Towards a Better Theoretical Understanding of Learning from Experience in Organizations:
An Integration of Cognitive and Motivational Explanations

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The central theme running through my research is that experience is a powerful teacher. Looking back at my Ph.D. experience, I can only conclude that my findings are not entirely limited to statistical tests of abstract theories but are - at least to some extent - applicable in the real world. The past years have been packed with experiences of which I am convinced they contributed in a fundamental way to the researcher and to the living human-being that I am today. Needless to say that these experiences were largely shaped by a variety of people, to whom I owe my sincere gratitude.

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Bernd Carette, Roeselare, February 2014
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CHAPTER 1

INTRODUCTION

It is common wisdom that we learn a lot of our skills and knowledge through experience. Scientific research supports the idea that gaining experience in the workplace is an important source of development. The present dissertation contributes to the literature and practice of employee development by examining when and why experiential learning takes place in organizations. Borrowing from research on knowledge formation in social psychology, I will start this dissertation by outlining a framework in which (1) cognitive and behavioral learning processes that were identified in previous research (e.g., feedback-seeking, reflection), and (2) motivational learning processes (i.e., epistemic motivation), work in tandem to explain how key work experiences translate into skill development and changes in job performance. Drawing on this framework, I will continue this introduction by discussing the research objectives guiding the present dissertation and the studies that aim to address these objectives.

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INTRODUCTION

*For the things we have to learn before we can do them, we learn by doing them.* Aristotle spoke these words more than 2,300 years ago. Today, this quote seems more relevant than ever. When asking people to identify the ways they learned how to do their jobs, they attribute the majority (at least 70%) of their current job performance and skill levels to informal, on-the-job experiences and only a limited percentage (10%) to formal training programs (Center for Workforce Development, 1998; Enos, Kehrhahn, & Bell, 2003; Lombardo & Eichinger, 1996). The intuitive appeal of the idea that we learn most of our skills through experience bodes well with recent developments in the workplace, which have made learning from experience pivotal in today’s organizations. Given the current disadvantageous economic climate, training expenditures are being cut (Industry Report, 2012). The high costs associated with developing and implementing traditional training programs have led organizations to become concerned about the return on investment of formal training (Aguinis & Kraiger, 2009). Hence, organizations are becoming more hesitant to offer formal training programs. Furthermore, time and workload demands and a geographically dispersed workforce make it hard for employees to attend formal programs (Noe, Clarke, & Klein, in press). These dynamics have spurred the interest in different, less expensive ways to develop employees that take place outside the classroom. There is an emerging trend within organizations of replacing formal, classroom training with development through informal, job-embedded experiences (Bell & Kozlowski, 2010).

Scientific research supports the idea that gaining experience in the workplace is an important source of development. That is, a positive relationship has been found between years of work experience and job performance (Ng & Feldman, 2010; Schmidt, Hunter, & Outerbridge, 1986; Sturman, 2003). According to human-capital theory (Becker, 1964), the finding that long-tenured workers are better performers can be explained by the fact that they have accumulated more job-related knowledge over the course of their career. Other theorists have further looked into the learning mechanisms that translate experiences into job-related knowledge and changes in job performance. For instance, according to Kolb’s (1984) influential experiential learning theory,
work experiences form the basis for observations and reflections. Drawing on his/her reflections of the experience, the learner integrates the observations into existing knowledge schemes and formulates hypotheses about how the new experience can relate to previously developed knowledge. These hypotheses can then be actively tested and serve as guides in creating new experiences. More recently, DeRue, Ashford, and Myers (2012) further specified these learning processes. They argued that fast and flexible learning from experience involves multiple cognitive and behavioral processes, including feedback-seeking, reflection, and experimentation. Thus, it has not only become clear that work experience can be a powerful learning source. Experiential learning theories have also shed light on the cognitive and behavioral learning processes that explain how employees build, validate, and form new knowledge and skills on the basis of their work experiences.

The present dissertation aims to contribute to this growing body of literature by improving our understanding of why and when experiential learning processes take place. A better comprehension of when learning from experience comes about is important for organizations to gradually shape learning environments that are customized to the needs of their employees. Specifically, I want to address three research questions: (1) What specific work experiences activate the cognitive and behavioral learning processes and as such lead to changes in performance, (2) Do employees differ in the extent to which these on-the-job experiences lead to the emergence of learning processes and to subsequent changes in performance, and (3) Can organizations foster the activation of these learning processes and as such improve the way their employees learn from their experiences.

The framework that guides this dissertation towards addressing these objectives is based on Kruglanski’s Lay Epistemic Theory of knowledge formation/modification (Kruglanski, 1990; Kruglanski, Dechesne, Orehek, & Pierro, 2009). According to Kruglanski, the initiation and termination of the process of generating and actively testing new hypotheses about a phenomenon largely depends on someone’s motivation to achieve a thorough understanding of an experience (i.e., epistemic motivation; De Dreu, Nijstad, & van Knippenberg, 2008). Drawing on Kruglanski’s theory, I will start this
dissertation by outlining a framework in which (1) cognitive and behavioral learning processes that were identified in previous research (e.g., feedback-seeking, reflection), and (2) motivational learning processes (i.e., epistemic motivation), work in tandem to explain how key work experiences translate into skill development and changes in job performance. Based on this framework, this chapter continues by discussing the research objectives guiding the present dissertation and the studies that aim to address these objectives.

**THE EXPERIENTIAL LEARNING PROCESS**

A long tradition of research in psychology has been examining the effect of individual experience on task performance (e.g., Thurstone, 1919). The results of these studies indicate that the time individuals take to complete a task, and the number of errors they make decrease as individuals learn from experience with the task. Similarly, the question whether work experience has an impact on job performance has been a topic of returning investigation. In these studies, work experience has traditionally been quantified in time-based terms (tenure) (Schmidt et al., 1986). In general, a positive relationship has been found between tenure and job performance, although the strength of the relation decreases as tenure increases (Ng & Feldman, 2010).

Below, I will develop a framework that explains how work experience translate into job-related knowledge occurs and changes in job performance. I will start by summarizing behavioral and cognitive experiential learning processes, which were inventoried by DeRue, Ashford et al. (2012). Subsequently, I will draw on lay epistemic theory (Kruglanski, 1990; Kruglanski et al., 2009) to identify motivational processes that lead to the activation of these effective learning mechanisms. Third, I will apply self-regulation theory (Carver & Scheier, 1981, 1982; Vancouver, 2008) to identify the characteristics of work experiences that activate one’s epistemic motivation and as such impact the likelihood that adaptive learning processes will emerge.

**Behavioral and Cognitive Experiential Learning Mechanisms**

Recently, DeRue, Ashford et al. (2012) brought an important advancement to the study of learning from experience by providing a stronger and more stringent theoretical foundation of what it means to be a fast and
flexible – agile – experiential learner. According to DeRue, Ashford et al., people who are able to learn in a fast and flexible way from their experiences engage in a number of adaptive processes in response to their experiences. A first key behavior is experimentation (see also Kolb, 1984). When being confronted with new experiences, the effective learner will experiment with different behavioral responses to deal with the situation at hand. Through trial-and-error, the individual should be able to develop a more detailed mental model of the different possible ways to handle the situation. As a result, active experimentation may facilitate the identification of effective reactions when confronted with a similar experience in the future.

Receiving feedback from an external source on the effectiveness of one’s experimentation is a more effective way of learning than receiving no external information on one’s performance at all. After all, “guided discovery is more effective than pure discovery” (Mayer, 2004, p. 14). Indeed, it has been found that individuals learn best from experience when they are given information on a number of aspects of their performance in the experience (DeRue & Wellman, 2009). Hence, a second process underlying fast and flexible learning from experience is feedback seeking behavior, referring to individual proactive actions aimed at gathering information relevant to one’s own behavior (Anseel, Beatty, Shen, Lievens, & Sackett, in press).

Besides these behavioral processes, a number of cognitive processes are involved in effective learning from experience (DeRue, Ashford et al., 2012). Pattern recognition, referring to the process through which individuals perceive complex and seemingly unrelated events as constituting identifiable patterns (Matlin, 2002), is a first cognitive process that plays an important role in effective learning from experience. When an employee is able to connect the dots between a past experience and a new situation with which s/he is confronted, s/he may apply the lessons learned through the former experience rather than having to ‘reinvent the wheel’. Furthermore, the employee may fine-tune the earlier developed cognitive scheme through tackling the new problem. In contrast, when an employee does not invest in the identification of analogies between a new situation and a previous experience, a new experiential learning
cycle will need to be activated, limiting potential integration of, and cross-fertilization between, the lessons drawn from seemingly unrelated experiences.

A second cognitive process enabling effective learning from experience is systematic reflection, defined as a cognitive process in which the person attempts to increase his or her awareness of personal experiences and therefore his or her ability to learn from them (Anseel, Lievens, & Schollaert, 2009). According to Ashford and DeRue (2012), an event becomes an experience when people reflect upon the event. Hence, reflection is a necessary precondition for experiential learning to take place (see also Kolb, 1984). Baumeister, Masicampo, and Vohs (2011) take this idea one step further and argue that a person whose behavior did not stem at least in part from conscious, reflective thoughts would be far less than a fully functioning person.

Closely related to reflection is cognitive simulation, a form of internal, mental experimentation about possible situations and experiences. Whereas reflection is the process of cognitively elaborating on what actually happened (“What have I done?”), cognitive simulation is the process of cognitively elaborating on alternatives for actual experiences. Cognitive simulation can occur both prospectively and retrospectively. Prospective cognitive simulation refers to imagining future behavioral responses to a situation (“What can I do?”). Mentally simulating certain actions is thought to activate the neural substrates involved in action production (Beilock & Lyons, 2009), and has been used successfully for the acquisition of certain skills (e.g., training surgeons in complex surgical procedures; Hall, 2002). On a more abstract level, imagining a representation of oneself in the future that reflects one’s hopes and aspirations in relation to work has been found to positively impact proactive career behaviors (Strauss, Griffin, & Parker, 2012). Conversely, retrospective cognitive simulation or counterfactual thinking refers to identifying alternative outcomes that might have arisen if one had acted differently or the situation had been different (“What could I have done?”). Through comparing current actions or mental strategies with better/worse alternatives, one may gain insights in personal weaknesses/strengths (Obodaru, 2012). Awareness of weaknesses and of potential better ways of dealing with a situation in the future may trigger proactive work behavior and deepen commitment to high standards, whereas
awareness of strengths may lead to increased self-efficacy. As a result, considering alternative courses of action that could have been taken in a certain situation can lead to improved performance (see also Epstude & Roese, 2008).

