outcomes are to be expected if the positive cognitions and mood states outweigh the negative ones.

Practical Implications

The findings in this dissertation have several practical implications. First, in today's highly competitive and dynamic labor market, it is of great importance for organizations to

understand how to retain their valuable employees. In view of our findings that challenging assignments enhance on-the-job learning and reduce turnover intentions and behaviors, organizations should provide their employees with challenging tasks. Moreover, because challenging tasks enhance on-the-job learning, organizations could consider challenging tasks as a good alternative for the often expensive formal training programs (Frazis, Herz, & Horrigan, 1995) they offer to their employees. In addition, on-the-job experiences contribute more to employee learning and development than formal classroom training programs (e.g., Davies & Easterby-Smith, 1984; Lowy, Kelleher, & Finestone, 1986).

Organizational leaders should play an active role in providing their employees with challenging tasks in order to facilitate their development (Cianni & Romberger, 1995). In Chapter 3, we have shown that challenging tasks should be explicitly communicated as an opportunity to learn rather than as an opportunity to excel. Accordingly, supervisors can stimulate and motivate employees to perform a challenging task when they convey it as a fortunate option for learning. Conversely, if supervisors have to assign non-challenging tasks they can nevertheless stimulate and motivate their employees by emphasizing that they should show their superiority on this task.

Although we believe that many supervisors want to support their employees' development, our research from Chapter 4 indicates that performance-approach oriented supervisors may do so to a lesser extent. These supervisors seem hesitant to delegate challenging tasks to others, which ultimately may result in lower supervisor effectiveness due to the poor development and turnover of their employees. Performance-approach oriented managers are likely desired by organizations because of their competitive and high-performance attitudes. Yet, organizations could monitor these managers' effectiveness by not only valuing their task outputs but also other outputs such as the career behaviors of their employees.

An organization's flexibility and adaptability is highly dependent on employees' willingness to learn (Allen & Poteet, 1999). In this dissertation, it was shown that mastery-approach oriented individuals tend to perform challenging tasks and, thus, will develop themselves. Accordingly, organizations may enhance organizational flexibility by attracting and selecting mastery-approach oriented individuals. Nowadays, organizations select employees based on their knowledge, skills, abilities, personalities, and personal fit with the organization (Van Vianen, 2005). Additionally, they could include instruments in their selection procedure that assess applicants' goal orientations, because goal orientations are – although malleable – relatively stable attributes (e.g., Ames, 1992; Dweck, 1999; Elliot, 1999; Pintrich, 2000). Moreover, as organizations have become increasingly interested in developing their human resources (Wanberg, Welsh, & Hezlett, 2003), organizations should create a culture that promotes mastery-approach orientations in employees (Nauta, Van Vianen, Van Der Heijden, Van Dam, & Willemsen, 2009). This could be realized with an HR

system that emphasizes effort rather than superiority, personal improvement rather than competitiveness, and risk-taking rather than risk-avoidance.

Our study in Chapter 5 has provided a list with specific task and contextual characteristics that individuals appreciate as challenging. This list may help organizations to better (re-)design challenging jobs. Although some jobs seem to lend themselves more for development and learning, I am convinced that all jobs, also the seemingly routine ones, can be enriched with challenging task components. Employees themselves are best able to report about the challenging nature of their job. Fortunately, this dissertation has developed an instrument by which perceived job challenge can be measured. Organizations could use the PJCM to examine its attractiveness as an employer but also as an overall index of its potential flexibility.

Limitations

Like with all research, we should acknowledge some limitations associated with the studies in the present dissertation. In the following sections, I will summarize the most important ones.

Cross-Sectional Design

Although several studies in this dissertation employed a two-wave design, which can be considered as a strength, several others were mainly based on a cross-sectional design, which limits the inference of causalities. In some occasions, we used statistical techniques to argue for the direction of the relationships, such as when we controlled for the Time 1 measurements (see Chapter 2). In other studies (see Chapter 4, Study 4.2), we used good theory to convincingly argue for the specific direction of relationships between variables. All in all, we believe that the assumed causalities in this dissertation are solid.

Self-Reports

Second, as with most field research the findings of this dissertation are largely derived from employees' self-reports. For example, all variables in Chapter 2 and Chapter 4 were based on self- reports. This might have led to inflated relationships between variables due to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, several authors have noted that this methodological problem is often overstated, especially with regard to self-report survey studies (Lindell & Whitney, 2001; Spector, 2006). Moreover, we carefully developed our surveys and found correlations among the variables that varied from low to high, which decrease the chance of common method variance (Spector, 2006). We, therefore, believe that common method bias is not a serious problem in our studies.

Also, it has been noted that the use of self-reports as indicators of the objective environment may decrease measurement accuracy (Spector & Jex, 1991). However, the studies in this dissertation were mostly concerned with people's own perceptions, attitudes,

and behaviors. People's perceptions rather than objective environments influence their attitudes and behaviors (Ferris & Judge, 1991). Therefore, the use of self-reports in our studies may not have limited the reliability of the measures and the validity of the findings as much as sometimes is assumed. Nevertheless, we want to encourage other researchers to include objective measures of task challenge in their future research, such as instruments for job and task analyses (e.g., Dierdorff, 2003).

Specific Samples

A third potential limitation relates to the samples that we used in our studies. For instance, in Chapter 2, our sample consisted of employees working in health care and welfare organizations. This may have restricted the generalizability of our findings to other occupations and industries. Yet, the professionals in our sample worked in a wide variety of health care and welfare institutions and jobs all over the Netherlands. Furthermore, an advantage of the use of a one-occupation sample is that there is only little variance in socio-economic status, which precludes confounding effects (de Jonge et al., 2001).

In Chapter 3 and 5, most of our participants were students, which also may raise concerns regarding the generalizability of our results to employees. However, the majority of the students in our sample reported to have a (part-time) job, volunteer job, or internship experience, and these participants were thus also part of the working population. Furthermore, we believe that the affective and motivational reactions to challenging assignments as examined in Chapter 3 are fundamental and will be applicable to other samples as well. Yet, differences between students and employees may still exist with regard to specific task and contextual characteristics. Future research could focus on this matter. The use of university students for our concept mapping study (Chapter 5) was nevertheless reasonable given the fact that these students were well able to express why they found certain tasks challenging. The resulting PJCM was further tested with employees in organizations.

External Validity

Finally, we consciously opted for an experimental rather than field design in Chapter 3 in order to be able to test for causality and direction. This may have limited the generalizability of our findings to realistic organizational settings. The distinction between laboratory and field research becomes smaller to the extent that the content of an experiment reflects reality (Kanfer, 1994). This was the case in our study because we provided the participants with realistic, pilot-tested work assignments. We are, therefore, confident that the results are applicable to actual work-settings. Yet, we encourage researchers to replicate our findings with (controlled) field research in which different challenging tasks are assigned to employees while influencing their goal orientations.

Directions for Future Research

The findings in this dissertation suggest several interesting avenues for future research. Considering our findings and those of earlier research showing beneficial outcomes of job challenge for work attitudes and behaviors (e.g., Carmeli et al., Judge et al., 2000; Kirk-Brown & Wallace, 2004), job challenge may be beneficial for other individual outcomes as well. For instance, challenging assignments at work may be related to employees' work engagement, a positive, fulfilling, affective motivational state of work related well-being (Bakker, Schaufeli, Leiter, & Taris, 2008). Work engagement is characterized by vigor, dedication, and absorption (Bakker et al., 2008) and employees who are engaged in their work have high levels of energy, are enthusiastic about their work, and often are fully immersed in their job. Thereby, engaged employees are believed to offer competitive advantage to their employing organization. As work environments that emphasize growth and development are likely to foster work engagement (Bakker et al., 2008), it would be interesting to examine how challenging assignments impact employees' work engagement.

Also, it has been suggested, but never investigated, that performing challenging work assignments may result in higher inner work standards (Berlew & Hall, 1966) and ambition for higher-level positions (Van Vianen, 1999). Furthermore, receiving challenging assignments from one's supervisor may be conceived of as a reward, or as a signal of supervisor's, trust and appreciation, or as a form of supervisory support (Kottke & Sharafinski, 1988). Future research could examine these topics.

An important finding of this dissertation stems from Chapter 3 in which we have shown that inducing goal orientations can moderate motivational and affective outcomes of performing challenging assignments. However, much remains to be known about other factors that may influence individual outcomes of challenging assignments. For example, in our research we focused on challenging tasks that were assigned to individuals. Future research could compare the mood and motivational effects of assigned versus self-initiated tasks.

In addition, it would be interesting to examine people's emotional responses to success or failure on high challenging tasks because research and theory suggests that personal success experiences tend to raise efficacy estimates, while repeated failures lower them (Bandura, 1986; 1997). However, research suggests that individuals' reactions to failure on a challenging task are likely to depend on their attribution style (e.g., Mikulincer, 1988; Simon, 1973), and failure on a challenging task may be easily attributed to the difficulty of the task. In a similar vein, individuals' goal orientations while performing a challenging task may moderate their responses to failure experiences. Specifically, individuals with a performance orientation might withdraw in the face of failure, whereas individuals with a mastery orientation are likely to persist in the face of task failure (Elliot, 1999). An interesting avenue for future research would be to examine consequences of failing on challenging

assignments and factors that may buffer against negative consequences of such failure experiences.

Our findings in Chapter 4 suggest that performance-approach oriented supervisors may provide their employees with non-challenging rather than challenging assignments. However, we did not directly assess the extent to which supervisors provided their employees with challenging assignments. Therefore, future research should examine the actual delegating behaviors of supervisors. Secondly, the specific processes that lead to the task allocation behaviors of supervisors could be further explored. For example, performance-approach oriented supervisors may develop lower quality relationships with their employees, involving lower trust and support (e.g., Bauer & Green, 1996), which is why challenging tasks may not be shared. Thirdly, because a performance-approach orientation may yield other beneficial outcomes (see for an overview Payne et al., 2007), it would be worthwhile to investigate how the task allocation behaviors of performance-approach oriented supervisors can be changed. It would, for example, be worthwhile to examine whether these supervisors would use different task delegating strategies if they would be held accountable for the development of their employees.

In Chapter 6, we developed and validated a measure to assess perceived job challenge. Although the results of our studies provided initial evidence for the reliability and validity of this measure, more validation research is needed to investigate its relationship with other relevant variables, such as employee development and learning (e.g., De Rue & Wellman, 2009; Dragoni et al., 2009; McCauley et al., 1999), and employability (Fugate, Kinicki, & Ashforth, 2004). It is particularly important to examine how the three separate subscales of the PJCM (positive stimulation, competence testing, and uncertainty) interplay and affect these criterion variables. Perceived job challenge may have negative consequences if competence testing and uncertainty get the upper hand. This will particularly be the case when an individual's task self-efficacy is low (Bandura, 1997) and the challenging assignment is seen as a threat.

In this dissertation, we have identified four aspects that can be integrated into a comprehensive model of job challenge: task characteristics, context characteristics, cognitive appraisals, and mood states. We have proposed that the task and contextual characteristics induce the cognitive appraisals and mood states. Future research could examine how these characteristics relate to perceived job challenge. To date, supportive contextual job characteristics, such as facilities and guidance, responses from others, and inspiring colleagues, and how these contribute to people's (challenging) job experiences have received relatively little research attention.

Concluding Remarks

The studies as described in the five empirical chapters of this dissertation examined the conceptualization, determinants, processes, and outcomes of job challenge. This

dissertation has increased our understanding of job challenge and has contributed to the job challenge literature because it addressed some new and important issues. Certainly, many questions remain to be answered and the studies in this dissertation have raised several new, interesting, and important questions. This hopefully stimulates and challenges other researchers to continue scrutinizing the concept of job challenge, its antecedents, and consequences, to further our knowledge on the issues examined in this dissertation.

As often argued in this thesis, investigating job challenge is of theoretical as well as practical importance. I would like to add that the topic of this dissertation was of great importance for me as well. Now that I have finished this dissertation, my biggest work challenge so far, I can truly say that I understand the meaning of job challenge. I'm very happy with that.

SUMMARY

Job challenge is highly relevant for employees and their organizations. Jobs can be qualified as being challenging to the extent that the job: (a) is new and asks for non-routine skills and behaviors, (b) tests one's abilities or resources, (c) gives an individual the freedom to determine how to accomplish tasks, and (d) involves a higher level of responsibility and visibility (Van Vianen, De Pater, & Preenen, 2008). Research has shown that job challenge is a key factor influencing individuals' job-choice decisions (e.g., Slaughter, Richard, & Martin, 2006), managerial development (e.g., Dragoni, Tesluk, Russell, & Oh, 2009), career advancement (e.g., De Pater, Van Vianen, Bechtoldt, & Klehe, 2009), and job attitudes (e.g., Huang, Lawler, & Lei, 2007).

Despite the growing amount of research on job challenge, many issues remain to be examined. First, little research attention has been given to possible negative outcomes of job challenge (Van Vianen et al., 2008). For example, little is known about the relationship between job challenge and voluntary turnover. Because job challenge stimulates the learning of new skills (e.g., Dragoni et al., 2009) and increases employees' human capital, this may lead to better opportunities for employment in other organizations (Ito & Brotheridge, 2005). Investigating the consequences of job challenge for voluntary turnover thus seems warranted. Second, there is little research investigating factors that influence the types of tasks that people perform in their jobs. Both employees themselves and supervisors will influence the extent to which employees encounter challenging tasks in their jobs (De Pater, Van Vianen, & Bechtoldt, 2010). In addition, past research has neglected possible individual moderators of the relationships between job challenge and outcomes. Last, the conceptualization and operationalization of job challenge in organizational literature and research is far from consistent. For example, some researchers operationalized and assessed job challenge in terms of objective work characteristics (e.g., De Pater et al., 2009) whereas other researchers examined job challenge as a subjective cognitive experience or state (e.g., Huang et al., 2007).