Taken together, fast and flexible learning from experience is characterized by a number of cognitive and behavioral processes that emerge in response to a work event (DeRue, Ashford et al., 2012). These processes include active experimentation, feedback seeking, pattern recognition, reflection, and cognitive simulation. Engagement in these processes underlies an optimal knowledge acquisition process and should ultimately lead to improved job performance.

**Motivational Learning Mechanisms**

If we do not only want to understand how fast and flexible experiential learners differ in cognition and behavior from their ineffective counterparts, but also when these differences arise, we need to pay attention to the basic motivational mechanisms that precede effective experiential learning processes. The motivational aspect of learning from experience has to do with the intensity and the duration of the knowledge acquisition process, or in other words, with the start/stopping mechanisms of experiential processing (Ellis, Mendel, & Nir, 2006; Kruglanski, 1990). More specifically, the motivational aspect deals with questions like “When do employees stop conducting cognitive simulations or generating counterfactual arguments?”, “When do they stop seeking additional feedback?”, and “When do they start reflecting about their own knowledge and start experimenting with alternative ways of working?”

I turn to Kruglanski’s lay epistemic theory (Kruglanski, 1990; Kruglanski et al., 2009) about the knowledge formation and modification process to address these questions. Essential in his theory is the presumption of fundamental interdependence between cognitive, behavioral, and motivational aspects of the knowledge formation/modification process. The initiation and termination of the process of generating and actively testing new hypotheses about a phenomenon largely depends on someone’s epistemic motivation. Epistemic motivation can be understood as the inclination to achieve a thorough understanding of an experience (De Dreu et al., 2008). When epistemic motivation is high, the learner gathers and processes information to a greater extent before he ‘seizes’ and ‘freezes’ on accessible evidence (Kruglanski & Webster, 1996). This
extensive elaboration on a phenomenon eventually results in an expansion of the cognitive scheme (Ellis & Davidi, 2005).

Applied to the context of experiential learning, I propose that epistemic motivation is a necessary precondition for experiential learning processes to take place. This activating function of epistemic motivation for cognitive and behavioral processes (e.g., feedback seeking, cognitive reflection, counterfactual thinking) is well in line with established findings in the separate research streams that have looked at these processes. Feedback seeking behavior and counterfactual thinking, for instance, are spurred by uncertainty (Ashford, 1986) and errors (Morris & Moore, 2000) respectively. Uncertainty (De Dreu et al., 2008) and a focus on errors (Ellis et al., 2006) both trigger epistemic motivation, which in turn is positively related to active processing of a situation. Conversely, when uncertainty decreases or when the focus is put on successes, epistemic motivation drops, diminishing the likelihood that active processing of the situation takes place.

**Internal Discrepancy as a Trigger of Epistemic Motivation**

By conceptualizing epistemic motivation as a threshold mechanism for cognitive and behavioral processing of an experience, an understanding of the determinants of epistemic motivation can help to identify work experiences that activate adaptive processing. An important drawback of the traditional, tenure-based approach to work experience is that tenure does not provide insights in the experiential characteristics that may foster epistemic motivation. The number of years of experience someone has does not reveal information about the content of one’s experience. As a result, although two employees may have held similar positions for similar periods of time, the nature of the events and situations they have encountered during their years of work experience may be very different (Tesluk & Jacobs, 1998). Hence, the two employees may have very different knowledge and skill sets and demonstrate different levels of performance, despite their equal number of years of experience.

Rather than considering work experience as a monolithic entity through a tenure-based approach, I will apply a qualitative, content-based approach and look into the nature of the experiences someone has encountered during his/her years of experience. I will draw on self-regulation theory (Carver & Scheier,
to identify work experiences that have a significant impact on one’s epistemic motivation, on the subsequent cognitive and behavioral processing of the experience, and ultimately on one’s skill levels and job performance.

According to self-regulation theory (Carver & Scheier, 1981; Vancouver, 2008), a human being is a self-regulator aimed at maintaining homeostasis. People have certain desired states (i.e., goals) within the self and are aimed at attaining a balance between these desired states and their current states (Vancouver, 2008). I posit that certain work experiences may disturb this balance. The resulting discrepancy between one’s current state and one’s desired state leads to the activation of a negative feedback loop, consisting of a test-operate-test-exit sequence (Carver & Scheier, 1981). The initial response to the discrepancy is an increase in self-focus (Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987). The consequential salience of the discrepancy creates internal ambiguity. This internal ambiguity is positively related to epistemic motivation, because the individual wants to restore internal balance and achieve a desired state of knowledge (Kruglanski, 1990). Subsequently, in the action stage, behavioral and cognitive processes are activated in order to diminish the gap between (1) the current work situation and (2) the attainment of work-related goals (i.e., the desired state). By refocusing attention on the self, the individual will evaluate whether the efforts have led to a reduction of the discrepancy between the current and desired states. This negative self-regulatory feedback cycle continues until the discrepancy between the current and desired state is eliminated (Carver & Scheier, 1981; Vancouver, 2008). Once the individual has become aware of the fact that the discrepancy has been eliminated and the equilibrium has returned, epistemic motivation will decrease and the individual will quit allocating new resources to improve the situation at hand.

Summary

Figure 1 summarizes the learning process as outlined above. I propose that a work experience that creates a discrepancy between one’s current and desired states leads to an increase in epistemic motivation. This increased motivation to attain a thorough understanding of the experience leads to the mobilization of cognitive and behavioral resources, in order to restore internal
balance. In turn, this elaborate processing of the experience should positively impact the expansion of one’s cognitive scheme of the experience (i.e., learning), ultimately leading to improved job performance. The activation of this learning process following an experience depends on individual differences and on situational influences.

Figure 1. *The experiential learning process*

**THE PRESENT DISSERTATION**

The framework as developed above and as depicted in Figure 1 is used to guide this dissertation. Importantly, I will not conduct an empirical test of the entire model, nor will each study include an empirical investigation of the
underlying learning mechanisms driving the relationship. Instead, the model is used to guide my doctoral research toward addressing my three research questions. My first research question concerns the identification and operationalization of critical work experiences that impact one’s performance. Although I suggest that this relationship is driven by the fact that critical work experiences create a discrepancy between one’s current and desired states – impacting one’s epistemic motivation and the subsequent elaborate processing of the experience – I will not test (all of) these underlying mechanisms directly. The second research goal is to clarify how individuals may differ in the extent to which they learn effectively from these critical on-the-job experiences. Third, I want to investigate the whether systematic reflection as an organizational intervention can facilitate effective learning from experience. In a similar fashion as for the first research question, the rationale for the studies addressing the second and third research question is based on the line of reasoning developed above. Yet, the argumentation is not always empirically tested.

In the following paragraphs, the different research objectives of this dissertation are discussed. For each research question, I indicate the chapter(s) in which the question will be addressed. In the final chapter of this dissertation (Chapter 7), I will review these research questions and discuss the general conclusions and theoretical and practical implications that can be drawn from the individual studies.

**Research Objective 1: Identifying and Operationalizing Work Experiences that Impact Job Performance**

In the current dissertation, I want to identify work situations that create an internal discrepancy between one’s current and desired states. The primary focus is on challenging work experiences that create an internal discrepancy through increasing one’s desired state. However, I will also consider the impact of adverse experiences, which create an internal discrepancy through deteriorating one’s current state.

**Challenging work experiences.** In the 1960s, Berlew and Hall (1966) found that new managers who had a challenging job performed better in the next years as compared to new managers who were given less challenging initial assignments. A challenging job was defined as a job in which one has to conduct
demanding or complex tasks (see also Carmeli, 2005; DeRue & Wellman, 2009; Ohlott, Ruderman, & McCauley, 1994). Subsequent research added the notion of imbalance between the person’s capabilities and the requirements set by the challenging job. That is, according to Davies and Easterby-Smith (1984, p. 180), having a challenging job implies that someone is involved in difficult experiences for which his/her “existing repertoire of behaviors are inadequate” (see also Aryee & Chu, 2012; De Pater, Van Vianen, Bechtoldt, & Klehe, 2009).

In other words, challenging jobs reveal a gap (or in self-regulatory terms, internal discrepancy) between someone’s skills (current state) and those required for the assignments at hand (desired state) (e.g., Dragoni, Tesluk, Russell, & Oh, 2009; King et al., 2012).

Due to this gap between the skills and abilities one has and those that are required, challenging jobs are said to “stretch” the employee’s skills and abilities (e.g., Begley & Lee, 1999; Tesluk & Jacobs, 1998). Challenging jobs motivate people to step out of their comfort zone (De Pater, Van Vianen, Bechtoldt et al., 2009; Preenen, De Pater, Van Vianen, & Keijzer, 2011). Although stepping outside the comfort zone of the daily routine is often a stressful experience, it has been found to lead to a variety of adaptive outcomes. That is, job challenge has been found to be predictive of perceived capability to perform job tasks (Webster, Beehr, & Christiaensenn, 2010), (development of) job performance (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009; LePine, Podsakoff, & LePine, 2005), promotions (De Pater, Van Vianen, Bechtoldt et al., 2009), positive job attitudes (Podsakoff, LePine, & LePine, 2007), less job search behavior (Bingham, Boswell, & Boudreau, 2005), and less voluntary job turnover (Preenen et al., 2011). As a result, some researchers have defined job challenge as having job experiences or demands that stimulate development, personal growth, and/or mastery (e.g., Bingham et al., 2005; Dong, Seo, & Bartol, in press; LePine et al., 2005; McCauley, Ruderman, Ohlott, & Morrow, 1994; Podsakoff et al., 2007; Rodell & Judge, 2009; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010), job experiences that produce positive feelings, such as stimulation or a sense of accomplishment (e.g., Buchanan, 1974; Hall & Lawler, 1970; Nielsen & Daniels, 2012; Sullivan & Baruch, 2009; Webster et al., 2010), or simply as experiences that have potential
gains for the employee (e.g., Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Pearsall, Ellis, & Stein, 2009).