Accordingly, the aim of the present dissertation was to provide a better understanding of the conceptualization, antecedents, processes, and outcomes of job challenge.

Summary of Main Findings

This dissertation comprises five empirical chapters (Chapters 2 to 6) with seven studies employing multiple samples and research methods. Below, I will provide a short summary of the main findings in this dissertation.

Chapter 2 examined relationships between employees' challenging tasks, on-the-job learning, turnover intentions, job-search behaviors, and voluntary turnover. Based on research on the attractiveness and positive outcomes of challenging jobs and extant theories about learning, we hypothesized that challenging tasks would reduce withdrawal intentions and behaviors, and that on-the-job learning would explain this relationship. Because people's job

experiences and on-the-job learning will likely change over time, we also investigated within a two-year period how changes in challenging tasks and on-the-job learning affected actual voluntary turnover. We expected that an increase in challenging tasks and learning would result in lower voluntary turnover and that a decrease in challenging tasks and learning would lead to higher voluntary turnover.

The results confirmed our propositions. Challenging tasks were negatively related to turnover intentions and job-search behaviors, which was due to the mediating role of on-the-job learning. In addition, a change in challenging tasks was negatively related to voluntary turnover above and beyond Time 1 turnover intentions and job-search behaviors. This relationship implies that an increase in challenging tasks resulted in lower voluntary turnover even when employees had initial turnover intentions. In a similar vein, a decrease in challenging tasks resulted in higher voluntary turnover even when employees initially did not have the intention to leave the organization. Changes in on-the-job learning could largely explain these findings. All in all, challenging tasks enhance on-the-job learning which, in turn, reduces voluntary turnover. Therefore, organizations should encourage job challenge in order to retain their valuable employees.

Chapter 3 examined the joint impact of task challenge and goal orientation (as experimentally induced) on individuals' positive and negative activating moods and motivation. Goal orientation refers to the underlying goals that people adopt and pursue in achievement situations (Dweck & Leggett, 1988). Individuals with a mastery-approach goal orientation aim to further develop their competence through task mastery and the learning of new skills. Performance-approach oriented individuals are motivated to demonstrate superior competence relative to others and obtain favorable judgments about their achievements (e.g., Elliot, 2001).

We hypothesized that mastery-approach and performance-approach orientations would affect individual's moods and motivational responses to high and low challenging tasks, respectively. Low challenging tasks are routine and easy to perform, and require relatively little to learn during task performance, which opposes a mastery-approach orientation. Yet, a low challenging task may fit a performance-approach orientation that motivates individuals to outperform others and to show their superior competence. Therefore, we expected that people's activating moods (positive and negative) and motivation would be higher when performing a low challenging task with a performance-approach orientation instead of a mastery-approach orientation. With regard to the performance of a challenging task, we proposed that a mastery-approach orientation would positively activate and motivate people, without causing high negative affect. A performance-approach orientation was expected to negatively influence people's mood states and motivation. People are more likely to experience higher levels of tension and lower levels of positive activating mood when their performances are compared to those of others, particularly when they have to perform well on a task that they have not fully mastered yet. Moreover, people with a performance-approach

orientation may lose attentional resources as caused by their focus on external cues (Kanfer & Ackerman, 1989), which in turn, may mentally block them to put effort in the challenging task.

We tested our propositions in a laboratory setting in which participants were randomly assigned a realistic low or high challenging task and were provided with a general or goal-oriented (performance-approach or mastery-approach) task instruction. The study findings largely supported our hypotheses. We found that a performance-approach orientation resulted in higher positive activating mood and motivation than a mastery-approach orientation or no goal orientation in the low challenging task condition. In contrast, a mastery-approach orientation led to higher positive activating mood and motivation than a performance-approach orientation or no goal orientation in the high challenging task condition. These findings suggest that employees may benefit from a performance-approach orientation when performing low challenging assignments. In contrast, employees may benefit from a mastery-approach orientation when performing high challenging assignments. We did not find an interaction between task challenge and goal orientation on negative activating mood. However, individuals performing a high challenging task reported more negative activated mood states than those performing a low challenging task. Hence, higher negative activating mood seems to be a natural response to challenging tasks and cannot be precluded by specific task instructions.

Chapter 4 examined the extent to which the performance of challenging tasks is related to employees' and supervisors' goal orientations. In Study 4.1, we investigated the relationships between people's goal orientations and the performance of challenging tasks among students. Students with a mastery-approach goal orientation were expected to engage in challenging activities because these activities facilitate their goal to develop their competencies. In contrast, individuals with a performance-avoidance orientation are particularly motivated to avoid demonstrating inferior competence toward others (e.g., Elliot, 1999). We therefore expected that students with a performance-avoidance orientation would avoid challenging activities because of a higher risk of visible failure. The findings indeed showed a positive relationship between individuals' mastery-approach orientation and the performance of challenging tasks. However, no relationship was found between a performance-avoidance orientation and the performance of challenging tasks.

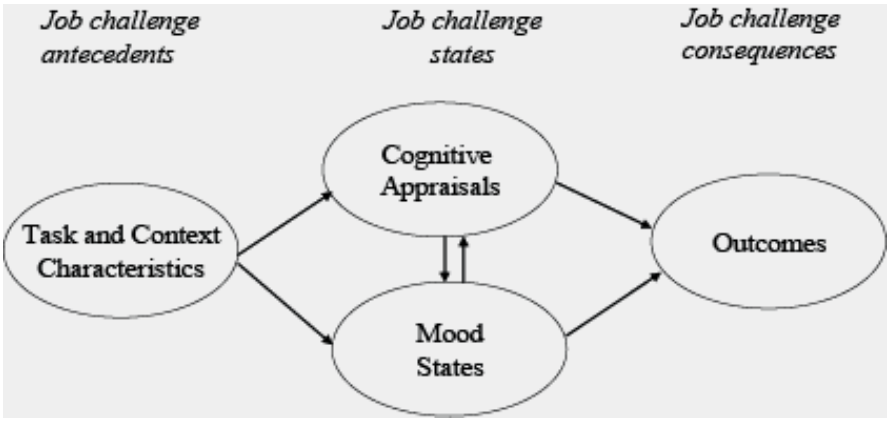
In Study 4.2, we proposed that supervisors' goal orientations would relate to the types of tasks employees perform, but that the strength of this relationship would depend on the influence that supervisors have on the content of employees' jobs (supervisors' task impact). We used a sample of 39 supervisors and 193 employees working for an industrial organization at six locations. Based on goal orientation theory, we reasoned that employees' performance of challenging tasks would relate to supervisors' mastery-approach, performance-approach, and performance-avoidance orientations. We argued that supervisors with a mastery-approach orientation may find the development of new competencies as

important for themselves as for their subordinates. These supervisors may provide their employees with actual learning opportunities by assigning challenging tasks. In contrast, supervisors with a performance-approach orientation may be less likely to stimulate their employees to take on challenging tasks because the supervisors want to shine themselves. Performance-avoidant supervisors, on the other hand, are motivated to avoid demonstrating inferior competence relative to others and receiving negative judgments about their achievements (Elliot & McGregor, 2001). These supervisors may pass on challenging and risky activities to their employees.

As in Study 4.1, we found that employees' mastery-approach orientation was positively related to performing challenging tasks. Furthermore, we found that supervisors' goal orientations were related to employees' performance of challenging tasks. Employees who were dependent on their supervisors' task assignments performed fewer challenging tasks when their supervisor had a higher performance-approach orientation. Employees performed more challenging assignments when their supervisor had a high performance-avoidance orientation. Our proposition that supervisors' mastery-approach goal orientation would be positively related to employees' performance of challenging tasks was not confirmed.

The aim of Chapter 5 was to reach a grounded, bottom-up understanding and conceptualization of job challenge. We asked 132 respondents to describe a task they recently performed and considered to be challenging, and to explain why they found this task challenging. We used *concept mapping* to analyze and categorize participants' responses. Our analyses showed that job challenge is a multi-faceted construct. Thirty-seven aspects of job challenge were distinguished and categorized as task characteristic, contextual characteristic, cognitive appraisal, and mood state. These four conceptualizations were integrated into a comprehensive model of job challenge in which task and contextual characteristics are proposed as antecedents of cognitive appraisals and mood states (see Figure 5.2).

Figure 5.2. Job challenge model



Chapter 6 describes the development and validation of a reliable, theoretically well-grounded measure of perceived job challenge. We generated the cognitive appraisal and mood state items from the concept mapping analysis as described in Chapter 5. In two studies, we examined the psychometric quality of this set of items. Based on our findings as described in Chapter 5, we expected that perceived job challenge would be a two-dimensional concept including cognitive appraisals and mood states. Study 6.1 showed three instead of two factors: *positive stimulation*, *competence testing*, and *uncertainty*. The positive stimulation factor included items that refer to positive mood states and attitudes associated with job challenge. The competence testing factor included items related to being tested and having to stretch and prove oneself. The uncertainty factor included items referring to feelings of risk of failure, perceptions of task difficulty, and new experiences. Apparently, the *mood states* associated with challenge comprise a positive (positive stimulation) and negative component (uncertainty). The three subscales of perceived job challenge were found to be internally reliable.

The psychometric characteristics of the resulting *Perceived Job Challenge Measure* (PJCM) were further tested in a second study (Study 6.2). Its three-factor structure was confirmed. The reliabilities of the three subscales were good. The test-retest reliabilities of the PJCM subscales as measured over a six-month time interval were moderate. We also tested the convergent, discriminant, and concurrent validities of the PJCM. The convergent validity was examined by relating the PJCM to extant measures that are theoretically related to job challenge. In addition, we examined whether the PJCM was related to autonomy and skill variety. The results supported the convergent validity of the PJCM because it correlated moderately high to high with other job challenge measures, job autonomy, and skill variety. The discriminant validity of the PJCM was examined by correlating the PJCM subscales with neuroticism and agreeableness because these Big Five traits were expected to be unrelated to perceived job challenge. The relationships between the subscales of the PJCM and these traits were indeed mainly not significant, providing evidence for adequate discriminant validity. The concurrent validity of the PJCM was tested by examining its relationship with job satisfaction, affective commitment, turnover intentions, and job performance. The concurrent validity of the PJCM was supported. Moderate to high correlations between the three subscales and job attitudes were found. In addition, the positive stimulation scale correlated positively with supervisor-rated job satisfaction and affective commitment. Altogether, the results of these two studies suggest that the PJCM is a reliable and valid measure.

Conclusion

In closing, the studies described in the five empirical chapters of this dissertation examined the conceptualization, antecedents, processes, and outcomes of job challenge. These studies have increased our understanding of job challenge in multiple ways. First, job challenge is a broad concept including task and context characteristics, and people's

subjective perceptions of challenge as positive stimulation, competence testing, and uncertainty. Second, people's goal orientations are not only important for task choices but also for the motivational and mood outcomes of performing challenging tasks. People with a mastery-approach orientation tend to choose challenging tasks and, when challenged, they show more positive affective and motivational reactions. Third, supervisors' goal orientations tend to influence employees' opportunities for performing challenging tasks. Performance-approach oriented supervisors could withhold their employees from challenging experiences which, in turn, may undermine employees' learning and development. Finally, because of its positive influence on on-the-job learning, job challenge will decrease rather than increase voluntary turnover.

Certainly, many questions remain to be answered and the studies in this dissertation have raised several new, interesting, and exciting questions. These questions may hopefully challenge other researchers to further explore the scientifically interesting and practically relevant concept of job challenge.

SAMENVATTING

Uitdagend werk is erg belangrijk voor werknemers en hun organisaties. Uitdagend werk kenmerkt zich door werkzaamheden die (a) nieuw zijn en die vaardigheden en gedragingen vereisen die een persoon nog niet volledig beheerst, (b) iemands kunde en capaciteiten testen, (c) een individu de vrijheid geven om zelf te bepalen hoe deze taken uit te voeren (d) en een zekere mate van verantwoordelijkheid en zichtbaarheid met zich meebrengen (e.g., Van Vianen, De Pater, & Preenen, 2008). Onderzoek heeft aangetoond dat werkuitdaging een sleutelrol speelt in de baankeuzes van mensen (e.g., Slaughter, Richard, & Martin, 2006), de ontwikkeling van managers (e.g., Dragoni, Tesluk, Russell, & Oh, 2009), loopbaanontwikkeling (e.g., De Pater, Van Vianen, Bechtoldt, & Klehe, 2009) en werkattitudes van werknemers (e.g., Huang, Lawler, & Lei, 2007).

Ondanks de groeiende belangstelling voor werkuitdaging moet er nog veel onderzocht worden. Ten eerste hebben onderzoekers nog weinig aandacht besteed aan de mogelijk negatieve gevolgen van werkuitdaging (Van Vianen et al., 2008). Zo is er nog weinig bekend over het verband tussen werkuitdaging en vrijwillig personeelsverloop. Aangezien werkuitdaging het leren van nieuwe vaardigheden (e.g., Dragoni et al., 2009) bevordert en dus het menselijke kapitaal van werknemers verhoogt, kan dit iemands kansen op de arbeidsmarkt vergroten (Ito & Brotheridge, 2005). Het onderzoeken van de gevolgen van werkuitdaging voor vrijwillig personeelsverloop lijkt dus gerechtvaardigd. Ten tweede is er nog nauwelijks onderzoek verricht naar factoren die van invloed zijn op de mate waarin mensen uitdagende taken in hun werk uitvoeren. Werknemers zelf, maar ook hun leidinggevenden, beïnvloeden de mate waarin werknemers uitdagende taken in hun werk hebben (De Pater, Van Vianen, & Bechtoldt, 2010). Bovendien heeft bestaand onderzoek de mogelijk individuele moderatoren van het verband tussen werkuitdaging en uitkomsten veronachtzaamd. Ten slotte zijn er verschillende conceptualisaties en operationalisaties van werkuitdaging in de onderzoeksliteratuur te vinden. Zo operationaliseerden sommige onderzoekers werkuitdaging in termen van objectieve werkkenmerken (e.g., De Pater et al., 2009), terwijl andere onderzoekers werkuitdaging als subjectieve, cognitieve beleving onderzochten (e.g., Huang et al., 2007).

Dienovereenkomstig was het doel van de huidige dissertatie om een beter inzicht in de conceptualisering, antecedenten, processen, en uitkomsten van werkuitdaging te verkrijgen.

Samenvatting van de Belangrijkste Resultaten

Dit proefschrift bestaat uit vijf empirische hoofdstukken (Hoofdstukken 2 tot en met 6) bestaande uit zeven studies waarin verschillende onderzoeksgroepen en methoden zijn gebruikt. Hieronder zal ik een korte samenvatting van de belangrijkste bevindingen van dit proefschrift geven.

In Hoofdstuk 2 is het verband tussen de uitdagende taken van werknemers, leren het op het werk, intentie tot vertrek, baanzoekgedrag en vrijwillig personeelsverloop onderzocht. Gebaseerd op onderzoek naar de aantrekkelijkheid en positieve uitkomsten van werkuitdaging en theorieën over leren, verwachtten wij dat uitdagende taken vertrekintenties en vertrekgedrag zouden verminderen en dat leren op het werk deze relatie zou verklaren. Aangezien werkervaringen en leren op het werk door de tijd heen kunnen veranderen, onderzochten wij ook binnen een periode van twee jaar hoe veranderingen in uitdagende taken en leren op het werk daadwerkelijk vrijwillig personeelsverloop beïnvloedden. Wij verwachtten dat een toename van uitdagende taken en leren op het werk zou resulteren in minder vrijwillig personeelsverloop en dat een afname van uitdagende taken en leren zou leiden tot hoger vrijwillig personeelsverloop.

De resultaten bevestigden onze verwachtingen. Uitdagende taken waren negatief gerelateerd aan vertrekintenties en baanzoekgedrag, wat aan de mediërende rol van leren op het werk viel toe te schrijven. Bovendien bleek een verandering in uitdagende taken negatief gerelateerd aan vrijwillig personeelsverloop, zelfs wanneer gecontroleerd werd voor de op Tijdstip 1 gemeten vertrekintenties en baanzoekgedrag. Dit impliceert dat een verhoging van uitdagende taken in minder vrijwillig personeelsverloop resulteerde, zelfs wanneer werknemers aanvankelijk vertrekintenties hadden. Op een soortgelijke manier resulteerde een daling in uitdagende taken in meer vrijwillig personeelsverloop, zelfs wanneer de werknemers aanvankelijk niet de bedoeling hadden om de organisatie te verlaten. De veranderingen in leren op het werk konden deze bevindingen grotendeels verklaren. Al met al lijken uitdagende taken op het werk leren op het werk te bevorderen, wat vervolgens vrijwillig personeelsverloop vermindert. Organisaties zouden dus werkuitdaging moeten aanmoedigen om hun waardevolle werknemers te behouden.

In Hoofdstuk 3 is het gezamenlijke effect van taakuitdaging en doeloriëntatie (experimenteel geïnduceerd) op positieve (o.a. aandachtig) en negatieve (o.a. nerveus) activerende stemmingen, en motivatie van personen onderzocht. Doeloriëntatie verwijst naar de onderliggende doelen die mensen nastreven in prestatiesituaties (Dweck & Leggett, 1988). Personen met een leer-streeforiëntatie streven ernaar hun bekwaamheid door taakbeheersing en het leren van nieuwe vaardigheden verder te ontwikkelen. Prestatie-streefgeoriënteerde personen streven ernaar om hun superieure bekwaamheid ten opzichte van anderen tentoon te stellen, alsmede om positieve oordelen over hun prestaties te verkrijgen (e.g., Elliot, 2001).

Wij veronderstelden dat de doeloriëntaties van invloed zouden zijn op de wijze waarop personen reageren op weinig en meer uitdagende taken. We onderzochten hun activerende stemmingreacties en motivatie. Weinig uitdagende taken zijn routineus en gemakkelijk uit te voeren en er is dus betrekkelijk weinig ruimte om van deze taken te leren. Dit strookt niet met iemands leer-streeforiëntatie. Echter, een prestatie-streeforiëntatie motiveert individuen om anderen te overtreffen en dit zou wel eens goed kunnen aansluiten bij laag uitdagende taken. Daarom verwachtten wij dat, bij het uitvoeren van een weinig

uitdagende taak, de activerende stemmingen (positieve en negatieve) en motivatie van prestatie-streefgeoriënteerde mensen hoger zouden zijn dan die van leer-streefgeoriënteerde mensen. Met betrekking tot de uitvoering van een meer uitdagende taak veronderstelden wij dat een leer-streeforiëntatie mensen positief zou activeren en motiveren, zonder een negatieve stemming te veroorzaken. Een prestatie-streeforiëntatie werd geacht de stemming en motivatie van mensen negatief te beïnvloeden. Mensen zullen hogere negatieve spanningsniveaus en minder positieve activerende stemming ervaren wanneer hun prestaties worden vergeleken met die van anderen, in het bijzonder wanneer zij goed op een taak moeten presteren die zij nog niet volledig beheersen. Daarnaast kunnen mensen met een prestatie-streeforiëntatie minder geconcentreerd op de taak raken, doordat ze zich richten op externe zaken (Kanfer & Ackerman, 1989), wat hen mentaal kan blokkeren om de uitdagende taak uit te voeren.

Wij testten onze verwachtingen in een laboratoriumsetting waarin de deelnemers een weinig of sterk uitdagende taak kregen toebedeeld en werden voorzien van een neutrale of doelgeoriënteerde (prestatie-streeforiëntatie of leer-streeforiëntatie) taakinstructie. De resultaten steunden grotendeels onze verwachtingen. Wij vonden dat prestatie-streefgeoriënteerden een hogere positieve activerende stemming en motivatie hadden dan de deelnemers in de andere condities als ze een weinig uitdagende taak uitvoerden. Daarentegen leidde een leer-streeforiëntatie tot hogere positieve, activerende stemming en motivatie dan een prestatie-streeforiëntatie of geen oriëntatie in de hoog uitdagende taak. Deze bevindingen suggereren dat werknemers bij het uitvoeren van weinig uitdagende taken voordeel hebben van een prestatie-streeforiëntatie. Daarentegen hebben werknemers bij het uitvoeren van sterk uitdagende taken voordeel van een leer-streeforiëntatie. Wij vonden geen interactie-effect van taakuitdaging en doeloriëntatie op negatieve, activerende stemming. Over het algemeen rapporteerden deelnemers die een hoog uitdagende taak uitvoerden een meer negatieve stemming dan degenen die een weinig uitdagende taak uitvoerden. Het lijkt er dus op dat een hogere negatieve, activerende stemming een natuurlijke reactie op uitdagende taken is, die niet door specifieke taakinstructies kan worden weggenomen.

In Hoofdstuk 4 onderzochten we de mate waarin het uitvoeren van uitdagende taken samenhangt met de doeloriëntaties van werknemers en hun leidinggevenden. In Studie 4.1 onderzochten wij dit verband bij een groep studenten. Van studenten met een leer-streeforiëntatie werd verwacht dat zij veel uitdagende taken zouden uitvoeren, omdat dergelijke activiteiten in hun doel voorzien om hun bekwaamheid te ontwikkelen. Individuen met een prestatie-vermijdoriëntatie zijn vooral gericht op het vermijden van zichtbare, inferieure competenties ten opzichte van anderen (e.g., Elliot, 1999). Wij verwachtten daarom dat studenten met een prestatie-vermijdoriëntatie uitdagende activiteiten zouden vermijden vanwege een hoger risico op zichtbare mislukking. De bevindingen toonden inderdaad een positief verband aan tussen de leer-streeforiëntatie van studenten en het uitvoeren van

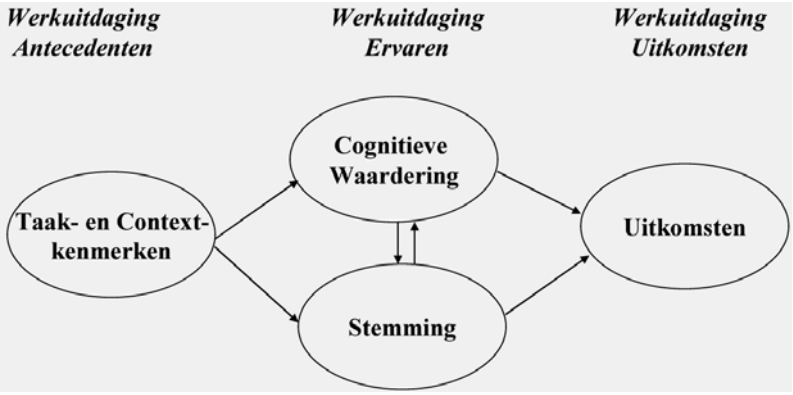
uitdagende taken. Er werd echter geen relatie gevonden tussen een prestatie-vermijdoriëntatie en het uitvoeren van uitdagende taken.

In Studie 4.2 veronderstelden wij dat de doeloriëntaties van leidinggevenden zouden samenhangen met de mate waarin hun werknemers uitdagende taken uitvoeren. Hierbij verwachtten we dat de sterkte van deze relatie zou afhangen van de invloed die leidinggevenden hebben op de werkzaamheden van hun werknemers (taakeffect van leidinggevenden). Wij gebruikten een steekproef van 39 leidinggevenden en 193 werknemers van een productorganisatie met zes locaties. Gebaseerd op de doeloriëntatietheorie redeneerden wij dat de mate waarin werknemers uitdagende taken uitvoerden zou samenhangen met de leer-streef-, prestatie-streef-, en prestatie-vermijdoriëntaties van hun leidinggevenden. Wij redeneerden dat leidinggevenden met een leer-streeforiëntatie de ontwikkeling van nieuwe vaardigheden net zo belangrijk voor zichzelf zouden vinden als voor hun ondergeschikten. Deze leidinggevenden kunnen hun werknemers van leermogelijkheden voorzien door hen uitdagende taken toe te bedelen. Daarentegen zullen leidinggevenden met een prestatie-streeforiëntatie hun werknemers minder stimuleren om uitdagende taken uit te voeren. Zij willen immers zelf uitblinken. Prestatie-vermijdgeoriënteerde leidinggevenden, daarentegen, zijn gericht op het vermijden van aantoonbare inferieure competenties in vergelijking tot anderen en het vermijden van negatieve oordelen over hun prestaties (Elliot & McGregor, 2001). Deze leidinggevenden geven hun uitdagende, risicovolle activiteiten wellicht door aan hun werknemers.

Net als in Studie 4.1 vonden wij dat de leer-streeforiëntatie van werknemers positief samenhing met het uitvoeren van uitdagende taken. Verder vonden we dat de doeloriëntaties van leidinggevenden samenhingen met de mate waarin hun werknemers uitdagende taken hadden. Werknemers die afhankelijk waren van de taaktoebedeling van hun leidinggevende voerden minder uitdagende taken uit wanneer hun leidinggevende een hogere prestatie-streeforiëntatie had. Werknemers voerden juist meer uitdagende taken uit wanneer hun leidinggevende een hogere prestatie-vermijdoriëntatie had. Het idee dat de leer-streeforiëntatie van leidinggevenden positief gerelateerd zou zijn aan het uitvoeren van uitdagende taken door hun werknemers werd niet bevestigd.

Het doel van Hoofdstuk 5 was om een wetenschappelijk gefundeerde en *bottom-up* conceptualisatie van werkuitdaging te ontwikkelen. Hiertoe vroegen wij 132 respondenten om een recent uitgevoerde uitdagende taak te beschrijven en uit te leggen waarom zij deze taak uitdagend vonden. Wij gebruikten *concept mapping* om de reacties van de deelnemers te analyseren en te categoriseren. Onze analyses toonden aan dat werkuitdaging een veelzijdig concept is. Zevenendertig aspecten van werkuitdaging werden onderscheiden en gecategoriseerd als taakkenmerk, contextueel kenmerk, cognitieve waardering, en stemming. Deze vier componenten werden geïntegreerd in een model van werkuitdaging (Werkuitdagingmodel, zie figuur 5.2) waarin de taak- en de contextkenmerken als antecedenten van cognitieve waardering en stemming worden voorgesteld.

Figuur 5.2. Werkuitdagingmodel.