Table 1

*An Overview of Common Job Challenge Definitions*

<table>
<thead>
<tr>
<th>Authors</th>
<th>Definition of Job Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aryee &amp; Chu (2012)</td>
<td>Work activities for which existing tactics and routines are inadequate and that require new ways of dealing with work situations</td>
</tr>
<tr>
<td>Begley &amp; Lee (1999)</td>
<td>Tasks that stretch skills</td>
</tr>
<tr>
<td>Berlew &amp; Hall (1966)</td>
<td>Having a demanding job</td>
</tr>
<tr>
<td>Boswell et al. (2004)</td>
<td>Work-related demands or circumstances that, although potentially stressful, have associated potential gains for individuals</td>
</tr>
<tr>
<td>Buchanan (1974)</td>
<td>A job that bolsters the self-image and gratifies the achievement needs of the individual</td>
</tr>
<tr>
<td>Carmeli (2005)</td>
<td>Having complexity in the work</td>
</tr>
<tr>
<td>Cavanaugh et al. (2000)</td>
<td>Work-related demands or circumstances that, although potentially stressful, have associated potential gains for individuals</td>
</tr>
<tr>
<td>de Jonge et al. (2000)</td>
<td>Outcome of the active learning hypothesis</td>
</tr>
<tr>
<td>De Pater et al. (2009)</td>
<td>Work activities for which existing tactics and routines are inadequate and that require new ways of dealing with work</td>
</tr>
<tr>
<td>DeRue &amp; Wellman (2009)</td>
<td>Experiences that put individuals in dynamic settings where they must solve complex problems and make choices under conditions of risk and uncertainty</td>
</tr>
<tr>
<td>Dragoni et al. (2009)</td>
<td>Assignments that reveal a gap between someone's current capabilities and what is required for assignment success</td>
</tr>
<tr>
<td>Hall &amp; Lawler (1970)</td>
<td>An opportunity to demonstrate competence</td>
</tr>
</tbody>
</table>
Table 1

An Overview of Common Job Challenge Definitions (continued)

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>King et al. (2012)</td>
<td>A situation in which there is a gap between the skills and abilities one currently has and those that are required by the situation</td>
</tr>
<tr>
<td>LePine et al. (2005)</td>
<td>Stressful experiences promoting mastery, personal growth, or future gains</td>
</tr>
<tr>
<td>McCauley et al. (1994)</td>
<td>Developmental job components that provide opportunity and motivation to learn</td>
</tr>
<tr>
<td>Nielsen &amp; Daniels (2012)</td>
<td>A situation that is seen as an opportunity to gain and to feel energized</td>
</tr>
<tr>
<td>Ohlott et al. (1994)</td>
<td>Experiences that force someone to solve problems and make choices under conditions of risk and uncertainty</td>
</tr>
<tr>
<td>Pearsall et al. (2009)</td>
<td>Work-related demands or circumstances that, although potentially stressful, have associated gains for individuals</td>
</tr>
<tr>
<td>Preenen et al. (2011)</td>
<td>Experiences that take people outside their comfort zone</td>
</tr>
<tr>
<td>Roddell &amp; Judge (2009)</td>
<td>Job demands that are viewed by employees as rewarding work experiences that create opportunity for personal growth</td>
</tr>
<tr>
<td>Sullivan &amp; Baruch (2009)</td>
<td>Stimulating work</td>
</tr>
<tr>
<td>Van den Broeck et al. (2010)</td>
<td>Job demands that require some energy, but are nonetheless stimulating and provide opportunities for growth</td>
</tr>
<tr>
<td>Webster et al. (2010)</td>
<td>Stressors that people perceive as having the ability to support personal goals</td>
</tr>
</tbody>
</table>

Table 1 summarizes different definitions of job challenge. In self-regulatory terms, a challenging job is a job in which one is having difficult and demanding job assignments or tasks that reveal a discrepancy between one’s
current state (someone’s current capabilities) and one’s desired state (what is required for assignment success). This discrepancy fosters epistemic motivation, leading to the activation of adaptive processing of the experience. As such, challenging experiences – although potentially stressful – may stimulate personal development through breaking with the everyday routine.

In *Chapter 2*, I will look into how job challenge should be conceptualized and operationalized. Job challenge has been conceptualized as one-dimensional (e.g., Aryee & Chu, 2012; Cavanaugh et al., 2000; Carmeli, 2005; Nielsen & Daniels, 2012; Rodell & Judge, 2009; Van den Broeck et al., 2010), five-dimensional (e.g., De Pater, Van Vianen, Bechtoldt et al., 2009; DeRue & Wellman, 2009; Dong et al., in press; Preenen et al., 2011), and ten-dimensional (e.g., Dragoni et al., 2009; King et al., 2012; Ohlott, 2004). Hence, it is unclear what aspects make a job experience challenging. The ambiguity with regard to the dimensionality of job challenge has led to a variety of operationalizations of the construct. Challenge has been operationalized with scales varying between one item (e.g., Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005; Pearsall et al., 2009; Purcell & Hutchinson, 2007; Van der Vegt, Van de Vliert, & Huang, 2005) and 50 items (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009). I will investigate whether these different job challenge measures (1) structurally relate in the same way to job challenge as a latent construct, and (2) are equally predictive of performance outcomes at different levels of specificity.

**Adverse work experiences.** Although having a challenging job may present the individual with an opportunity for growth and career advancement, challenging job experiences that are excessively high may lead to adverse experiences. When an individual gets a challenging promotion which is highly above his/her capacities, s/he may feel overwhelmed, reducing the likelihood that adaptive processes are optimally activated (Peter & Hull, 1969). Consequently, when the level of challenge is too high, the individual may (1) start making mistakes that have far-going consequences, (2) be confronted with ethical dilemmas, and/or (3) experience a career setback, in the form of a demotion. Adversities may also be caused by external factors and/or take place on an organizational level (e.g., the occurrence of an organizational crisis). In
this dissertation, I aim to not only examine the impact of challenging experiences. In addition, I want to investigate the impact of these adverse work experiences on one’s performance.

Table 2 gives an overview of the characteristics of adverse work experiences and describes how adverse experiences differ from challenging work experiences. Adverse work events are events that cause an important loss and as such cause an internal discrepancy due to a deterioration of one’s current state (rather than an increase of one’s desired state as is the case with challenging assignments). An organizational crisis, for instance, may threaten the long-term survival of an organization and is often accompanied by high levels of uncertainty that highlight the critical nature of the incident for the employees. As such, organizational crises can cause a loss in viability and credibility of the organization and a loss of confidence with the employees (Withers, Corley, & Hillman, 2012). Likewise, mistakes can trigger a loss of self-efficacy, career setbacks can give rise to feelings of loss of identity, and ethical dilemmas diminish ideals and damage self-respect (Yip & Wilson, 2010).

The increased epistemic motivation and the mobilization of cognitive and behavioral resources caused by the discrepancy may not yield a solution for the adverse event, because of the invasive nature and the long-term consequences of workplace adversity. The idea that some discrepancies can be irreducible has been introduced by Pyszczynski and Greenberg (1987). The result of the perceived irreducibility typically causes worry and rumination. The ability to continue to function properly requires settlement with the adversity and its consequences in order to psychologically detach from the adversity and to maintain relatively stable levels of psychological and physical functioning at work (Bonanno, 2004).

In Chapter 5, I will look into the conceptualization, operationalization, and consequences of workplace adversity. Drawing on previously conducted cross-cultural qualitative research (McCall, Lombardo, & Morrison, 1988; Yip & Wilson, 2010), I will conceptualize workplace adversity as a four-dimensional second-order construct, consisting of (1) organizational crises, (2) mistakes, (3) career setbacks, and (4) ethical dilemmas. I will discuss the development and validation of a scale that measures adverse experiences at work. I will also
investigate the extent to which adverse experiences impact job performance, and whether rumination acts as a mediating mechanism in this relationship.

Table 2

| Characteristics of Workplace Adversity and Distinction with Workplace Challenge |
|---------------------------------------------------|-------------------|
| Adversity | Challenge |
| **Characteristics** | | |
| 1. Impact | *Fundamental* disturbance of the daily routine due to a deterioration of one’s current state | *Fundamental* disturbance of the daily routine due to an increase of one’s desired state |
| 2. Valence of affective response | Negative | Positive |
| 3. Elicited emotion | Fear, rumination, confusion | Excitement, flow, motivation |
| 4. Frequency/prevalence | Rare, isolated event | Continuous |
| 5. Intention | Unintentional | Intentional |
| 6. Consequence/result | Personal Loss | Development |
| 7. Adaptive personal reaction | Accept: Find peace in what happened | Personal action: Reflection, experimenting, seeking feedback |

**Examples**
- Organizational crises; mistakes; career setbacks; ethical dilemmas (Wilson & Yip, 2010; Yip & Wilson, 2010)
- Unfamiliar responsibilities; creating change; high levels of responsibility; working across boundaries; managing diversity (McCauley et al., 1994; DeRue & Wellman, 2009)
Research Objective 2: Identifying Individual Differences in Learning From Experience

“Experience is a funny thing. In any given experience, some people learn valuable lessons. Other people, in that same experience, learn nothing or even the wrong lessons” (DeRue, Ashford et al., 2012, p. 258). In line with this quote, I hypothesize that there are individual differences in the extent to which the experiential learning process will be activated and changes in job performance will emerge in response to a challenging or adverse experience. I will investigate the extent to which (1) the timing in one’s career when an experience is gained, (2) the number of different work experiences someone has had, and (3) someone’s core self-evaluation impact the influence work experiences have on one’s job performance.

Career timing of challenging work experiences. In their seminal work experience paper, Tesluk and Jacobs (1998) developed the career timing hypothesis, which posits that work experiences may influence individuals differently depending on when they occur during the career. Hence, the adaptive effects of having challenging work experiences may depend on the timing of these experiences. To date, research has been unable to test this career timing hypothesis due to the homogeneity of the samples in terms of time-based work experience (i.e., work tenure). For instance, the sample of Dragoni et al. (2009) consisted of early-career managers, whereas De Pater, Van Vianen, Fisher, and Van Ginkel (2009) and DeRue, Nahrgang, Hollenbeck, and Workman (2012) were investigating the effects of challenging work experiences for interns.

In Chapter 3, I will draw on contemporary career theories (Briscoe & Hall, 2006; Mainiero & Sullivan, 2006; Sullivan & Arthur, 2006) to argue why and how career timing of challenging assignments may affect learning and job performance. Specifically, I will test the idea that someone’s time-based work experience moderates the relationship between having challenging assignments and in-role job performance. Essentially, I argue that over the course of one’s career, interests and values shift which impact the extent to which employees are motivated to thoroughly process the discrepancy between current and desired states that is caused by a challenging work experience. These changes in epistemic motivation – and the subsequent likelihood that cognitive and
behavioral processes will emerge – may influence the relationship between challenging work experiences and job performance.

**Job hopping between challenging work experiences.** Besides the interaction between work tenure and job challenge (i.e., career timing hypothesis), the impact of challenging experiences may depend on the frequency with which different challenging experiences follow on one another. The *career density hypothesis* implies an interaction between (1) the degree of job mobility over the course of one’s career and (2) the aggregate degree of challenge encountered within a career. Due to mutually exclusive operationalizations of work experience in whether quantitative (e.g., number of executed jobs; Lam, Ng, & Feldman, 2012) versus qualitative terms (e.g., career challenge; DeRue, Nahrgang et al., 2012), the interaction between these work experience modes has been largely ignored.