In Hoofdstuk 6 wordt de ontwikkeling en validatie van een betrouwbaar, theoretisch gefundeerd meetinstrument van ervaren werkuitdaging beschreven. Wij genereerden de items voor dit instrument uit de cognitieve en stemmingsitems van de *concept mapping* analyse zoals in Hoofdstuk 5 is beschreven. In twee studies onderzochten wij de psychometrische kwaliteit van deze set items. Gebaseerd op onze bevindingen van Hoofdstuk 5 verwachtten wij dat ervaren werkuitdaging een tweedimensionaal concept zou zijn, bestaande uit cognitieve waardering en stemming. Studie 6.1 toonde drie in plaats van twee factoren: *positieve stimulatie*, *competentietoetsing* en *onzekerheid*. De positieve stimulatiefactor bevat items die verwijzen naar positieve stemmingen en attitudes ten aanzien van werkuitdaging. De factor competentietoetsing bevat items die refereren naar de ervaring van getest worden, tot het uiterste gaan, en jezelf bewijzen. De onzekerheidsfactor bevat items die verwijzen naar het risico op falen, taakmoeilijkheid, en nieuwe ervaringen. Blijkbaar associëren mensen uitdaging met positieve (positieve stimulatie) en negatieve (onzekerheid) gevoelens. De drie subschalen van werkuitdaging bleken betrouwbaar.

De psychometrische kenmerken van de resulterende *Ervaren Werkuitdagingschaal* (EWS) werden verder in een tweede studie getest (Studie 6.2). De drie-factor structuur van de schaal werd bevestigd. De betrouwbaarheid van de drie subschalen was goed. De test-hertest betrouwbaarheden van de subschalen, gemeten over een interval van zes maanden, waren redelijk. Wij hebben verder de convergente, discriminante en concurrente validiteit van de EWS getest. De convergente validiteit werd onderzocht door de EWS te vergelijken met bestaande schalen die uitdaging min of meer lijken te meten. Bovendien onderzochten wij of de EWS samenhing met taakautonomie en afwisseling in vaardigheden. De resultaten ondersteunden de convergente validiteit van de EWS. De schaal correleerde redelijk hoog tot hoog met andere maten van werkuitdaging, taakautonomie, en afwisseling in vaardigheden. De discriminante validiteit van de EWS werd onderzocht door de subschalen van de EWS te correleren met neuroticisme en vriendelijkheid. We verwachtten dat deze *Big Five* persoonlijkheidstrekken niet zouden samenhangen met ervaren werkuitdaging. De verbanden

tussen de EWS subschalen en deze trekken bleken inderdaad grotendeels niet significant, wat blijk geeft van een adequate discriminante validiteit. De concurrente validiteit van de EWS werd getest door de samenhang met werktevredenheid, affectieve betrokkenheid, vertrekintenties en werkprestatie te onderzoeken. De concurrente validiteit werd ondersteund. Redelijk hoge tot hoge correlaties tussen de drie subschalen en de werkattitudes werden aangetoond. Bovendien correleerde de positieve stimulatieschaal positief met werknemer werktevredenheid en affectieve betrokkenheid zoals beoordeeld door hun leidinggevende. Al met al suggereren de resultaten van de twee studies dat de EWS betrouwbaar en valide is.

Conclusie

Tot slot, de studies zoals beschreven in de vijf empirische hoofdstukken van dit proefschrift onderzochten de conceptualisatie, antecedenten, processen, en uitkomsten van werkuitdaging. Deze studies hebben ons begrip van werkuitdaging op meerdere manieren verrijkt. Ten eerste is gebleken dat werkuitdaging een breed concept is, bestaande uit taak- en contextkenmerken en subjectieve ervaringen van uitdaging (positieve stimulatie, competentietoetsing, onzekerheid). Ten tweede zijn doeloriëntaties niet alleen belangrijk voor (uitdagende) taakkeuzes en taakvoorkeuren, maar ook voor de gevolgen van het uitvoeren van uitdagende taken voor motivatie en stemming. Personen met een leer-streeforiëntatie neigen ernaar om uitdagende taken uit te voeren en, wanneer uitgedaagd, tonen zij positieve affectieve en motivationele reacties. Ten derde, de doeloriëntaties van leidinggevenden lijken van invloed te zijn op de mate waarin hun werknemers uitdagende taken uitvoeren. Prestatie-streefgeoriënteerde leidinggevenden zouden hun werknemers wel eens van uitdagende ervaringen kunnen weerhouden en als zodanig het leren en de ontwikkeling van hun werknemers kunnen ondermijnen. Ten slotte, vanwege de positieve invloed van werkuitdaging op leren op het werk, zal werkuitdaging vrijwillig personeelsverloop kunnen verminderen.

Uiteraard zijn nog vele vragen onbeantwoord gebleven en hebben de resultaten van dit proefschrift verscheidene nieuwe, interessante en uitdagende vragen opgeworpen. Ik hoop dan ook dat deze vragen andere onderzoekers uitdagen om het wetenschappelijk interessante en praktisch relevante concept van werkuitdaging verder te onderzoeken.

APPENDICES

Appendix A

Challenging Assignments Scale Items

My supervisor provides me with assignments[3]

1. that are challenging
2. in which I have to deal with new situations and changes
3. that are high in responsibility
4. of which success and failure are clearly visible to other people
5. that require multiple skills
6. in which I have to deal with many different people

[3] For respondents who changed jobs between Time 1 and Time 2: My supervisor in my prior job provided me with assignments

Appendix B

Task Challenge Items

The task I performed was:

1. challenging
2. new
3. high in responsibility
4. a task that required multiple new skills
5. difficult to achieve
6. important
7. a test of my abilities
8. demanding
9. varying
10. an exciting task in which I had to overcome myself

Appendix C

Representative Statements from Each Cluster of Job Challenge Descriptions

	Cluster name and description	*Representative job challenge statements*
1	Facilities and guidance *Sufficient facilities and guidance to accomplish the task*	1) Sufficient means to accomplish the task. 2) Proper guidance. 3) Good supporting facilities to satisfy the task demands.
2	Self-knowledge and self-esteem *The task increases self-knowledge and is an opportunity to increase self-esteem*	1) The task enhances the confidence I have in my capacities. 2) Performing this task increased my self-confidence 3) Provides insight in my abilities. 4) Provides insight in my performance. 5) Task makes me feel complete.
3	Opportunity for learning and development *Opportunity to learn and develop from the task*	1) Like to learn the task. 2) Developmental. 3) Possibility to develop from the task. 4) Room for improvement of yourself on the task.
4	Feedback on task *Feedback is provided during the task and on the result*	1) I get feedback on the result. 2) I get feedback while performing the task. 3) Dealing with criticisms of others. 4) The outcomes are compared.
5	Time pressure *Pressure to perform well within a certain amount of time*	1) Having to perform well right away. 2) Performance pressure. 3) Tight deadline. 4) Having to perform in a short time. 5) High work pressure. 6) High workload.
6	Task significance *By performing the task others are influenced*	1) You help others with the task. 2) Others are dependent on my performance on the task. 3) Being important for someone else. 4) A complete job is delivered.
7	Proving yourself *Importance to perform well*	1) Persistent. 2) High expectations of yourself. 3) Having to prove yourself. 4) Getting rid of fears. 5) Intellectual challenge. 6) The task got the maximum out of me. 7) Stretching of your abilities. 8) I want to be successful on the task. 9) I could fully lose myself in the task.
		Appendix C continues
	Appendix C (continued)	
		10) I want to prove to myself that I'm able to do it. 11) Want to perform as well as possible on the task. 12) It's important to me personally that the task is performed well.
8	High stakes and goals *Having to deal with high stakes and high goals*	1) Making risky decisions. 2) There's a lot at stake. 3) The standard of performance is high. 4) High goals.
9	Creativity and improvisation *The task demands creativity and improvisation*	1) Making something special of it. 2) The task demands improvising. 3) I have to be creative. 4) Creating something from start to end.

Appendix D

Categorization of Job Challenge Clusters

	Cluster name	*Category name*			
		Task characteristics	*Contextual characteristics*	*Cognitive appraisals*	*Mood states*
1	Facilities and guidance		x		
2	Self-knowledge and self-esteem			x	
3	Opportunity for learning and development			x	
4	Feedback on task	x			
5	Time pressure	x			
6	Task significance	x			
7	Proving yourself			x	
8	High stakes and goals	x			
9	Creativity and improvisation	x			
10	Dynamic work conditions	x			
11	Test of abilities			x	
12	Stretching yourself			x	
13	Task absorption				x
14	Concentration				x
15	Overcoming obstacles			x	
16	Fear of failure				x
17	Task importance			x	
18	Evaluation and visibility	x			
19	Being heard		x		
20	Personally rewarding			x	
21	Decision latitude	x			
22	Personal and unique contribution	x			
23	Personal responsibility and autonomy	x			
24	Attractive			x	
25	Stimulating and exciting				x

Appendix D continues

Appendix D (continued)

	Cluster name	*Category name*			
		Task characteristics	*Contextual characteristics*	*Cognitive appraisals*	*Mood states*
26	Demanding and effortful			x	
27	Additional tasks and jobs		x		
28	Variety and change	x			
29	Difficulty			x	
30	Multiple skills	x			
31	Organizing and structuring	x			
32	Room for trying out new things	x			
33	Problem solving and strategic thinking	x			
34	Novel situations and experiences			x	
35	Task ambiguity	x			
36	Inspiring colleagues		x		
37	Working together on a task	x			

REFERENCES

Al'Absi, M., Bongard, S., Buchanan, T., Pincomb, G. A., Licinio, J., & Lovallo, W. R. (1997). Cardiovascular and neuroendocrine adjustment to public speaking and mental arithmetic stressors. *Psychophysiology, 34,* 266-275.

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.

Allen, T. D., & Poteet, M. L. (1999). Developing effective mentoring relationships: Strategies from the mentor's viewpoint. *Career Development Quarterly, 48,* 59-73.

Allen, D. G., Weeks, K. P., & Moffitt, K. R. (2005). Turnover intentions and voluntary turnover: The moderating roles of self-monitoring, locus of control, proactive personality, and risk aversion. *Journal of Applied Psychology, 90*, 980-990.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84,* 261-71.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology, 80*, 260-267.

Arthur, M. B., Khapova, S. N., & Wilderom, C. P. M. (2005). Career success in a boundaryless career world. *Journal of Organizational Behavior, 26,* 177-202.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review, 64*, 359-372.

Atkinson, J. W., & Birch, D. (1974). The dynamics of achievement-oriented activity. *Motivation and Achievement, 271*, 325.

Atkinson, J. W., Raynor, J. O., & Birch, D. (1974). *Motivation and Achievement*: Winston Washington, DC: Hemisphere.

Aquino, K., Griffeth, R. W., Allen, D. G., & Hom, P. W. (1997). Integrating justice constructs into the turnover process: A test of a referent cognitions model. *Academy of Management Journal, 40*, 1208-1227.

Arnold, H. J., & Feldman, D. C. (1982). A multivariate analysis of the determinants of job turnover. *Journal of Applied Psychology, 67*, 350-360.

Arthur, M. B., & Rousseau, D. M. (1996). The boundaryless career as a new employment principle. In M. B. Arthur & D. M. Rousseau (Eds.), *The boundaryless career* (pp. 3-20). New York: Oxford University Press.

Baas, M., De Dreu, C.K.W., & Nijstad, B.A. (2008). A meta-analysis of 25 years of research on mood and creativity: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, *134*, 779-806.

Baddeley, A. D. (1972). Selective attention and performance in dangerous environments. *British Journal of Psychology, 73,* 537–546.

Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress, 22*, 187-200.

Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs,* NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Barrett, A., & O'Connell, P. J. (2001). Does training generally work? Measuring the results of in-company training. *Industrial and Labor Relations Review, 54*, 647-662.

Barrick, M. R., & Zimmerman, R. D. (2005). Reducing voluntary, avoidable turnover through selection. *Journal of Applied Psychology, 90*, 159-166.

Barrie, J., & Pace, R. W. (1998). Learning for organizational effectiveness: Philosophy of education and human resource development. *Human Resource Development Quarterly, 9*, 39-54.

Barron, K. E., & Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: Testing multiple goal models. *Journal of Personality and Social Psychology, 80*, 706-722.

Bauer, T. N., & Green, S. G. (1996). Development of leader-member exchange: A longitudinal test. *Academy of Management Journal, 39*, 1538-1567.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy, 70*, 9-49.

Behfar, K. J., Peterson, R. S., Mannix, E. A., & Trochim, W. M. K. (2008). The critical role of conflict resolution in teams: A close look at the links between conflict type, conflict management strategies, and team outcomes. *Journal of Applied Psychology, 93,* 170-188.

Bell, N. E., & Staw, B. M. (1989). People as sculptors versus sculpture: The roles of personality and personal control in organizations. In M. B. Arthur & D. T. Hall (Eds.), *Handbook of career theory* (pp. 232-251). New York: Cambridge University Press.

Benson, G. S., Finegold, D., & Mohrman, S. A. (2004). You paid for the skills, now keep them: Tuition reimbursement and voluntary turnover. *Academy of Management Journal, 47*, 315-331.

Berings, M. G. M. C., Poell, R. F., & Simons, P. R.-J. (2008). Dimensions of on-the-job learning styles. *Applied Psychology: An International Review, 57*, 417-440.

Berlew, D. E., & Hall, D. T. (1966). The socialization of managers: Effects of expectations on performance. *Administrative Science Quarterly, 11*, 207-223.

Biemond, J. M., & Van Yperen, N. W. (2001). Generalized achievement goal orientation: Development and validation of a questionnaire. Paper presented at the WAOP-conference 2001, Tilburg, The Netherlands.

Bond, C. F. (1982). Social facilitation: A self-presentational view. *Journal of Personality and Social Psychology, 42*, 1042-1050.

Boswell, W. R., Olson-Buchanan, J. B., & LePine, M. A. (2004). Relations between stress and work outcomes: The role of felt challenge, job control, and psychological strain. *Journal of Vocational Behavior, 64*, 165-181.