In *Chapter 4*, I will investigate whether having a career history of frequent job mobility may affect the relationship between (1) the aggregate degree of challenge one’s job experiences comprise and (2) job performance. When switching quickly between challenging work experiences, insufficient time and resources may be available, negatively impacting one’s epistemic motivation. The reduced likelihood that thorough processing of the experience will take place, may offset the positive impact challenging experiences usually have on job performance.

**Core self-evaluation and adverse work experiences.** Defined as fundamental, bottom-line evaluations that people make about themselves and their functioning in their environment, core self-evaluation (CSE) is a broad latent construct indicated by at least four traits: self-esteem, generalized self-efficacy, locus of control, and (low) neuroticism (or high emotional stability) (Judge, 2009). Individuals who are high on CSE appraise themselves in a positive manner across situations; they are well adjusted, positive, self-confident, efficacious, and believe in their own agency (Judge, Erez, Bono, & Thoresen, 2003; Kammeyer-Mueller, Judge, & Scott, 2009).

In *Chapter 5*, I draw on the attentional scope model of rumination (Whitmer & Gotlib, 2013) to explain why high core self-evaluators may be better able to deal effectively with adverse work experiences. Given their
positive self-regard, high core self-evaluators may be less prone to self-blame when ruminating about an adversity and the associated deterioration of one’s current state. The absence of self-blame may enable high core self-evaluators to keep conducting their job activities in an adequate way, despite their ruminative thoughts.

**Research Objective 3: Examining the Effectiveness of Systematic Reflection as an Experiential Learning Intervention**

In the experiential learning framework, reflection and other forms of cognitive elaboration on work experiences play a central role to translate experiences into learning and performance. I posited that these forms of elaboration are most likely to be activated in response to (1) challenging and (2) adverse experiences that create a discrepancy between one’s current and desired states. However, even in the face of challenging work experiences, it is possible that the unrelenting pace and orientation towards action may jeopardize individuals’ inclination to engage in thoughtful deliberation of these experiences. As noted by Holt and Seki (2012), today’s employees are especially busy people: “Communicating across time zones can sometimes feel like a 24/7 job. Working in English as a second or third or fourth language typically adds extra time to each task, especially reading and responding to emails. Spending 8-20 hours traveling to corporate meetings consumes time that could have been spent doing other things which also must get done somehow. […] And all these activities are just part of a job that includes doing lots of other things.” As a result, if no specific problems or difficulties emerge when dealing with challenging events, individuals may not be inclined to take time to reflect and to become aware of the actions and thoughts that were posed (Sitkin, 1992; Zakay, Ellis, & Shevalskey, 2004).

Also, not every form of spontaneous reflection is adaptive. Above, it was posited that failed experiences may cause ruminative forms of reflection (e.g., unstructured task-irrelevant ponderings that are characterized by self-blame) that have a negative impact on learning and performance (cf. Chapter 5). Hence, employees may need more external guidance to optimally structure the reflection process and to abort the reflection process if it interferes with an adequate execution of one’s job activities.
Rather than letting the individual decide whether and how s/he reflects on his/her experiences, systematic reflection is a learning procedure during which learners are explicitly instructed by an external instance to comprehensively analyze their experiences and evaluate the contribution of different components of their behavior to performance outcomes. Systematic reflection serves three functions: (1) self-explanation, (2) data-verification, and (3) feedback. The goal of Chapter 6 is to summarize and review a growing body of literature running through different psychological domains that has examined multiple outcomes of systematic personal reflection.
REFERENCES


Bell, B. S., & Kozlowski, S. W. J. (2010). Toward a theory of learner-centered training design. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning,
training, and development in organizations (pp. 263-300). New York: Taylor & Francis.


CHAPTER 2

CHALLENGING JOB CHALLENGE: RECONCILING ALTERNATIVE CONCEPTUALIZATIONS AND OPERATIONALIZATIONS 1, 2

Job challenge is of vital importance for employees who seek career advancement and for an organization’s human capital development. Despite agreement on the relevance of job challenge, the way the construct should be conceptualized and operationalized is in need of further clarification. We show that a ten-dimensional conceptualization is most appropriate. Furthermore, we argue that two measurement approaches of job challenge can be distinguished: An assessment of the specific challenge dimensions versus an assessment of the experience of job challenge in general. We show that the difference between these approaches is manifested in their measurement model of challenge. Finally, our results indicate that general versus specific assessments of job challenge are predictive of job performance at different levels of specificity.


2 This paper is currently under second review at Group and Organization Management.
INTRODUCTION

“Challenges are stepping stones between the firm’s present position and its strategic intent. Each challenge dares employees to do more than they thought possible.” (Hamel & Prahalad, 1994, p. 144)

Job challenge is a crucial indicator of the value of one’s work experience (Tesluk & Jacobs, 1998). Challenging job experiences force people to step out of their comfort zone of the daily routine (McCall, Lombardo, & Morrison, 1988). Through experimenting with new ways to deal with the situation at hand, having a challenging job has been found to be predictive of job performance and skill development (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009; LePine, Podsakoff, & LePine, 2005). In this sense, job challenge is of vital importance for employees who seek career advancement (Hall, 2004; Lyness & Schrader, 2006) and for an organization’s human capital development (Eby, Allen, & Brinley, 2005).

Despite agreement on the relevance of job challenge, more ambiguity exists on how to conceptualize the construct. Job challenge has been conceptualized as one-dimensional (e.g., Aryee & Chu, 2012; Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Carmeli, 2005; Nielsen & Daniels, 2012; Rodell & Judge, 2009; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010), five-dimensional (e.g., De Pater, Van Vianen, Bechtoldt, & Klehe, 2009; DeRue & Wellman, 2009; Dong, Seo, & Bartol, in press; Preenen, De Pater, Van Vianen, & Keijzer, 2011), and ten-dimensional (e.g., Dragoni et al., 2009; King et al., 2012; McCauley, Ohlott, & Ruderman, 1999; Ohlott, 2004). This lack of agreement on the dimensionality implies that it is unclear what aspects constitute the conceptual domain of job challenge.

The ambiguity with regard to the dimensionality of job challenge has led to a variety of operationalizations of the construct. Challenge has been operationalized with one item (e.g., Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005; Pearsall, Ellis, & Stein, 2009; Purcell & Hutchinson, 2007; Van der Vegt, Van de Vliert, & Huang, 2005), two items (e.g., Nielsen & Daniels, 2012), three items (e.g., Begley & Lee, 1999), five items (e.g., Carmeli, 2005), six items (e.g., Preenen et al., 2011), seven items (e.g., Bingham, Boswell, & Boudreau, 2005; De Pater, Van Vianen, Bechtoldt et al., 2009; Hall
& Lawler, 1970), eight items (e.g., Rodell & Judge, 2009), and ten items (e.g., De Pater, Van Vianen, Fischer, & Van Ginkel, 2009). Some have used as much as 50 items to measure job challenge (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009). It is important to know why the investment should be made to administer 50 items if the same construct could be measured with a single item.

In the current paper, our aim is threefold. First, we want to clarify the dimensions that constitute the conceptual domain of job challenge. Is job challenge best conceptualized as unidimensional, five-dimensional, or ten-dimensional? Second, we want to elucidate how challenge can be operationalized. We argue that two measurement approaches of job challenge can be distinguished. The first approach represents scales that assess job challenge by aggregating the specific challenge dimensions into a job challenge factor, with the items being manifestations of the specific challenge dimensions. The second approach represents scales that assess job challenge in general, with the items being personal expressions of having a challenging job. We want to investigate how these different measures structurally relate to job challenge as a latent construct. Our third and final goal is to demonstrate that the aforementioned distinction is predictive of different development outcomes. In line with previous recommendations with regard to the issue of general versus specific measurement (Carr, Schmidt, Ford, & DeShon, 2003; Judge & Kammeyer-Mueller, 2012), we predict that a general assessment of job challenge is predictive of task performance in general, and that a specific dimension of job challenge is predictive of a specific performance dimension, even after controlling for the other job challenge dimensions. Gaining insights in the effects of the individual challenge dimensions may help to identify and shape challenging assignments that are aimed at attaining specific development outcomes.

**THEORETICAL BACKGROUND**

**Job Challenge as a Qualitative Indicator of Work Experience**

Work experience has traditionally been quantified in terms of tenure (Schmidt, Hunter, & Outerbridge, 1986). Tenure is related to multiple workplace behaviors (Harris, Kacmar, & Carlson, 2006). For instance, a positive
relationship has been found between tenure and job performance. The strength of the relation decreases as tenure increases (Ng & Feldman, 2010). However, this temporal approach to work experience neglects the importance of the content of tasks and assignments encountered during these years of experience (Tesluk & Jacobs, 1998). The specific nature of work situations has been referred to as the qualitative component of work experience and has mostly been operationalized in terms of the challenges that these tasks and assignments produce (e.g., Dragoni et al., 2009).

According to Berlew and Hall (1966), being challenged at work implies that performance expectations are set that are reasonably high. Challenging experiences motivate people to think about a situation in an alternative way; they force people to step out of their comfort zone of the daily routine and experiment with new ways to deal with the situation at hand (McCall et al., 1988). These experiments may elicit a change in employee knowledge, skill, or behavior on the job (DeRue & Wellman, 2009; Dragoni et al., 2009), which, in turn, should increase an organization’s ability to maximize its human capital (Eby et al., 2005). Hence, although potentially stressful, the prospect of being able to meet the high performance expectations turns job challenge into an opportunity for growth (Bingham et al., 2005). Consequently, the majority of research studies has found adaptive outcomes of job challenge for both the individual and the organization (for an overview, see LePine et al., 2005; Podsakoff, LePine, & LePine, 2007). In short, we define a challenging job as a job in which one is having difficult and demanding job assignments or tasks that reveal a gap between someone’s current capabilities and what is required for assignment success, and – although potentially stressful – stimulate personal development through breaking with the everyday routine (see also Chapter 1).