Boswell, W. R., Roehling, M. V., LePine, M. A., & Moynihan, L. M. (2003). Individual job-choice decisions and the impact of job attributes and recruitment practices: A longitudinal field study. *Human Resource Management, 42*, 23-37.

Bray, D. W., Campbell, R. J., & Grant, D. L. (1974). *Formative years in business: A long-term AT&T study of managerial lives*. New York: Wiley-Interscience.

Brayfield, A. H., & Rothe, H. F. (1951). An index of job satisfaction. *Journal of Applied Psychology, 35*, 307-311.

Brown, S. W., & Swartz, T. A. (1989). A gap analysis of professional service quality. *The Journal of Marketing, 53*, 92-98.

Buchanan, B. (1974). Building organizational commitment: The socialization of managers in work organizations. *Administrative Science Quarterly, 19,* 533-546.

Bunderson, J. S., & Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology, 88*, 552-560.

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes, 67*, 26-48.

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1983). Assessing the attitudes and perceptions of organizational members. In S. E. Seashore, E. E. Lawler, III, P. H. Mirvis, & C. Camman (Eds.), *Assessing organizational change: A guide to methods, measures, and practices*. (pp. 71-138). New York: Wiley.

Campbell, D. T. (1960). Recommendations for APA test standards regarding construct, trait, or discriminant validity. *American Psychologist, 15*, 546-553.

Campbell, D. J., & Campbell, K. M. (2003). Global versus facet predictors of intention to quit: Differences in a sample of male and female Singaporean managers and non-managers. *International Journal of Human Resource Management, 14*, 1152-1177.

Campbell, D. J. & Ilgen, D.R., (1976). Additive effects of task difficulty and goal setting on subsequent task performance. *Journal of Applied Psychology, 61,* 319-324.

Campbell, J. P., & Pritchard, R. D. (1976). Motivation theory in industrial and organizational psychology. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 63–130). Chicago: Rand McNally.

Cappelli, P. (2004). Why do employers pay for college? *Journal of Econometrics, 121*, 213-241.

Carmeli, A. (2005). The relationship between organizational culture and withdrawal intentions and behavior. *International Journal of Manpower, 26*, 177-195.

Carmeli, A., Cohen-Meitar, R., & Elizur, D. (2007). The role of job challenge and organizational identification in enhancing creative behavior among employees in the workplace. *The Journal of Creative Behavior, 41*(2), 75-90.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology, 85*, 65-74.

Cianni, M., & Romberger, B. (1995). Perceived racial, ethnic, and gender differences in access to developmental experiences. *Group and Organization Management, 20*, 440-459.

CIPD. (2005). Employee turnover and retention [Electronic Version]. Retrieved January 26, 2010, from http://www.cipd.co.uk/subjects/hrpract/turnover/empturnretent.htm?IsSrchRes=1.

Clarke, S. G., & Haworth, J. T. (1994). " Flow" experience in the daily lives of sixth-form college students. *British Journal of Psychology, 85*, 511-523.

Cohen, S. (1980). After-effects of stress on human performance and social behaviour: A review of research and theory. *Psychological Bulletin, 88,* 82-108.

Conklin, M. H., & Desselle, S. P. (2007). Job turnover intentions among pharmacy faculty. *American Journal of Pharmaceutical Education, 71*, article 62.

Cooper, W. H. (1983). An achievement motivation nomological network. *Journal of Personality and Social Psychology, 44*, 841-861.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78,* 98-98.

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment, 4*, 5-13.

Cotton, J. L., & Tuttle, J. M. (1986). Employee turnover: A meta-analysis and review with implications for research. *Academy of Management Review, 11*, 55-70.

Covington M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press.

Covington, M. V., & Omelich, C. L. (1979). Effort: The double-edged sword in school achievement. *Journal of Educational Psychology, 71,* 169-182.

Cox, C. J., & Cooper, C. L. (1988). *High flyers: An anatomy of managerial success*. New York: Basil Blackwell.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.

Csikszentmihalyi, M. (1990). Flow: The psychology of optimal experience. *New York*: Harper Perennial.

Csikszentmihalyi, M. (1997). *Finding Flow: The psychology of engagement with everyday life*. New York: Basic Books.

Cuneen, J., & Sidwell, M. J. (1994). Gender implications in job application tendencies among undergraduate sport management majors. *Sex Roles, 30,* 835-844.

Darnon, C., Harackiewicz, J. M., Butera, F., Mugny, G., & Quiamzade, A. (2007). Performance-approach and performance-avoidance goals: When uncertainty makes a difference. *Personality and Social Psychology Bulletin, 33*, 813.

Davies, J., & Easterby-Smith, M. (1984). Learning and developing from managerial work experiences. *Journal of Management Studies, 21*, 169-183.

Davy, J. A., Kinicki, A. J., & Scheck, C. L. (1997). A test of job security's direct and mediated effects on withdrawal cognitions. *Journal of Organizational Behavior, 18*, 323-349.

De Dreu, C. K. W., Baas, M., & Nijstad, B. A. (2008). Hedonic tone and activation level in the mood-creativity link: Toward a dual pathway to creativity model. *Journal of Personality and Social Psychology, 94,* 739.

De Gilder, D., Van den Heuvel, H., & Ellemers, N. (1997). Het 3-componenten model van commitment [The three component model of organizational commitment]. *Gedrag & Organisatie, 10*, 95-105.

de Jonge, J., Dollard, M. F., Dormann, C., Le-Blanc, P. M., & Houtman, I. L. D. (2000). The Demand-Control Model: Specific demands, specific control, and well-defined groups. *International Journal of Stress Management, 7*, 269-287.

de Jonge, J., Dormann, C., Janssen, P. P. M., Dollard, M. F., Landeweerd, J. A., & Nijhuis, F. J. N. (2001). Testing reciprocal relationships between job characteristics and psychological well-being: A cross-lagged structural equation model. *Journal of Occupational and Organizational Psychology, 74*, 29-46.

De Pater, I. E., Van Vianen, A. E. M., & Bechtoldt, M. N. (2010). Gender differences in job challenge: A matter of task allocation. *Gender, Work and Organization, 17,* 433-453.

De Pater, I. E., Van Vianen, A. E. M., Bechtoldt, M. N., & Klehe, U. C. (2009). Employees' challenging job experiences and supervisors' evaluations of promotability. *Personnel Psychology, 62*, 297-325.

De Pater, I. E., Van Vianen, A. E. M., Fischer, A. H., & Van Ginkel, W. P. (2009). Challenging experiences: Gender differences in task choice. *Journal of Managerial Psychology, 24*, 4-28.

De Pater, I. E., Van Vianen, A. E. M., Humphrey, R. H., Sleeth, R. G., Hartman, N. S., & Fischer, A. H. (2009). Individual task choice and the division of challenging tasks between men and women. *Group & Organization Management, 34,* 563-589.

Denison, D. R., Hooijberg, R., & Quinn, R. E. (1995). Paradox and performance: Toward a theory of behavioral complexity in managerial leadership. *Organization Science, 6,* 524-540.

DeRue, D. S., & Wellman, N. (2009). Developing leaders via experience: The role of developmental challenge, learning orientation, and feedback availability. *Journal of Applied Psychology, 94*, 859-875.

DeShon, R. P., & Gillespie, J. Z. (2005). A motivated action theory account of goal orientation. *Journal of Applied Psychology*, *90*, 1096-1127.

DeWettinck K., & Buyens, D. **(**2006). The job challenge construct revisited: Conceptualization, antecedents, and consequences of perceived challenge and over-challenge in the job. *Vlerick Leuven Gent Management School Working Paper Series 23.*

Dickerson, A., & Taylor, M. A. (2000). Self-limiting behavior in women: Self-esteem and self-efficacy as predictors. *Group & Organization Management, 25*, 191.

Dierdorff, E.C. (2003). A meta-analysis of job analysis reliability. *Journal of Applied Psychology*, *88,* 635-646.

Dijkstra, P. D., & Preenen, P. T. Y. (2008). No effect of blue on winning contests in judo. *Proceedings of the Royal Society of London, Biological Sciences, 275*, 1157-1162.

Dixon, M. A., Cunningham, G. B., Sagas, M., Turner, B. A., & Kent, A. (2005). Challenge is key: An investigation of affective organizational commitment in undergraduate interns. *The Journal of Education for Business, 80*, 172-180.

Dragoni, L., Tesluk, P. E., Russell, J. E. A., & Oh, I. S. (2009). Understanding managerial development: Integrating developmental assignments, learning orientation, and access to developmental opportunities in predicting managerial competencies. *Academy of Management Journal, 52*, 731-743.

Duda, J. L. (2001). Achievement goal research in sport: Pushing the boundaries and clarifying some misunderstandings. In G. C. Roberts (Ed.), *Advances in motivation in sport and exercise.* (pp. 129-182). Champaign, IL: Human Kinetics Books.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.

Dweck, C. S. (1989). Motivation. In A. Lesgold & R. Glaser (Eds.), *Foundations for a psychology of education* (pp. 87-136). Hillsdale, NJ: Erlbaum.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development.* Ann Arbor: Psychology Press, Taylor & Francis Group.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.

Eccles, J. S. (2005). Commentary: Studying the development of learning and task motivation. *Learning and Instruction, 15,* 161-171.

Egloff, B, Schmukle, S. C, Burns, L. R, & Schwerdtfeger (2006). A. Spontaneous regulation during evaluated speaking tasks: Associations with negative affect, anxiety expression, memory, and physiological responding. *Emotion, 6,* 356-366.

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*, 169-189.

Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 52-72). New York: The Guilford Press.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*, 218-232.

Elliot, A. J., & Covington, M. V. (2001). Approach and avoidance motivation. *Educational Psychology Review, 13,* 73-92.

Elliot, A. J., & Dweck, C.S. (2005). *Handbook of competence and motivation*. New York: The Guilford Press.

Elliot, A. J., & Harackiewicz, J. M. (1994). Goal setting, achievement orientation, and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 66*, 968-968.

Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*, 461-475.

Elliot, A. J., & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*, 501-519.

Elliot, A. J., & Sheldon, K. M. (1997). Avoidance achievement motivation: A personal goals analysis. *Journal of Personality and Social Psychology, 73*, 171-185.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54,* 5-12.

Ettington, D. R. (1998). Successful career plateauing. *Journal of Vocational Behavior, 52*, 72-88.

Evans, K. & Kersh, N. (2004). Recognition of tacit skills and knowledge. *Journal of Workplace Learning, 16,* 63-74.

Farr, J. L., Hofmann, D. A., & Ringenbach, K. L. (1993). Goal orientation and action control theory: Implications for industrial and organizational psychology. *International Review of Industrial and Organizational Psychology, 8*, 193-232.

Feldman, D. C. (2002). Managers' propensity to work longer hours A multilevel analysis. *Human Resource Management Review, 12*, 339-357.

Ferris, G. R., & Judge, T. A. (1991). Personnel/Human Resources Management: A political influence perspective. *Journal of Management, 17*, 447-488.

Fiedler, F. E., & Garcia, J. E. (1987). *New approaches to effective leadership: Cognitive resources and organizational performance*. New York: Wiley.

Fisher, C. D. (2002). Antecedents and consequences of real-time affective reactions at work. *Motivation and Emotion, 26,* 3-30.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*, 150-170.

Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E. (1998). The influence of goal orientation, metacognitive activity, and practice strategies on learning outcome and transfer. *Journal of Applied Psychology, 83*, 218-233.

Fox, M. L., Dwyer, D. J., & Ganster, D. C. (1993). Effects of stressful job demands and control on physiological and attitudinal outcomes in a hospital setting. *Academy of Management Journal, 36*, 289-318.

Frazis, H. J., Herz, D. E., & Horrigan, M. W. (1995). Employer-provided training: Results from a new survey. *Monthly Labor Review, 118*(5), 3-17.

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology, 40*, 287-322.

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

Galinsky, E., Carter, N., Bond, J. T., & Bloom, H. (2008). *Leaders in a global economy: Finding the fit for top talent*. New York: Catalyst & Families and Work Institute.

Gerhart, B. (1990a). Gender differences in current and starting salaries: The role of performance, college major, and job title. *Industrial and Labor Relations Review, 43*, 418-433.

Gerhart, B. (1990b). Voluntary turnover and alternative job opportunities. *Journal of Applied Psychology, 75*, 467-476.

Gerhart, B., & Rynes, S. (1991). Determinants and consequences of salary negotiations by male and female MBA graduates. *Journal of Applied Psychology, 76*, 256-262.

Gherardi, S., Nicolini, D., & Odella, F. (1998). Toward a social understanding of how people learn in organizations: The notion of situated curriculum. *Management Learning, 29*, 273-297.

Gillen, D. J., & Carroll, S. J. (1985). Relationship of managerial ability to unit effectiveness in more organic versus more mechanistic departments. *Journal of Management Studies, 22*, 668-676.

Gist, M. E., & Stevens, C. K. (1998). Effects of practice conditions and supplemental training method on cognitive learning and interpersonal skill generalization. *Organizational Behavior and Human Decision Processes, 75,* 142-169.

Gouillart, F. J., & Kelly, J. N. (1998). Building individual learning. *Leading Organizations. Perspectives for a New Era.* Thousand Oaks, CA: Sage Publications.

Graen, G. B., Orris, J. B., & Johnson, T. W. (1973). Role assimilation processes in a complex organization. *Journal of Vocational Behavior, 3,* 395-420.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, *6*, 219-247.

Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*, 463-488.

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology, 60*, 159-170.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250-279.

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison Wesley Publishing Company.

Hall, D. T. (2002). *Careers in and out of organizations.* Thousand Oaks: Sage.

Hall, D. T., & Lawler, E. E. (1970). Job characteristics and pressures and the organizational integration of professionals. *Administrative Science Quarterly, 15*, 271-281.

Hall, D. T., & Schneider, B. (1972). Correlates of organizational identification as a function of career pattern and organizational type. *Administrative Science Quarterly, 17*, 340-350.

Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliot, A. J. (1997). Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade. *Journal of Personality and Social Psychology, 73*, 1284-1295.

Harackiewicz, J.M., Manderlink, G., & Sansone, C. (1984). Rewarding pinball wizardry: Effects of evaluation and cue value on intrinsic interest. *Journal of Personality and Social Psychology, 47,* 287-300.

Hedge, J. W., Borman, W. C., & Lammlein, S. E. (2006). *The aging workforce: Realities, myths, and implications for organizations*. Washington, DC: American Psychological Association.

Hersey, P., & Blanchard, K. H. (1993). *Management of organizational behavior: Utilizing human resources (6th ed.)*. Englewood Cliffs, NJ: Prentice-Hall.

Heyes, J. (1996). A formula for success? Training, reward and commitment in a chemicals plant. *British Journal of Industrial relations, 34*, 351-369.

Heyman, G. D., & Dweck, C. S. (1992). Achievement goals and intrinsic motivation: Their relation and their role in adaptive motivation. *Motivation and Emotion, 16*, 231-247.

Hirschfeld, R. R., Thomas, C. H., & Lankau, M. J. (2006). Achievement and avoidance motivational orientations in the domain of mentoring. *Journal of Vocational Behavior, 68*, 524-537.

Holmes, T. L., & Srivastava, R. (2002). Effects of job perceptions on job behaviors: Implications for sales performance. *Industrial Marketing Management, 31*, 421-428.

Hom, P. W., & Griffeth, R. W. (1991). Structural equations modeling test of a turnover theory: Cross-sectional and longitudinal analyses. *Journal of Applied Psychology, 76*, 350-366.

Hom, P. W., Roberson, L., & Ellis, A. D. (2008). Challenging conventional wisdom about who quits: Revelations from corporate America. *Journal of Applied Psychology 93*, 1-34.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied Logistic Regression* (Second ed.). New York: Wiley.

Houkes, I., Janssen, P. P. M., Jonge, J. d., & Bakker, A. B. (2003). Specific determinants of intrinsic work motivation, emotional exhaustion and turnover intention: A multisample longitudinal study. *Journal of Occupational and Organizational Psychology, 76*, 427-450.

Huang, T. C., Lawler, J., & Lei, C. Y. (2007). The effects of quality of work life on commitment and turnover intention. *Social Behavior and Personality: An International Journal, 35*, 735-750.

Hulin, C. L., & Blood, M. R. (1968). Job enlargement, individual differences, and worker responses. *Psychological Bulletin, 69*, 41-55.

Humphrey, R. (1985). How work roles influence perception: Structural-cognitive processes and organizational behavior. *American Sociological Review, 50*, 242-252.

Hurley, A. E., & Sonnenfeld, J. A. (1998). The effect of organizational experience on managerial career attainment in an internal labor market. *Journal of Vocational Behavior, 52*, 172-190.

Idsoe, T. (2006). Job aspects in the School Psychology Service: Empirically distinct associations with positive challenge work, perceived control at work, and job attitudes. *European Journal of Work and Organizational Psychology, 15*, 46-72.

Ito, J. K., & Brotheridge, C. M. (2005). Does supporting employees' career adaptability lead to commitment, turnover, or both? *Human Resource Management, 44*, 5-19.

Jackson, K. M., & Trochim, W. M. K. (2002). Concept mapping as an alternative approach for the analysis of open-ended survey responses. *Organizational Research Methods, 5*, 307-336.

Jagacinski, C. M., & Nicholls, J. G. (1984). Conceptions of ability and related affects in task involvement and ego involvement. *Journal of Educational Psychology, 76*, 909-919.

James, L. R., & Jones, A. P. (1980). Perceived job characteristics and job satisfaction: An examination of reciprocal causation. *Personnel Psychology, 33*, 97-135.

Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal, 44*, 1039-1050.

Janssen O., & Prins, J. (2007). Goal orientations and the seeking of different types of feedback information. *Journal of Occupational and Organizational Psychology, 80*, 235-249.

Janssen, O., & Van Yperen, N. W. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal, 47,* 368-384.

Jaros, S. J. (1997). An assessment of Meyer and Allen's (1991) three-component model of organizational commitment and turnover intentions. *Journal of Vocational Behavior, 51*, 319-337.

Johnston, M. W., Griffeth, R. W., Burton, S., & Carson, P. P. (1993). An exploratory investigation in to the relationships between promotion and turnover: A quasi-experimental longitudinal study. *Journal of Management, 19*, 33-49.

Jones, A. P., & James, L. R. (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. *Organizational Behavior & Human Performance, 23*, 201-250.

Jöreskog, K.G., & Sörbom, D. (2006). *LISREL 8.80*. Chicago: Scientific Software International.

Judge, T. A., Bono, J. E., & Locke, E. A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology, 85*, 237-249.

Kanfer, R. (1994). Goal setting, conditions of practice, and task performance: A resource allocation perspective. *Journal of Applied Psychology, 79,* 826-835.

Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74*, 657-690.

Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality-motivational analysis and meta-analytic review. *Journal of Applied Psychology, 86*, 837-855.

Kaplan, A., & Maehr, M. L. (1999). Achievement goals and student well-being. *Contemporary Educational Psychology, 24*, 330-358.

Karasek Jr., R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24,* 285-308.

Katz, R., (1978). Job longevity as a situational factor in job satisfaction. *Administrative Science Quarterly, 23,* 204-223.

Kaufman, H. G., (1974). Relationship of early work challenge to job performance, professional contributions, and competence of engineers. *Journal of Applied Psychology, 59***,** 377–379.

Kaye, B., & Jordan-Evans, S. (2000). Retention: Tag, you're it! *Training and Development, 54*(4), 29-34.

Kim, S. (2007). Learning goal orientation, formal mentoring, and leadership competence in HRD. *Training, 31(3)*, 181-194.

Kirk-Brown, A., & Wallace, D. (2004). Predicting burnout and job satisfaction in workplace counselors: The influence of role stressors, job challenge, and organizational knowledge. *Journal of Employment Counseling, 41,* 29-37.

Klein, K. J., & Ziegert, J. C. (2004). Leader development and change over time: A conceptual integration and exploration of research challenges. In Day, D., Zaccaro, S., & Halpin, S. (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 359-382). Mahwah, NJ: Lawrence Erlbaum Associates.

Kopelman, R. E., Rovenpor, J. L., & Millsap, R. E. (1992). Rationale and construct-validity evidence for the Job Search Behavior Index: Because intentions (and New Year's resolutions) often come to naught. *Journal of Vocational Behavior, 40*, 269-287.

Kottke, J. L., & Sharafinski, C. E. (1988). Measuring perceived supervisory and organizational support. *Educational and Psychological Measurement 48*, 1075-1079.

LaPorte, R. E., & Nath, R. (1976). Role of performance goals in prose learning. *Journal of Educational Psychology, 68*, 260-264.

Kreft, I. G. G., De Leeuw, J., & Aiken, L. S. (1995). The effect of different forms of centering in hierarchical linear models. *Multivariate Behavioral Research, 30,* 1-21.

Kruskal, J. B., & Wish, M. (1978). *Multidimensional Scaling*. Beverly Hills, CA: Sage Publications.

Latham, G.P. & Locke, E.A. (1991). Self-regulation through goal setting. *Organizational Behavior and Human Decision Processes, 50,* 212-247.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Leana, C. R. (1986). Predictors and consequences of delegation. *Academy of Management Journal, 29*, 754-774.

Lee, T. W., & Mitchell, T. R. (1991). The unfolding effects of organizational commitment and anticipated job-satisfaction on voluntary employee turnover. *Motivation and Emotion, 15*, 99-121.

Lee, T. W., Mitchell, T. R., Sablynski, C. J., Burton, J. P., & Holtom, B. C. (2004). The effects of job embeddedness on organizational citizenship, job performance, volitional absences, and voluntary turnover. *Academy of Management Journal, 47*, 711-722.

Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology, 86*, 114-121.

Linnenbrink, E. A. (2005). The dilemma of performance-approach goals: The use of multiple goal contexts to promote students' motivation and learning. *Journal of Educational Psychology, 97*, 197-213.

Linnenbrink, E. A., & Pintrich, P. R. (2002). Achievement goal theory and affect: An asymmetrical bidirectional model. *Educational Psychologist, 37*, 69-78.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1349). Palo Alto: Consulting Psychology Press.

Locke, E. A., & Bryan, J. F. (1967). Performance goals as determinants of level of performance and boredom. *Journal of Applied Psychology, 51*, 120-130.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

London, M. (2002). Organizational assistance in career development. In D. C. Feldman (Ed.), *Work careers: A developmental perspective* (pp. 323-345). San Francisco: Jossey-Bass.

Loquercio, D. (2006). *Turnover and retention: A summary of current literature.* Retrieved January 26, 2010, from http://www.peopleinaid.org/pool/files/publications/turnover-and-retention-lit-review-jan-2006.pdf.

Lowy, A., Kelleher, D., & Finestone, P. (1986). Management learning: Beyond program design. *Training and Development Journal, 40*, 34-37.

Lund, T., & Borg, V. (1999). Work environment and self-rated health as predictors of remaining in work 5 years later among Danish employees 35-59 years of age. *Experimental Aging Research, 25*, 429-434.

Lynch, L. M., & Black, S. E. (1998). Beyond the incidence of employer-provided training. *Industrial & Labor Relations Review, 52*, 64-81.

Lyness, K. S., & Schrader, C. A. (2006). Moving ahead or just moving: An Examination of gender differences in senior corporate management appointments. *Group & Organization Management, 31*, 651-676.

Lyness, K. S., & Thompson, D. E. (1997). Above the glass ceiling? A comparison of matched samples of female and male executives. *Journal of Applied Psychology, 82*, 359-375.

Lyness, K. S., & Thompson, D. E. (2000). Climbing the corporate ladder: Do female and male executives follow the same route? *Journal of Applied Psychology, 85*, 86-101.

Maertz, C. P., & Campion, M. A. (1998). 25 years of voluntary turnover research: A review and critique. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (Vol. 13, pp. 49-83). Chichester: Wiley & Sons.

Mai Dalton, R. R., & Sullivan, J. J. (1981). The effects of manager's sex on the assignment to a challenging or a dull task and reasons for the choice. *Academy of Management Journal, 24*, 603-612.

Maslach, C., & Jackson, S.E. (1986). *MBI: Maslach Burnout Inventory; Manual Research Edition.* Palo Alto: Consulting Psychologists.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370-396.

Massimini, F. & Carli, M. (1988). The systematic measurement of flow in daily experience. In: M. Csikszentmihalyi & I. S. Csikszentmihalyi, (Eds.), *Optimal experience: Psychological studies of flow in consciousness*, (pp. 288–306). New York: Cambridge University Press.

Maurer, T. J., & Tarulli, B. A. (1994). Investigation of perceived environment, perceived outcome, and person variables in relationship to voluntary development activity by employees. *Journal of Applied Psychology, 79*, 3-14.

McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). *The lessons of experience: How successful executives develop on the job*. Lexington, MA: Lexington Books.

McCauley, C. D., Ohlott, P. J., & Ruderman, M. N. (1999). *Job Challenge Profile*. New York: Jossey-Bass/Pfeiffer.

McCauley, C. D., Ruderman, M. N., Ohlott, P. J., & Morrow, J. E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology, 79*, 544-560.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. New York: Appleton-Century-Crofts: Inc.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90.

McDaniel, M. A., Schmidt, F. L., & Hunter, J. E. (1988). Job experience correlates of job performance. *Journal of Applied Psychology, 73*, 327-330.

Melamed, T. (1995). Career success: the moderating effect of gender. *Journal of Vocational Behavior, 47*, 35-60.

Merriam, S., Caffarella, R., & Baumgartner, L. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). New York Wiley.

Meyer, J. P., & Allen, N. J. (1988). Links between work experiences and organizational commitment during the first year of employment: A longitudinal analysis. *Journal of Occupational Psychology, 61*, 195-209.

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*, 61-98.

Meyer, D. K., Turner, J. C., & Spencer, C. A. (1997). Challenge in a mathematics classroom: Students' motivation and strategies in project-based learning. *The Elementary School Journal*, *97,* 501-521.

Middleton, M. J., & Midgley, C. (1997). Avoiding the demonstration of lack of ability: An underexplored aspect of goal theory. *Journal of Educational Psychology, 89*, 710-718.

Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology, 93*, 77-86.

Mikkelsen, A., Saksvik, P. O., Eriksen, H. R., & Ursin, H. (1999). The impact of learning opportunities and decision authority on occupational health. *Work & Stress, 13*, 20-31.

Mikulincer, M. (1988). Reactance and helplessness following exposure to unsolvable problems: The effects of attributional style. *Journal of Personality and Social Psychology, 54*, 679-686.

Miller, R. B., Behrens, J. T., & Greene, B. A. (1993). Goals and perceived ability: Impact on student valuing, self-Regulation, and persistence. *Contemporary Educational Psychology, 18*, 2-14.

Miller, D., & Toulouse, J. M. (1986). Chief executive personality and corporate strategy and structure in small firms. *Management Science*, *32*, 1389-1409.

Mitchell, T. R., & Daniels, D. (2003). Motivation. In R. J. Klimoski, W. C. Borman & D. R. Ilgen (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 225-254). New York: Wiley.