**Dimensional Structure of Job Challenge**

Given the numerous adaptive outcomes of job challenge, a clear conceptualization of the construct is needed. What makes a job challenging and therefore developmental? However, at this point, ambiguity is abound. Challenge has been conceptualized as one-dimensional, five-dimensional, and ten-dimensional. In other words, it is not clear what job features are at the basis of the amount of challenge a job carries with it.
Job challenge as a ten-dimensional construct. Building on the comprehensive qualitative work experience study of McCall et al. (1988), McCauley et al. (1994; 1999) initially conceptualized job challenge as a ten-dimensional construct. The first dimension, unfamiliar responsibilities, refers to the degree to which a job requires someone to handle new or different responsibilities, such as switching from line to staff (Dragoni et al., 2009; Ohlott, 2004). Unfamiliar responsibilities force people to experiment with new behavioral responses (Dragoni, Park, Soltis, & Forte-Trammell, in press). The second dimension is the requirement to develop new directions for the organization, such as starting a new business unit, making strategic changes, implementing a reorganization, or reacting to a change in the business environment (Dragoni et al., 2009; Ohlott, 2004). Studies show that starting up a new business is a complex endeavor but it yields positive outcomes through the adaption of behavior to the demands set by the venture creation process (Obschonka, Silbereisen, Schmitt-Rodermund, & Stuetzer, 2011). Inherited problems constitutes the third dimension and is the requirement to fix preexisting problems in the organization (Dragoni et al., 2009; Ohlott, 2004). Failures made by predecessors are learning opportunities for their successors (Madsen & Desai, 2010). Having to cooperate with colleagues who lack experience, are incompetent or are resistant for one’s initiatives resides under the fourth dimension (Dragoni et al., 2009; Ohlott, 2004). Indeed, having to convince people of the benefits of a certain initiative and considering points of resistance for your initiatives can be powerful learning sources (Ford, Ford, & D’Amelio, 2008).

High stakes is the fifth dimension, and involves significant responsibility through clear deadlines, pressure from senior management, high visibility, and responsibility for key, high-stake decisions (Dragoni et al., 2009; Ohlott, 2004). As noted by Ackerman and Kanfer (2009), high stakes conditions motivate individuals to increase allocated effort, leading to improved performance. Being responsible for a variety of functions, groups, products, or services resides under the sixth challenge dimension, scope and scale (Dragoni et al., 2009; Ohlott, 2004). In their meta-analysis, Humphrey, Nahrgang, and Morgeson (2007)
found that jobs requiring people to execute a wide breadth of tasks yield positive outcomes through motivational mechanisms.

*Influencing without authority* and *handling external pressure* denote the extent to which it is required to negotiate with others over whom someone has no formal authority (e.g., peers, union or higher-level management), and to respond to important groups outside the organization (Dragoni et al., 2009; Ohlott, 2004). By finding subtle ways to convince these people, someone can acquire important interpersonal skills (DeGeest & Brown, 2011).

The ninth dimension, *work across cultures*, refers to interacting with others from different cultural or ethnic backgrounds (Dragoni et al., 2009; Ohlott, 2004). In his review of the expatriate adjustment literature, Takeuchi (2010) described that working on assignments abroad is demanding but it can also lead to positive outcomes (e.g., job satisfaction, customer satisfaction, affective commitment). Finally, as a tenth dimension, *work group diversity* relates to operating in a diverse team (Dragoni et al., 2009; Ohlott, 2004). By finding a way to deal with the initial process problems with diverse team members, over time diverse groups might outperform their homogenous counterparts (Watson, Kumar, & Michaelsen, 1993).

**Job challenge as a five-dimensional construct.** Given their apparent conceptual overlap, these ten dimensions have been aggregated into five broader dimensions (McCauley et al., 1999; Ohlott, 2004). Consequently, some researchers have conceptualized job challenge as a five-dimensional construct (e.g., DeGeest & Brown, 2011; DeRue & Wellman, 2009; Dong et al., in press). Specifically, the dimensions ‘having to develop new directions’, ‘inherited problems’, and ‘problems with coworkers’ share the creation and/or facilitation of change (DeRue & Wellman, 2009). Change can be related to the strategy of the organization and the way business is conducted or to the behavior of a colleague. Next, ‘high stakes’ and ‘scope and scale’ refer to the level and breadth of activities for which one is responsible and are taken together into the dimension ‘high levels of responsibility’ (DeRue & Wellman, 2009; Ohlott, 2004). ‘Influencing without authority’ and ‘dealing with external pressure’ both refer to working across lateral boundaries, either externally or within one’s own organization (Ohlott, 2004). Finally, ‘working across cultures’ and ‘working in a
diverse team’ both encompass dealing with diversity, either abroad or in one’s home country.

**Job challenge as a unidimensional construct.** Regardless of the fact whether challenge is conceptualized as five- or ten-dimensional, researchers have aggregated the scores on the different challenge dimensions into a single, overall challenge score (e.g., DeRue & Wellman, 2009; Dong et al., in press; Dragoni et al., 2009). This may have led other researchers to conceptualize job challenge as a unidimensional construct (e.g., Carmeli, 2005; Cavanaugh et al., 2000; Rodell & Judge, 2009).

In short, job challenge has been conceptualized as a ten-dimensional, five-dimensional, and one-dimensional construct. Given this ambiguity, researchers have called for further empirical investigation of the dimensionality of job challenge (Cavanaugh et al., 2000; Podsakoff et al. 2007). Therefore, through both exploratory and confirmatory factor analyses, we want to clarify the dimensional structure of job challenge.

**Operationalizations of Job Challenge**

The ambiguity regarding the conceptualization of job challenge has led to different operationalizations of the construct. Researchers who have assumed a one-dimensional structure have generally assessed job challenge with shorter scales as compared to those who have assumed a multidimensional structure. As a result, job challenge scales range between one item (e.g., Eisenberger et al., 2005; Purcell & Hutchinson, 2007; Van der Vegt et al., 2005) and 50 items (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009). These different scales do not only differ substantially in length, but also in the way the items are formulated. Some researchers (e.g., DeRue & Wellman, 2009; Dong et al., in press; Dragoni et al., 2009; McCauley et al., 1994; Preenen et al., 2011) have operationalized job challenge by measuring the extent to which the job characteristics described above are present in one’s job environment. Others (e.g., Rodell & Judge, 2009; Van den Broeck et al., 2010) have measured challenge broadly by assessing the subjective appraisal of challenge in a job or by measuring certain personal manifestations of having a challenging job. An overview of these different approaches is given in Table 1.
Table 1

*Job Challenge Operationalizations*

<table>
<thead>
<tr>
<th>Measurement Specificity</th>
<th>Description</th>
<th>Sample items</th>
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| Assessment of *specific* job challenge dimensions | The extent to which job characteristics are present that impact the degree of job challenge (e.g., high levels of responsibility, numerous responsibilities, creating change) | *Scope & Scale*  
- I feel the weight of the amount of responsibility I have at work (e.g., Cavanaugh et al., 2000; Rodell & Judge, 2009)  
- In my job, I have to do a variety of things (e.g., Carmeli, 2005)  
*New Directions*  
- In my job, I am trying something the organization has never tried before; no one knows for sure how to do it or how it will come out (McCauley et al., 1999)  
*Influencing without Authority*  
- To function effectively, you have to use your influence with others who formally are not subjected to your authority, such as management and important individuals working for other divisions (De Pater et al., 2009) |
| Assessment of job challenge in *general*         | The extent to which a job leads to certain personal consequences            | *Appraisal of challenge*  
- My work challenges me (e.g., Carmeli, 2005; Nielsen & Daniels, 2012)  
- I have a challenging job (e.g., Eisenberger et al., 2005; Hall & Lawler, 1970; Purcell & Hutchinson, 2007)  
*Skill utilization*  
- On my job I get a chance to use my skills and abilities (e.g., Begley & Lee, 1999; Nielsen & Daniels, 2012; Van der Vegt et al., 2005)  
- The job requires me to use a number of complex or high-level skills (Carmeli, 2005; Rodell & Judge, 2009)  
- My job requires working very hard (e.g., Rodell & Judge, 2009; Vandenbroeck et al., 2010)  
*Skill development*  
- My job gives me the opportunity to learn new skills and techniques (Flynn & Tannenbaum, 1993; Hall & Lawler, 1970) |
We argue that two measurement approaches of job challenge can be distinguished. The first approach represents scales that assess job challenge by aggregating the specific challenge dimensions into an overall job challenge factor, with the items being manifestations of the specific challenge features (e.g., having unfamiliar responsibilities, dealing with diversity, etc.). The second approach represents scales that assess job challenge in general, with the items being expressions of having a challenging job (e.g., appraisal of challenge, skill utilization, etc.). Below, we argue that the difference between general versus specific assessments of job challenge can be traced back to the measurement model of job challenge. A measurement model describes the relationship between a construct and its indicators.

**Specific measures of job challenge.** Specific measures of job challenge correspond with an assessment of the different job characteristics that constitute the challenging potential of a job. The Job Challenge Profile (JCP; McCauley et al., 1994; 1999) is a widespread example of a specific measure of job challenge. Each job challenge dimension described above is represented with at least five items. Given that the JCP assesses each one of the constituent elements of job challenge, it is the most comprehensive specific measure of job challenge.

The items of a specific job challenge measure are representative of their respective challenge dimension, and not of job challenge in general. In other words, the items tap different facets of the conceptual domain of job challenge. This implies that specific items which load on two different challenge dimensions are not redundant. For instance, there is no reason to suspect that scores on the item ‘I am trying something the organization has never tried before’ would correlate highly with scores on the item ‘The customer base you work with is extremely varied’. Despite the fact that both are specific items of job challenge, they are indicative of different dimensions of job challenge (the former is indicative of ‘New Directions’ whereas the latter is indicative of ‘External Pressure’).

This issue of non-redundancy has implications for the development of shorter adaptations of the JCP. De Pater and colleagues developed a short challenge scale as an alternative for the extensive 50-item JCP. Initially, this scale consisted of ten items (De Pater, Van Vianen, Fischer et al., 2009). Later,
the scale was reduced to seven items (De Pater, Van Vianen, Bechtoldt et al., 2009) and recently six items were retained (Preenen et al., 2011). Similarly, Bingham et al. (2005) selected seven items of the JCP to measure job challenge. These shortened job challenge scales may not capture the full challenge range, impacting the validity of these scales (see MacKenzie, Podsakoff, & Jarvis, 2005).

In structural terms, specific measures of job challenge typically imply a second-order factor model, with the items loading on their respective challenge dimension. In turn, these dimensions combine to form a second-order challenge factor. Given that the job challenge dimensions form the higher order construct, we argue that the job challenge dimensions are formative indicators of job challenge. The direction of causality in a formative-indicator measurement model flows from the dimensions to the overall construct (e.g., Diamantopoulos & Siguaw, 2006; Edwards, 2011; MacKenzie et al., 2005), in such a way that job challenge is caused by the dimensions. In a similar fashion as distinct facets of satisfaction (e.g., satisfaction with pay, promotions, supervision, coworkers, and the work itself) underlie a person’s overall level of job satisfaction, different job characteristics (e.g., having unfamiliar responsibilities, working in a diverse team) underlie the challenging potential of a job.