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology, 62*, 237-240.

Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin, 86*, 493-522.

Morrow, P. C., Suzuki, Y., Crum, M. R., Ruben, R., & Pautsch, G. (2005). The role of leader-member exchange in high turnover work environments. *Journal of Managerial Psychology, 20*, 681-694.

Mueller, C. W., & Price, J. L. (1990). Economic, psychological, and sociological determinants of voluntary turnover. *The Journal of Behavioral Economics, 19*, 321-335.

Nauta, A, Van Vianen, A.E.M., Van Der Heijden, B., Van Dam , K., Willemsen M. (2009). Understanding the factors that promote employability orientation: The moderating impact of employability culture. *Journal of Occupational and Organizational Psychology, 82,* 233-251.

Ng, T. W. H., Butts, M. M., Vandenberg, R. J., Dejoy, D. M., & Wilson, M. G. (2006). Effects of management communication, opportunity for learning, and work schedule flexibility on organizational commitment. *Journal of Vocational Behavior, 68*, 474-489.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346.

Ohlott, P. J., Ruderman, M. N., & McCauley, C. D. (1994). Gender differences in managers' developmental job experiences. *Academy of Management Journal, 37*, 46-67.

Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology, 92*, 128-150.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner, (Eds.), *Handbook of self-regulation: Theory, research, and applications* (pp. 451-502). San Diego, CA: Academic Press.

Podsakoff, N. P., Lepine, J. A., & Lepine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology, 92*, 438-454.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88,* 879-903.

Poortvliet, P. M., Janssen, O., Van Yperen, N. W., & Van de Vliert, E. (2009). The joint impact of achievement goals and performance feedback on information giving. *Basic and Applied Social Psychology, 31*, 197-209.

Preenen, P. T. Y., De Pater, I. E., Van Vianen, A. E. M. (2008, August). *Provided job challenge and learning as predictors of turnover intentions, job-search behaviors, and voluntary turnover*. Paper presented at the 2008 conference of the Academy of Management, Anaheim, USA.

Preenen, P. T. Y., De Pater, I. E., Van Vianen, A. E. M (2008b, November). *A qualitative analysis of job challenge: A bottom-up conceptualization.* Paper presented at the 2008 conference of the Dutch Association of Researchers in the Field of Work and Organizational Psychology, Heerlen, The Netherlands.

Preenen, P. T. Y., De Pater, I. E., Van Vianen, A. E. M., & Keijzer, L. (2010). Challenging assignments, on-the-job learning, and retention. Manuscript submitted for publication.

Preenen, P. T. Y., Van Vianen, A. E. M., De Pater, I. E., & Geerling, R. (2010). Ervaren uitdaging op het werk: Ontwikkeling van een meetinstrument. Manuscript submitted for publication.

Price, J. L. (1977). *The study of turnover*. Ames, Iowa: The Iowa State University Press.

Proudfoot, J. G., Corr, P. J., Guest, D. E., & Dunn, G. (2009). Cognitive-behavioural training to change attributional style improves employee well-being, job satisfaction, productivity, and turnover. *Personality and Individual Differences, 46*, 147-153.

Pyszczynski & Greenberg (1983). Determinants of reduction in intended effort as a strategy for coping with anticipated failure. *Journal of Research in Personality, 17,* 412-422.

Quinones, M. A., Ford, J., & Teachout, M. S. (1995). The relationship between work experience and job performance: A conceptual and meta-analytic review. *Personnel Psychology, 48,* 887-910.

Ragins, B. R., & McFarlin, D. B. (1990). Perceptions of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior, 37*, 321-339.

Rhodewalt, F. (1994). Conceptions of ability, achievement goals, and individual differences in self-handicapping behavior: On the application of implicit theories. *Journal of Personality, 62*, 67-85.

Roberson, L., & Alsua, C. J. (2002). Moderating effects of goal orientation on the negative consequences of gender-based preferential selection. *Organizational Behavior and Human Decision Processes, 87*, 103-135.

Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). *Measures of personality and social psychological attitude.* San Diego: Academic Press.

Rogers, C. R. (1951). *Client-centered therapy: Its current practices, implications, and theory*. Boston: Houghton Mifflin.

Rosas, S. R., & Camphausen, L. C. (2007). The use of concept mapping for scale development and validation in evaluation. *Evaluation and Program Planning, 30,* 125-135.

Rowden, R. W. (2002). The relationship between workplace learning and job satisfaction in U.S. small to midsize businesses. *Human Resource Development Quarterly, 13*, 407-426.

Saab, P. G. Matthews, K. A., Stoney, C. M., & McDonald (1989). Premenopausal and postmenopausal women differ in their cardiovascular and neuroendocrine response to behavioral stressors. *Psychophysiology, 26,* 270-280.

Saavedra, R., & Kwun, S. K. (2000). Affective states in job characteristic theory. *Journal of Organizational Behavior, 21*(Spec Issue), 131-146.

Salopek, J. J. (2000). Retention. *Training and Development, 54(4)*, 20-23.

Schriesheim, C. A., Powers, K. J., Scandura, T. A., Gardiner, C. C., & Lankau, M. J. (1993). Improving construct measurement in management research: Comments and a quantitative approach for assessing the theoretical content adequacy of paper-and-pencil survey-type instruments. *Journal of Management, 19,* 385–417

Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior, 2*, 3-43.

Scott, W. E. (1966). Activation theory and task design. *Organizational Behavior and Human Performance, 1,* 3-30.

Shapiro, S., MacInnis, D.J., & Park, C. W. (2002). Understanding program-induced mood effects: Decoupling arousal from valence. *Journal of Advertising, 31,* 15-26.

Sheldon, K. M., Ryan, R. M., Rawsthorne, L. J., & Ilardi, B. (1997). Trait self and true self: Cross-role variation in the Big-Five personality traits and its relations with psychological authenticity and subjective well-being. *Journal of Personality and Social Psychology, 73*, 1380-1393.

Skinner, E. A. (1995). *Perceived control, motivation, & coping*. Newbury Park, CA: Sage. Publications.

Slaughter, J. E., Richard, E. M., & Martin, J. H. (2006). Comparing the efficacy of policy-capturing weights and direct estimates for predicting job choice. *Organizational Research Methods, 9*, 285-314.

Smith, A., & Hayton, G. (1999). What drives enterprise training? Evidence from Australia. *International Journal of Human Resource Management, 10*, 251-272.

Smith, P. C., Kendall, L. M., & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement: A strategy for the study of attitudes.* Chicago: Rand McNally.

Spector, P. E. (1992). A consideration of the validity and meaning of self-report measures for job-conditions. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 7). Chichester, UK: John Wiley & Sons.

Spector, P. E. (2006). Method variance in organizational research: Truth or urban legend? *Organizational Research Methods, 9*, 221-232.

Spector, P. E., & Jex, S. M. (1991). Relations of job characteristics from multiple data sources with employee affect, absence, turnover intentions, and health. *Journal of Applied Psychology, 76*, 46-53.

Steele-Johnson, D., Beauregard, R. S., Hoover. P, B, & Schmidt, A. M. (2000). Goal orientation and task demand effects on motivation, affect, and performance. *Journal of Applied Psychology, 85,* 724-738.

Steers, R. M. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly, 22*, 46-56.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*, 257-285.

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*, 295-312.

Taylor, M. S. (1981). The motivational effects of task challenge: A laboratory investigation. *Organizational Behavior and Human Performance, 27*, 255-278.

Tesluk, P. E., & Jacobs, R. R. (1998). Toward an integrated model of work experience. *Personnel Psychology*, *51*, 321-355.

Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology, 46*, 259-294.

Toossi, M. (2007). Labor force projections to 2016: More workers in their golden years. *Monthly Labor Review, 130* (Nov), 33-52.

Trochim, W. M. K. (1989). An introduction to concept mapping for planning and evaluation. *Evaluation and Program Planning, 12*, 1-16.

Utman, C. H. (1997). Performance effects of motivational state: A meta-analysis. *Personality and Social Psychology Review, 1*, 170-182.

Van Dam, K. (2004). Antecedents and consequences of employability orientation. *European Journal of Work & Organizational Psychology, 13*, 29-51.

Van de Vliert, E., & Smith, P. B. (2004). Leader reliance on subordinates across nations that differ in development and climate. *The Leadership Quarterly, 15*, 381-403.

Van Essen, G., Paardekooper, P. J., Talma, H. F., & Van der Windt, W. (2006). *Arbeid in zorg en welzijn 2006* Utrecht: Prismanto.

Van Scotter, J. R., Motowidlo, S. J., & Cross, T. C. (2000). Effects of task performance and contextual performance on systemic rewards. *Journal of Applied Psychology, 85*, 526-535.

Van Velsor, E., & Hughes, M. W. (1990). *Gender differences in the development of managers: How women managers learn from experience* (Technical Report No .145). Greensboro, NC: Center for Creative Leadership.

Van Vianen, A. E. M. (1999). Managerial self-efficacy, outcome expectancies, and work-role salience as determinants of ambition for a managerial position. *Journal of Applied Social Psychology, 29*, 639-665.

Van Vianen, A. E. M. (2005). A review of person-environment fit research: Prospects for personnel selection. In: A. Evers, N. Anderson, and O. F. Voskuijl (Eds.) *Handbook of personnel selection* (pp. 419-439). Oxford: Blackwell Publishing.

Van Vianen, A. E. M., De Pater, I. E., & Preenen, P. T. Y. (2008). Career Management: Taking control of the quality of work experiences. In J. Athanasou & R. Van Esbroeck (Eds.), *International handbook of career guidance* (pp. 283-301). London: Springer.

Van Vianen, A. E. M., De Pater, I. E., Preenen, P. T. Y. (2009). Adaptable careers: Deciding less and exploring more. *Career Development Quarterly, 57*, 298-309.

Van Yperen, N.W. (2003a). Task interest and actual performance: The moderating effects of assigned and adopted purpose goals. *Journal of Personality and Social Psychology, 85,* 1006-15.

Van Yperen, N. W. (2003b). The perceived profile of goal orientation within firms: Differences between employees working for successful and unsuccessful firms employing either performance-based pay or job-based pay. *European Journal of Work and Organizational Psychology, 12*, 229-243.

Van Yperen, N. W. & Janssen, O. (2002). Fatigued and dissatisfied or fatigued but satisfied? Goal orientations and responses to high job demands. *Academy of Management Journal, 45,* 1161-1171.

VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57*, 995-1015.

VandeWalle, D. (2003). A goal orientation model of feedback-seeking behaviour. *Human Resource Management Review, 13,* 581-604.

VandeWalle, D., Brown, S. P., Cron, W. L., & Slocum, J. W. (1999). The influence of goal orientation and self–regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology, 84,* 249-259.

VandeWalle, D., Cron, W. L., & Slocum, J. W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology, 86*, 629-640.

VandeWalle, D., & Cummings, L. L. (1997). A test of the influence of goal orientation on the feedback-seeking process. *Journal of Applied Psychology, 82*, 390-400.

VandeWalle, D., Ganesan, S., Challagalla, G. N., & Brown, S. P. (2000). An integrated model of feedback-seeking behavior: Disposition, context, and cognition. *Journal of Applied Psychology, 85*, 996-1003.

Walsh, J. T., Taber, T. D., & Beehr, T. A. (1980). An integrated model of perceived job characteristics. *Organizational Behavior and Human Performance, 25*, 252-267.

Wanberg, C. R., Welsh, E. T., & Hezlett, S. A. (2003). Mentoring research: A review and dynamic process model. *Research in Personnel and Human Resources Management, 22*, 39-124.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation or brief measures of positive and negative affect: the PANAS scales, *Journal of Personality and Social Psychology***,** *54,* 1063-1070.

Wayne, S. J., Liden, R. C., Kraimer, M. L., & Graf, I. K. (1999). The role of human capital, motivation and supervisor sponsorship in predicting career success. *Journal of Organizational Behavior, 20*, 577-595.

Wayne, S. J., Shore, L. M., & Liden, R. C. (1997). Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal, 40*, 82-111.

Wofford, J. C., Goodwin, V. L., & Premack, S. (1992). Meta-analysis of the antecedents of personal goal level and of the antecedents and consequences of goal commitment. *Journal of Management, 18*, 595-615.

Woodall, J., Edwards, C., & Welchman, R. (1997). Organizational restructuring and the achievement of an equal opportunity culture. *Gender Work and Organization, 4*, 2-12.

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology, 83*, 486-493.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*, 179-201.

Yukl, G. (2006). *Leadership in organizations*. Upper Saddle River, NJ: Pearson Education, Inc.

Yukl, G., & Fu, P. P. (1999). Determinants of delegation and consultation by managers. *Journal of Organizational Behavior, 20*, 219-232.

Zellars, K. L., Hochwarter, W. A., Perrewe, P. L., Hoffman, N., & Ford, E. W. (2004). Experiencing job burnout: The roles of positive and negative traits and states. *Journal of Applied Social Psychology, 34,* 887-911.

DANK - THANK YOU

Uitdaging. Denk er lang over na en je wordt hoorndol. Doe het en je wordt een gelukkiger mens. Ik heb beide gedaan tijdens mijn promotieonderzoek. Dol en gelukkig met zo'n uitdagend onderzoeksonderwerp. Dol en gelukkig door de grote uitdaging die een promotietraject nu eenmaal is. Grote uitdagingen heb je nodig om wijs en dolgelukkig te worden weten we nu. Het allerbelangrijkste hiervoor zijn echter mensen. Inspirerende, slimme, lieve, gekke en mooie mensen. Gelukkig ken ik er een paar die ik graag wil bedanken.