**General measures of job challenge.** Whereas some have applied a specific assessment of the different job challenge dimensions, others have measured job challenge as a whole by assessing common expressions of having a challenging job. If someone has a challenging job (meaning there are a number of challenging job characteristics in the job environment), this can cause him/her to consciously evaluate his/her job as being challenging (e.g., Boswell, Olson-Buchanan, & LePine, 2004). Hence, job challenge has been measured by assessing the subjective appraisal of challenge one experiences in his/her job (Eisenberger et al., 2005; Pearsall et al., 2009; Purcell & Hutchinson, 2007). As another example, having a challenging job usually implies that one has to put a lot of effort in his/her job and apply or acquire certain complex or high-level skills (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009). Hence, job challenge has also been assessed by measuring the extent to which one has to work hard, one has to use complex skills and abilities, and/or adapt/develop
certain abilities (e.g., Flynn & Tannenbaum, 1993; Van den Broeck et al., 2010; Van der Vegt et al., 2005).

Instead of measuring each one of the constituent elements of job challenge, each item of a general challenge measure individually taps the entire conceptual domain of job challenge. As a result, the indicators are expected to covary with each other. For instance, appraising one’s job as being challenging also implies that one has to work hard and use/acquire complex skills. This indicates that – in contrast to specific measures of job challenge – dropping one of two equally reliable general challenge items should not impact the validity of the remaining items (see MacKenzie et al., 2005).

In structural terms, general items of job challenge typically imply a first-order factor model, with the items loading directly on the job challenge factor. In contrast to specific challenge items that load on the individual challenge dimensions that form the construct, general items are manifestations or reflections of the degree of challenge a job carries with it. Therefore, we argue that they are reflective indicators of job challenge. The direction of causality in a reflective-indicator measurement model flows from the construct to the indicators (e.g., Diamantopoulos & Siguaw, 2006; Edwards, 2011; MacKenzie et al., 2005), in such a way that the general indicators are caused by the overall challenge construct. In a similar fashion as general mental ability is the general driver behind different ability dimensions, such as verbal ability, quantitative ability, reasoning ability, and associative memory, job challenge impacts the appraisal of being challenged at work and the extent to which one feels that s/he has the use or adapt his/her skills and abilities. In contrast to the formative indicators of job challenge (e.g., having unfamiliar responsibilities, working in a diverse team), the appraisal of job challenge and the feeling that one is required to apply his/her skills are consequences rather than causes of having a challenging job.

Taken together, two measurement approaches of job challenge can be distinguished. Specific measures correspond with an assessment of different job features that impact the challenging potential of a job (e.g., group diversity, having a wide breadth of responsibilities). General measures correspond with an assessment of personal expressions of having a challenging job (e.g., the
appraisal of challenge, skill utilization/acquisition). We argue that this distinction can be traced back to the measurement model of job challenge. A specific assessment of job challenge parallels a second-order measurement model of job challenge, in which the specific items load on their respective job challenge dimensions. In turn, these dimensions form an overall challenge factor. A general assessment parallels a first-order measurement model, with the items loading directly on an overall challenge factor. Figure 1 graphically presents the structural relationships between job challenge and these two measurement approaches.

Matching Job Challenge and Development at Different Levels of Specificity

The idea that job challenge may be measured in two different ways begs the key question which measurement approach should be chosen when assessing job challenge. General versus specific measures differ in bandwidth (i.e., the amount or complexity of information one tries to obtain in a specific space of time, Cronbach & Gleser, 1965). Specific measures examine more narrow manifestations of the work environment (i.e., manifestations of the constituent elements of job challenge) than general measures of job challenge (i.e., personal expressions of job challenge in general). The relative advantage of a specific assessment of job challenge is that specific challenges can be matched to specific outcomes. This is not possible when measuring challenge in a general way because each item of a general challenge measure captures the entire conceptual domain of job challenge instead of a specific constituent dimension. In line with the suggestion that the breadth of the criterion should guide the appropriate breadth of the predictor (Carr et al., 2003; Judge & Kammeyer-Mueller, 2012; Lievens, Buyse, & Sackett, 2005), we expect that a general assessment of job challenge will be predictive of performance development in general. Having a challenging job implies a regular confrontation with ambiguous experiences that trigger the motivation to attain a thorough understanding of these experiences. Increased epistemic motivation leads to an activation of cognitive (e.g., reflection) and behavioral mechanisms of information processing (e.g., feedback seeking), subsequently leading to improved performance (Carette & Anseel, 2012). Hence, we expect that a broad,
Figure 1. Measurement model of a specific (S) and general (G) assessment of job challenge. Items/dimensions in italic are sample items/dimensions.
general assessment of job challenge will be predictive of changes in task performance.

If job challenge is a multidimensional construct, fine distinctions within both the predictor (job challenge) and criterion space (performance development) can be made and specific predictors can be aligned to specific criteria. This notion of predictor-criterion matching shifts the attention away from questions like “Is job challenge a predictor of performance development?” to questions like “Which job challenge feature is predictive for the development of which skill?” (see Sackett & Lievens, 2008). We want to empirically test this idea of predictor-criterion matching in a professional services organization. Service orientation was identified by the participating organization as a key employee competency. This is in line with research indicating that service quality constitutes an important source of competitive advantage for service-sector organizations (Aryee, Walumbwa, Seidu, & Otaye, in press). Hence, we investigate whether the development of employees’ service orientation can be partially explained by specific challenges s/he has experienced in his/her job.

Service orientation reflects an individual’s inclination to provide superior service through being prosocial, responsive, helpful towards one’s clients (Aryee et al., in press). Group diversity (as a specific aspect of job challenge) may lead to the development of prosocial skills, with empathy as an important underlying psychological mechanism (Roberge & Van Dick, 2010). That is, when members of a heterogeneous team find ways to take the perspective of their colleagues who are perceived as being fundamentally different, prosocial behavior may be fostered. When these prosocial skills are transferred to client interactions, the service quality may be improved. That is, in a similar way as the professional service worker has learned to take the perspective of his/her colleague with a different background, s/he might become attentive for and responsive towards the needs, orientations and predispositions of his/her clients. As such, we expect that working in a diverse team explains a unique portion of the variance in the development of one’s service orientation.

Taken together, echoing previous conclusions with regard to the general-specific debate in OB research (Carr et al., 2003; Judge & Kammeyer-Mueller, 2012), we hypothesize that a broad, general assessment of job challenge is
predictive of changes in task performance in general, but not of the development of one’s service orientation as a specific dimension of task performance (H1). Conversely, we hypothesize that ‘Group Diversity’ as assessed by a specific measure of job challenge explains a unique portion of the variance in the development of one’s service orientation, but is not predictive of changes in task performance in general (H2).

Overview of the Present Research

Two studies were conducted to address the research questions and hypotheses outlined above. In Study 1, we examined the dimensionality of job challenge and tested a model in which both a specific and a general measure of job challenge were incorporated. This study was conducted with a sample of white collar workers working in a variety of organizations. Study 2, which was conducted in a local branch of an international professional services organization, examined the predictive power of specific versus general measures of job challenge for changes in job performance at different levels of specificity. In tandem, these studies enable a profound investigation of the conceptualization, operationalization, and predictive validity of job challenge.

STUDY 1

Method

Sample. We collected data using a panel from an online research service. Individuals who were registered on the website of the research service were invited to complete our surveys. To further ensure their motivation, they were eligible to win small cash prizes, which were randomly distributed. The total sample consisted of 331 employed white-collar workers, which represented about a 33% response rate. For the purpose of our analyses (see below), we randomly split the sample in two approximately equal halves. Sample A consisted of 169 employees (56% male; mean age = 43.9 years; mean organizational tenure = 15.4 years). Sample B consisted of 162 employees (47% male; mean age = 45.5 years, mean organizational tenure = 14.7 years).

In both samples, the majority (64% and 65% in sample A and B respectively) held at least a bachelor’s degree. The largest job categories included healthcare and social work (14.4% in sample A and 16.8% in sample
B), clerical jobs (12.3% in sample A and 19.8% in sample B), IT (10.3% in sample A and 6.9% in sample B), sales and marketing (9.6% in sample A and 14.5% in sample B), and finance and legal (8.2% in sample A and 8.4% in sample B). The remaining job categories included engineering, service, logistics, and production.

Measures. We used the JCP (McCauley et al., 1994; 1999) as a specific measure of job challenge. Fifty items were administered to assess the different aspects of challenge. For all items, respondents were asked to indicate how well each statement described something they faced in their current jobs, ranging from 1 (not at all descriptive) to 5 (extremely descriptive).

Drawing on the definition of job challenge, we selected two general, reflective indicators of job challenge. These were: “To what extent do you conduct activities requiring you to learn new skills or knowledge” and “To what extent do you conduct activities requiring quite some adaptability of you”. Both were rated on a scale ranging from 1 (never) to 5 (always). The correlations between these two items was .58 ($p < .01$).

Results and Discussion

Given the lack of consensus regarding the dimensionality of challenge in previous research, we started by conducting an exploratory factor analysis (EFA) on sample A. Consistent with recommendations of Gerbing and Hamilton (1996), our aim was to use EFA in one sample as a precursor to confirmatory factor analysis (CFA) in another sample. Our EFA on sample A showed that 29 items had loadings > .32 on their designated factor and had no cross-loadings > .32 (Tabachnick & Fidell, 2007), resulting in a ten-dimensional factor structure. The eigenvalues of the factors varied between 1.14 and 14.24.

Next, we used EQS (Bentler, 1995) to conduct CFA on these 29 items in a sample B. As the normalized estimate of multivariate kurtosis in this sample was significant (21.25), robust maximum likelihood estimation was used. Three first-order factor models that represented the conceptualizations of job challenge reviewed earlier (one-factor, five-factor, and ten-factor) were tested. Neither the fit of the one-factor model [S-B $\chi^2(377) = 1161.34$; $RMSEA = .11$, 90% CI: .11 - .12; $CFI = .59$; $IFI = .60$], nor the fit of the five-factor model was acceptable [S-B $\chi^2(368) = 832.00$; $RMSEA = .09$, 90% CI: .08 - .10; $CFI = .76$; $IFI = .76$]. The
Table 2

*Standardized factor loadings for the Job Challenge Profile (Study 1)*

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<tr>
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*Note.* UR = Unfamiliar Responsibilities, ND = New Directions, IP = Inherited Problems, PWC = Problems with Co-workers, HS = High Stakes, SAS = Scope and Scale, EP = External Pressure, IWA = Influencing without Authority, WAC = Working across Cultures, GD = Group Diversity. All factor loadings are significant at p < .05.

ten-factor model revealed a good fit to the data [S-B $\chi^2$(335) = 483.83; RMSEA = .05, 90% CI = .04 - .06; CFI = .92; IFI = .93], with all factor loadings being
statistically significant (see Table 2). In other words job challenge was best 
conceptualized and operationalized as a ten-dimensional construct. Table 3 
presents the correlations between the ten job challenge factors. Importantly, note 
that the dimensions ‘influencing without authority’, ‘high stakes’, ‘external 
pressure’, and ‘unfamiliar responsibilities’ had less than three indicators. Hence, 
these dimensions’ item-loadings could not be estimated. Future research may 
want to revise the JCP and develop new items for these underrepresented 
dimensions in such a way that each dimension has at least three items.

Subsequently, we tested our hypothesized model in which the ten 
challenge dimensions formed an overall challenge factor, which in turn 
determined the general challenge items. This model revealed a good fit [S-B 
χ²(383) = 530.38; RMSEA = .05, 90% CI = .04 - .06; CFI = .93; IFI = .93]. In a 
subsidiary analysis, we investigated the fit of a model in which the ten challenge 
dimensions were reflective indicators of an overall job challenge factor, in a 
similar way as the general challenge items. The fit of this model was worse as 
compared to our hypothesized model [S-B χ²(372) = 633.81; RMSEA = .07, 90% 
CI = .06 - .08; CFI = .86; IFI = .87], indicating that the ten dimensions were not 
general manifestations of overall job challenge.

Taken together, we demonstrated that the conceptual domain of job 
challenge is determined by ten different job features. These ten features 
contribute individually to the overall challenging potential of a job. We also 
showed that job challenge as a latent construct can be measured in two ways. A 
specific assessment measures each one of these ten features and each item is a 
manifestation of its dimension, not of job challenge in general. A general 
assessment measures personal expressions of having a challenging job. Each 
item is expected to be a similar manifestation of job challenge.

A limitation of our study is that the data were collected in a sample of 
employees working in a variety of functions in various organizations. Although 
this suggests that our findings generalize across functions and organizations, the 
diverse organizational environments may also induce confounds which may 
pose a threat for the internal validity of our findings. Furthermore, our findings 
do not provide insights into the predictive validity of different measures of job 
challenge for job performance.
Table 3
Interfactor correlations of the ten dimensions of the Job Challenge Profile (Study 1)

<table>
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<tr>
<th>Dimension</th>
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<th>IP</th>
<th>PWC</th>
<th>HS</th>
<th>SAS</th>
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Note. All correlations are significant at $p < .05$, except for the correlations between Unfamiliar Responsibilities and New Directions, Unfamiliar Responsibilities and Problems with Coworkers, and Problems with Coworkers and Working across Cultures.

STUDY 2
This study was designed to constructively replicate and extend the findings of Study 1 by addressing the aforementioned limitations. First, to increase the internal validity, we collected data from employees working in a local branch of an international professional services organization. Second, to gain insights in the predictive validity of different job challenge measures, we
investigated the predictive power of specific versus general measures of job challenge for changes in job performance at different levels of specificity.

**Method**

**Sample.** Employees working for the professional services organization were approached two times to complete an online questionnaire with a time lag of nine months. The HR director of the division encouraged all employees to participate in the study. To further ensure the employees’ motivation, movie tickets were randomly distributed among the participants at every data collection wave, and every participant received a personalized feedback report at the end of the study.

At T2, 151 employees (mean age = 31.18, mean organizational tenure = 4.99, 94.70% held at least a bachelor’s degree) participated. Given the relatively low response rate (35.61%), we investigated whether selective drop-out had occurred. We did not find significant differences on our T1 variables (task performance, service orientation, age, organizational tenure) for employees who participated versus for those who did not participate at T2 ($p > .20$), indicating that selective drop-out probably was not a threat to the validity of our findings.

**Measures.** As in Study 1, we used the JCP as a *specific measure of job challenge* ($T2$). The 28 items (one item was not administered because the participating organization did not find it relevant in the organizational context) that were used in Study 1 showed an acceptable fit to the ten-dimensional challenge model, S-B $\chi^2(309) = 476.15; \text{RMSEA} = .06, 90\% \text{ CI} = .05 - .07; \text{CFI} = .89; \text{IFI} = .89$. The average Cronbach’s alpha of the challenge dimension’s ratings was .78.

We measured *job challenge in general* ($T2$) with one reflective indicator that assessed the subjective appraisal of challenge in one’s job during recent months (“I had a challenging job”) (Eisenberger et al., 2005; Pearsall et al., 2009; Purcell & Hutchinson, 2007). The item was rated on a scale ranging from 1 (*not at all descriptive*) to 5 (*extremely descriptive*).

We assessed *service orientation at T1 and T2* with one item that we drew from the Occupational Information Network (O*NET; Peterson et al., 2001). Respondents were asked to indicate on a scale from 1 (*completely disagree*) to 5
Table 4
Means and Standard Deviations Demographic and Focal Variables, and Correlations Among Them (Study 2)

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Note. UR: unfamiliar responsibilities, ND: new directions, IP: inherited Problems, PWC: Problems with coworkers, HS: high stakes, SAS: scope and scale, EP: External pressure, IWA: influencing without authority, WAC: working across cultures, GD: group diversity. \(^a\) p < .05, \(^b\) p < .01. For the variable gender, the mean denotes the percentage of females.
(completely agree) to what extent they agreed with the statement “I actively look for ways to help people”.

We assessed task performance at T1 and T2 with two items measuring quality and quantity of work. Respondents were asked to rate these items on a scale ranging from 1 (completely disagree) to 5 (completely agree).

To isolate the effects of challenge from time-based measures of experience, we controlled for organization tenure. We also controlled for age and gender.

**Results and Discussion**

Table 4 presents the means and standard deviations, as well as the correlations among the focal variables. In line with previous research findings, women reported having a less challenging job as compared to men (De Pater, van Vianen, Fischer, et al., 2009; Ohlott, Ruderman, & McCauley, 1994). To investigate H1, namely whether a general assessment of job challenge was significantly related to the development of task performance, we regressed T2 task performance on (1) our control variables, (2) T1 task performance, and (3) our general assessment of job challenge. Supporting H1, we found that overall job challenge was positively and significantly related to changes in task performance, $\beta = .13, p = .05$.

In H2, we predicted that ‘Group Diversity’ as a specific dimension of job challenge would explain incremental variance in the development of one’s service orientation, beyond the variance explained by the other job challenge dimensions. To test H2, we regressed T2 service orientation on (1) our control variables, (2) T1 service orientation, (3) all challenge dimensions except for ‘Group Diversity’, and (4) ‘Group Diversity’. We found that ‘Group Diversity’ was positively and significantly related to the development of one’s service orientation, $\beta = .21, p < .05$. These results confirmed H2.

We conducted two subsidiary analyses to further test the idea that the specificity of the measurement of job challenge should be contingent upon the specificity of the criterion that needs to be predicted. That is, we tested whether a mismatch between the level of specificity of challenge and the level of specificity of job performance would yield non-significant findings. We found
Table 5

Summary of Hierarchical Regression Analyses Predicting T2 Task Performance (N = 151) (Study 2)

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<th>Predictor</th>
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| $R^2$                            | .06    | .36    | .38    | $R^2$                            | .06    | .36    | .39    | .39    |
| $\Delta R^2$                     | .06    | .31    | .02    | $\Delta R^2$                     | .06    | .31    | .03    | .00    |
| $\Delta F$                       | 2.89*  | 70.32**| 3.84*  | $\Delta F$                       | 2.89*  | 70.32**| .61    | .78    |

Note. *p < .05. **p < .01.
### Table 6

**Summary of Hierarchical Regression Analyses Predicting T2 Service Orientation (N = 151) (Study 2)**

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<th>Step 3</th>
<th>Predictor</th>
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<td>Influencing without authority</td>
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<td>Working across cultures</td>
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<td>Group diversity</td>
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</table>

| $R^2$                             | .04    | .21    | .21    | $R^2$                             | .04    | .21    | .27    | .30    |
| $\Delta R^2$                      | .04    | .17    | .00    | $\Delta R^2$                      | .04    | .17    | .06    | .03    |
| $\Delta F$                        | 2.01   | 32.14**| .03    | $\Delta F$                        | 2.01   | 32.14**| 1.27   | 5.00*  |

*Note. *p < .05. **p < .01.*
that ‘Group Diversity’ as a specific challenge dimension did not explain incremental variance in changes in task performance as a general outcome, beyond the variance explained by our control variables and the other challenge dimensions, $\Delta R^2 = .00$, $\Delta F(1,136) = .78$, $p = .38$. Similarly, we found that our general assessment of job challenge did not explain incremental variance in the development of one’s service orientation as a specific outcome, beyond the variance explained by our control variables, $\Delta R^2 = .00$, $F(1,145) = .03$, $p = .88$.

Tables 6 and 7 summarize the results of the regression analyses. Taken together, our results extend Study 1 wherein we found that job challenge can be measured in two ways: (1) a specific assessment of each job feature that individually contributes to the challenging potential of a job, and (2) a general assessment of the extent to which a job is perceived as challenging. Study 2 revealed that the choice for one of these measurement approaches should depend on the measurement specificity of the construct that one wants to predict. That is, a general measure of job challenge is predictive of changes in task performance in general but is not predictive of the development of a specific performance dimension. Conversely, a specific challenging job feature that is measured through a specific assessment of job challenge can be predictive of the development of a specific skill, but is not predictive of changes in task performance in general.

**GENERAL DISCUSSION**

We advanced job challenge research in three important ways. First, we addressed the existing ambiguity about the amount and the nature of the job characteristics that make a job challenging and therefore developmental. Challenge has been conceptualized as unidimensional, five-dimensional, and ten-dimensional. In three different samples, we consistently found that a ten-dimensional framework showed the best fit to the data (cf. McCauley et al., 1994; 1999). These ten dimensions are (1) having unfamiliar responsibilities, (2) having to determine new directions for the organization or the department, (3) inherited problems, (4) having problems with coworkers, (5) working at high stakes, (6) having a broad scope and scale of responsibilities, (7) having to
influence others without having the authority to do so, (8) experiencing external pressure, (9) working across cultures, and (10) working in a diverse team.