Zo zijn er Annelies en Irene, twee bikkelbegeleiders. Annelies, door slim, creatief, uitermate kritisch, professioneel, hard werkend, maar altijd betrokken en ondersteunend te zijn ben ik in vele opzichten blij en ontzettend trots dat jij al die jaren mijn begeleider bent geweest. Door voor te doen hoe je goed moet zwemmen heb ik het diepe overleefd. Irene, je werklust, discipline, maar bovenal vechtersmentaliteit en veerkracht zijn een inspiratie voor mij. Natuurlijk was jij er om mij de puntjes op de 'i' te laten zetten en me af en toe een schop onder de kont te geven. Ik ben er trots op dat ik je intellectuele 'kindje' uitdaging mede heb mogen opvoeden. Annelies en Irene, bedankt!

En dan zijn er de andere internationaal wetenschappelijk en sociaal gerenommeerde (ex-)vakgroepmensen en bezoekers van de afdeling Arbeids- en Organisatiepsychologie, waar muren behangen worden met bierdoppen, maar ook *Science*-publicaties. Annebel, Anouk, Arne, Barbora (I know we can dance!), Bernard, Bianca, Bram, Caneel, Carsten, Catharina, Daniël, Edwin, Femke, Floor, Hillie, Ilona, Ingrid, Inma, Jan, Jessie, Joke (natuurlijk), Jonathan, Lindy, Lotte, Madelon, Marieke, Marije, Matthijs, Michel, Myriam, Olga, Rosina, Shaul, Sonja, Tim, Ute, Vidar en Wieke bedankt. Het Lente-uitje 2008 staat in mijn geheugen gegrift. De spontane borrels in Kriterion en de Roeter, de stimulerende gesprekken, discussies en significante interacties zal ik oprecht missen. A en O bedankt.

Een aantal collega's wil ik in het bijzonder bedanken. Matthijs, jarenlange kamergenoot, beste paard van stal, je bent een persoon die niet alleen in onderzoek uitblinkt, maar in vele evenzo belangrijke dingen in het leven. Iemand door wie ik mij altijd positief uitgedaagd zal voelen. Mooi dat jij mijn paranimf bent. Ilona 'ah joh', stoere surf *chick* en wereldburger, je gevoel voor *nerdy* humor zal ik missen. Nog zo'n slim iemand, Marije, mijn vraagbaak en uitlaatklep, mag ik toch nog af en toe bij je op de stoel komen zitten? Jessie, je hebt de titel van mijn proefschrift niet bedacht, maar geïnnoveerd! Ik ga de ouwehoertripjes naar de *corner office* missen. Italian Mauro, it was fun meeting you! En Femke, jij hebt iets met Koreanen en zij hebben iets met jou.

Om een promotietraject aan te gaan moet je onderzoek leuk leren vinden. Hier hebben Onne, Jelle en Rutger tijdens mijn afstuderen in Groningen een belangrijke rol in gespeeld. Dank hiervoor. Om een promotietraject af te ronden moet je ook les geven en les krijgen leuk vinden. De OP-groepen die ik heb begeleid en gevolgde KLI- cursussen en workshops hebben dit gelukkig alleen maar versterkt. Niet in de minste plaats vanwege de boeiende mensen die ik zo heb ontmoet.

Een speciale dank gaat uit naar de Nederlandse Stichting voor Psychotechniek (NSVP). Zonder NSVP financiering was er geen promotieonderzoek naar uitdaging geweest. Mijn dank is groot. A special thanks in English goes out to the members of my doctoral committee: Carsten, Bernard, Aukje, Ute, and Professor Connie Wanberg. Tevens wil ik graag Roland Kansen en Margreet Moolhuijzen bedanken voor de mogelijkheid om mijn opgedane kennis bij het Ministerie van Verkeer en Waterstaat als Rijkstrainee in de praktijk te brengen. Ook wil ik de fantastische fotografe Myung Feyen bedanken voor de mooie foto voor de omslag van mijn proefschrift.

Vrienden! Alert, bedankt voor wat is geweest en wat nog komen gaat. Ik hoef jou niet uit te leggen dat uitdaging belangrijk is en ook niet wat je voor mij betekent. Natuurlijk ben jij mijn paranimf. Veel geluk met Annette. Kasem, bedankt, ik heb altijd wat aan jou. Peter, mijn *fifteen minutes of fame* (Dijkstra & Preenen, 2008) heb ik aan jou te danken. Matteklopperjudoërs en Groningenconnectie, de snowboardtrips waren een noodzakelijke, sportieve afwisseling op het zittende AiO-bestaan. Jon en Rae, bedankt voor mooie Amsterdamse tijden en Dolle Edo, dank voor dolle tijden. Roosje, gracias. Natuurlijk Jong Suk, Just en Shiko, jullie *in*nemende avonden zijn de perfecte uitlaatklep en meer. Arierangers, Uri Shinmunners, co-AdopKo vrienden wereldwijd, zonder jullie was ik vast een individuele, identiteitsloze, onbegrepen AiO en misschien wel persoon. Woongroep Overtoom, mijn hele AiO-tijd heb ik met jullie meegemaakt en met een reden. Veilige thuishaven, altijd een luisterend oor of een lachend gezicht. Olly, Joch, Miem, Suus, Sara, Marco en Anne, bedankt. Ik ben blij met jullie.

Allerliefsten. Sue en Lodewijk, ik ben trots op jullie en ik hoop dat jullie dat ook op mij zijn. Let op mijn woorden, de tijd komt eraan dat deze ‘arme’ AiO, doch trotse Koreaan, jullie eens uit eten neemt! Superneefjes Philip en Simon, stootkussen Paul krijgt jullie nog wel als hij jullie bij de volgende oppassessie uit zijn uitdagingboekje gaat voorlezen, over doeloriëntaties en significantieniveaus. Henk en Joke van der Wal et al., bedankt, jullie weten wel waarom. Aad, Betsy, Matthijs, Jelmer en Evelien bedankt. Lee Kyoo In, Kim Chan Ja, Jun Young, Kyun Young, Sue Young, and Jina thank you, *kamsa hamnida*. You thoroughly motivate me to do something with my life. ‘Fighting!’. And Mina, *gong joo*, princess, thank

you for your *sarang*, laughs, (im)patience, support, and challenge. Thank you for crazy happy times.

Tot slot, moeder Sonja, moeder Kim Chan Ja, zus Sue, dit proefschrift draag ik op aan jullie, met een lach, zo'n glimmende.

Paul Tae Young

KURT LEWIN INSTITUTE DISSERTATION SERIES

The "Kurt Lewin Institute Dissertation Series" started in 1997. Since 2008 the following dissertations have been published:

2008-1: Marijke van Putten: *Dealing with missed opportunities. The causes and boundary conditions of inaction inertia*
2008-2: Marjolein Maas: *Experiential Social Justice Judgment Processes*
2008-3: Lonneke de Meijer: *Ethnicity effects in police officer selection: Applicant, assessor, and selection-method factors*
2008-4: Frederike Zwenk: *Voice by Representation*
2008-5: Margreet Reitsma: *The Impact of Linguistically Biased Messages on Involved Receivers*
2008-6: Marcus Maringer: *Feeling one thing, seeing another: Emotion comparison effects in person judgments*
2008-7: Hanneke Heinsman: *The competency concept revealed: Its nature, relevance, and practice*
2008-8: Joris Lammers: *Toward a more social social psychology of power*
2008-9: Daniël Fockenberg: *Between Good and Evil: Affective Priming in Dynamic Context*
2008-10: Arne van den Bos: *Why we stereotype influences how we stereotype: self-enhancement and comprehension effects on social perception*
2008-11: Lidewij Niezink: *Considering Others in Need: On Altruism, Empathy and Perspective Taking*
2008-12: Aad Oosterhof: *Better together: Antecedents and consequences of perceived expertise dissimilarity and perceived expertise complementarity in teams*
2008-13: Femke ten Velden: *Negotiation in dyads and groups: The effects of social and epistemic motives*
2008-14: Maike Wehrens: *How did YOU do? Social comparison in secondary education*
2008-15: Kyra Luijters: *Making Diversity Bloom: Coping Effectively with Cultural Differences at Work*
2008-16: Ilona de Hooge: *Moral emotions in decision making: Towards a better understanding of shame and guilt*
2008-17: Lindred L. Greer: *Team Composition and Conflict: The Role of Individual Differences*
2008-18: Sezgin Cihangir: *The Dark Side of Subtle Discrimination: How targets respond to different forms of discrimination*
2008-19: Giel Dik: *On the contagiousness of others' goals: The role of perceiving effort*
2008-20: Lotte van Dillen: *Dealing with negative feelings: The role of working memory in emotion regulation*
2008-21: Marijn Poortvliet: *Information exchange examined: An interpersonal account of achievement goals*
2008-22: Sjoerd Pennekamp: *Dynamics of disadvantage: Uncovering the role of group-based anger*
2008-23: Chris Reinders Folmer: *Cooperation and communication: Plastic goals and social roles*
2009-1: Marijke Leliveld: *Ethics in Economic Decision-Making*
2009-2: Monique Pollmann: *Accuracy and Bias in Person Perception*
2009-3: Krispijn Faddegon: *Regulatory Focus in Group Contexts*
2009-4: Lieven Brebels: *Mirror, mirror on the wall… Procedural fairness as an evaluative and regulatory looking-glass self*
2009-5: Daphne Wiersema: *Taking it personally: Self-esteem and the protection of self-related attitudes*
2009-6: Judith D.M. Grob: *Dial E for Emotion: Context and Consequences of Emotion Regulation*
2009-7: Katherine Stroebe: *Is this about me? Responding to subtle discrimination - beyond an individual versus group perspective*
2009-8: Menno Vos: *Identity patterns in diverse work groups: Improving social integration outcomes through relational identities*
2009-9: Lennart Renkema: *Facing Death Together: Understanding The Consequences of Mortality Threats*
2009-10: Michael Vliek: *Group-based social comparison processes: An intragroup level of analysis*

2009-11: Karlijn Massar: *Unconscious rivals: The automatic evaluation of rivals in jealousy-evoking situations*
2009-12: Bart Terwel: *Origins and consequences of public trust: Towards an understanding of public acceptance of carbon dioxide capture and storage*
2009-13: Emma ter Mors: *Dealing with information about complex issues: The role of source perceptions*
2009-14: Martijn Veltkamp: *On the Instigation of Implicit Motivation: How Deprivation and Positive Affect Cause Motivated Behavior*
2009-15: Marret K. Noordewier: *Consistency and the unexpected*
2009-16: Sytske van der Velde: *Imitation of Emotion: How meaning affects the link between imitation and liking*
2009-17: Jacomijn Hofstra: *Attaching Cultures: The role of attachment styles in explaining majority members' acculturation attitudes*
2009-18: Jacqueline Tanghe: *Affect in Groups: Convergence, Conditions and Consequences*
2009-19: Anne Marike Lokhorst: *Using Commitment to Improve Environmental Quality*
2009-20: Jonathan van 't Riet: *Framing Health Communication Messages*
2009-21: Suzanne Pietersma: *Persuasive Health Communication: A Self-Perspective*
2009-22: Remco Wijn: *A functional perspective on the justice judgment process and its consequences*
2009-23: Niels van de Ven: *The bright side of a deadly sin: The psychology of envy*
2009-24: Anthon Klapwijk: *The Power of Interpersonal Generosity*
2010-1: Maarten Wubben: *Social Functions of Emotions in Social Dilemmas*
2010-2: Joyce Rupert: *Diversity faultlines and team learning*
2010-3: Daniel Lakens: *Abstract Concepts in Grounded Cognition*
2010-4: Luuk Albers: *Double You? Function and Form of Implicit and Explicit Self-Esteem*
2010-5: Matthijs Baas: *The Psychology of Creativity: Moods, Minds, and Motives*
2010-6: Elanor Kamans: *When the Weak Hit back: Studies on the Role of Power in Intergroup Conflict*
2010-7: Skyler Hawk: *Changing Channels: Flexibility in Empathic Emotion Processes*
2010-8: Nailah Ayub: *National Diversity and Conflict: The Role of Social Attitudes and Beliefs*
2010-9: Job van der Schalk: *Echoing Emotions: Reactions to Emotional Displays in Intergroup Context*
2010-10: Nevra Cem: *Organizational citizenship behavior and counterproductive work behavior: Cross-cultural comparisons between Turkey and the Netherlands*
2010-11: Ron Broeders: *On Situated and Embodied Knowledge Regarding Moral Issues*
2010-12: Margriet Braun: *Dealing with a deviant group member*
2010-13: Dennis Bleeker: *Representing or defecting? The pursuit of individual upward mobility in low status groups*
2010-14: Petra Hopman: *Group Members Reflecting on Intergroup Relations*
2010-15: Janneke Oostrom: *New Technology in Personnel Selection: The Validity and Acceptability of Multimedia Tests*
2010-16: Annefloor Klep: *The Sharing of Affect: Pathways, Processes, and Performance*
2010-17: Geertje Schuitema: *Priceless policies. Factors influencing the acceptability of transport pricing policies*
2010-18: Femke van Horen: *Breaking the mould on copycats: What makes product imitation strategies successful?*
2010-19: Niek van Ulzen: *Exploring affective perception and social action*
2010-20: Simon Dalley: *Women's body dissatisfaction and restrictive eating behaviour: A tyranny of a thin-ideal or a fear of fat?*
2010-21: Paul Preenen: *Challenge at Work: A matter of give and take*