Second, we tackled the lack of clarity in the challenge literature as to how job challenge should be operationalized. Job challenge has been measured in a multitude of ways, with scales varying between one item and 50 items. We argued that challenge measures can be divided in two categories. The first category represents scales that assess job challenge by aggregating the specific challenge dimensions into a job challenge factor, with the items being manifestations of the specific challenge dimensions. The second category represents scales that assess job challenge in general, with the items being personal expressions of having a challenging job. We found that these scales differed in their measurement model of job challenge. That is, a specific assessment applied a second-order measurement model of job challenge, in which the specific items loaded on their respective job challenge dimensions. In turn, these dimensions formed an overall challenge factor. Conversely, a general assessment applied a first-order measurement model, with the items loading directly on an overall challenge factor.

Third, we investigated whether a specific and a general job challenge measures were equally predictive of performance development. A general assessment of job challenge was predictive of task performance development in general, but not of the development of a specific skill. Conversely, we found support for the idea that specific job challenge dimensions may be predictive of the development of specific performance dimensions. That is, our results revealed that ‘Group Diversity’ was predictive of the development of service orientation, but not of changes in task performance in general.

Implications for Job Challenge Theory, Research and Practice

Our findings have several noteworthy implications for theory, research, and practice. Our reported second-order measurement model of specific measures of job challenge indicates that the items of specific measures are not representative of job challenge in general but only of their respective challenge dimension. The JCP is the most comprehensive specific job challenge measure and assesses each one of the ten challenge dimensions with five items. A drawback of the JCP is its length, which makes it time-consuming and
expensive to administer the scale. Some researchers selected different items of the JCP as an alternative for the 50-item JCP (e.g., Bingham, 2005; De Pater, Van Vianen, Fischer et al., 2009). However, as specific items tap different facets of the conceptual domain of job challenge, these shorter adaptations of the JCP may not capture the entire conceptual domain of job challenge. Others have developed shorter specific job challenge scales by measuring only one dimension of the construct. For instance, the frequently used challenge stressor scale of Cavanaugh et al. (2000) essentially only captures the dimension ‘scope & scale’ of job challenge. The items deal with the breadth of responsibilities one has in his/her job. As noted by Wong, Law, and Huang (2008, p. 762), “conclusions drawn from analyses conducted at the dimension level may not be valid at the construct level”. Hence, the conclusions from studies measuring job challenge with the Cavanaugh scale tell us something about the consequences of having a wide range of responsibilities, but not necessarily of having a challenging job. Future research that wishes to develop shorter adaptations of the JCP should ensure that all challenge dimensions are represented to have an adequate assessment of the construct.

Given that there are two approaches of assessing job challenge and given that specific measures of job challenge are more extensive and time consuming than general measures, it is important to know whether the investment of administering a specific measure has returns that cannot be attained with a general measure. Our results suggest that the choice for the challenge measure should be driven by the criterion one wants to predict. When interested in general development outcomes, general job challenge measures may be used. However, when predicting a specific facet of a broader construct, specific job challenge measures should be considered. The recommendation that the choice for a specific versus a general assessment of job challenge should be matched to the specificity of the criterion to be predicted echoes previous conclusions with regard to the general-specific debate in OB research (Carr et al., 2003; Judge & Kammeyer-Mueller, 2012).

Our support for the predictor-criterion matching principle in job challenge research suggests that the attention can be shifted from the question “is job challenge a valid predictor of performance development” to “which job
challenge dimensions are valid predictors of which dimensions”. Given that there is relative consensus that job challenge explains variance in one’s development, our results suggest that more fine-grained relationships can be developed between specific challenge dimensions and specific development outcomes. As being innovative is an important asset for organizations nowadays, future research could investigate whether experiencing specific challenges spurs employees’ innovative work behavior. For instance, having the opportunity to operate outside the constraints of existing systems to develop new directions has been found to trigger behavior characterized by search, experimentation, and discovery (Davies & Easterby-Smith, 1984).

Gaining insights in the effects of the specific challenge dimensions may help individuals and organizations to identify and shape challenging assignments that are aimed at attaining specific development outcomes. During recent years, practitioners have become increasingly concerned about the return on investment of developing and implementing expensive traditional training programs (Aguinis & Kraiger, 2009). As the current economic climate is not advantageous, organizations switch to less costly methods to develop employees, such as on-the-job development. Allocating employees to specific challenging assignments and guiding them through this experiential learning process by giving feedback (DeRue & Wellman, 2009) and by giving the opportunity and facilities to reflect on their experiences (Chapter 6), may be a cost-efficient way of specific skill development.

Limitations and Future Research

Some limitations should be acknowledged. First, both studies are based on self-report data. This may have caused common method bias. However, in Study 2, data were collected at multiple points in time. Moreover, the finding that ‘Group Diversity’ explained incremental variance in the development of one’s service orientation after controlling for the other challenge dimensions, suggests that our results cannot be entirely attributed to common method bias. Nevertheless, it would be worthwhile for future research to apply the predictor-criterion matching principle to job challenge research with criteria being rated by a different source.
Additional research is also required that investigates whether there are individual differences with regard to the personal impact specific challenge dimensions may have. The extent to which specific challenges are demanding for an individual may depend on his/her background. For instance, people high on openness to experience may be better able to deal with unfamiliar responsibilities. Besides these inter-individual differences, the extent to which challenges are demanding might change over the course of one’s career. For instance, as people age their credibility may increase, thereby enhancing their ability to influence others over whom they have no formal authority. Conversely, in the beginning of one’s career, people may be more flexible to adapt to new situations (Chapter 3), making it easier to be assigned to unfamiliar tasks. From a practical perspective, support for such findings would highlight the role of career counselors to guide individuals finding the appropriate challenges depending on their career stage.

In sum, we addressed a number of key ambiguities in the job challenge literature. We found that job challenge could best be conceptualized as a ten-dimensional construct. Challenge can be measured through a specific assessment of these different dimensions or through an overall assessment of challenge in general. The choice for a general or specific measurement of job challenge should be congruent with the level of specificity of the criterion to be predicted. At a practical level, our findings may help organizations to identify and shape the stepping stones that push their employees in the direction of growth.
REFERENCES


Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic
summary and theoretical extension of the work design literature. *Journal of Applied Psychology*, 92, 1332-1356.


CHAPTER 3

DOES CAREER TIMING OF CHALLENGING JOB ASSIGNMENTS INFLUENCE THE RELATIONSHIP WITH IN-ROLE JOB PERFORMANCE? ¹

To prevent the potential threats of career plateauing for mid-career employees, it has been suggested to give them challenging assignments. This approach is inspired by empirical findings demonstrating that challenging job assignments generally have positive effects on job performance and career development. However, these studies have predominantly investigated the performance effects of job challenge for employees who are in their early career. Drawing on work experience theory and in line with contemporary career theories, we argue that the relationship between challenging assignments and in-role job performance may depend on when people encounter them in their career. Data were collected in a local branch of an international furniture retailer. For early-career employees, a positive relationship emerged between having challenging assignments and peer-rated in-role job performance. For mid-career employees, the relationship exhibited an inverted U-shaped curve, such that challenging assignments have a positive influence on in-role job performance up to some point and then begin to exhibit diminishing returns. Our findings suggest that challenging assignments should be tailored to the experiential background of the employee.

INTRODUCTION

“Mid-career employees and managers, who should be at their peak of productivity, are the most disaffected segment of the workforce. Companies need to find ways to rekindle the fires of this vast, neglected group of people.” (Morison, Erickson, & Dychtwald, 2006, p. 79)

Mid-career employees make up more than half the workforce (Morison et al., 2006). Given the explicit and implicit job knowledge that they have developed through their experience (McDaniel, Schmidt, & Hunter, 1988; Sturman, 2003; Tesluk & Jacobs, 1998), they are a highly valuable resource for an organization. However, there is a tendency for organizations to neglect these effective and stable mid-career employees, which increases the risk that they will evolve into dissatisfied and underperforming ‘deadwood’ (Ference, Stoner, & Warren, 1977; McCleese, Eby, Scharlau, & Hoffman, 2007). Hence, organizations need to find ways to prevent this negative performance evolution.

One strategy that has been suggested is to give challenging assignments to mid-career employees (Brown, Bimrose, Barnes, & Hughes, 2012). This approach is inspired by empirical findings demonstrating that challenging job assignments generally have positive effects on job performance behaviors (e.g., DeRue, Nahrgang, Hollenbeck, & Workman, 2012; Dragoni, Tesluk, Russell, & Oh, 2009) and career development (e.g., De Pater, Van Vianen, Fisher, & Van Ginkel, 2009). However, despite agreement on the developmental effects of job challenge, studies investigating these effects have predominantly been conducted with employees who are in their early career. As employees gain experience and enter mid-career, their need for workplace challenge is pushed into the background and makes place for the fulfillment of nonwork demands, including family, friends, and personal interests (Ng & Feldman, 2007; Sullivan & Baruch, 2009). Given these shifts in priorities throughout a career, it is unclear whether mid-career employees benefit to the same extent from challenging assignments as compared to early-career employees.

Our aim is to investigate whether the relationship between challenging assignments and in-role performance differs at different points in a career. Specifically, drawing on work experience theory (Tesluk & Jacobs, 1998) and along the lines of contemporary career theories (Briscoe & Hall, 2006; Mainiero
& Sullivan, 2006; Sullivan & Arthur, 2006), we advance and test the idea that someone’s time-based work experience moderates the relationship between having challenging assignments and in-role job performance.

**CAREER TIMING OF CHALLENGING ASSIGNMENTS**

Being challenged at work implies that performance expectations are set that are reasonably high (“a stretch”) (Berlew & Hall, 1966). Challenging experiences motivate people to think about a situation in an alternative way; they force people to step out of their comfort zone of the daily routine (McCall, Lombardo, & Morrison, 1988). Through experimenting with new ways to deal with the situation at hand, having challenging assignments has been found to be predictive of a variety of adaptive outcomes, including job performance behaviors and career development (e.g., De Pater, Van Vianen, Fisher et al., 2009; DeRue, Nahrgang et al., 2012; Dragoni et al., 2009).

In their seminal work experience paper, Tesluk and Jacobs (1998) developed the career timing hypothesis, which posits that challenging experiences may influence individuals differently depending on when they occur during the career. Hence, the previously described adaptive effects of having challenging assignments may depend on the timing of these experiences. To date, research has been unable to test this career timing hypothesis due to the homogeneity of the samples in terms of time-based work experience (i.e., work tenure). For instance, the sample of Dragoni et al. (2009) consisted of early-career managers, whereas De Pater, Van Vianen, Fisher et al. (2009) and DeRue, Nahrgang et al. (2012) were investigating the effects of challenging work experiences for interns.

Below, we draw on modern career theories to argue why and how challenging assignments may differentially relate to in-role job performance for early-career employees compared to mid-career employees. The protean career model (Hall, 1996), the boundaryless career model (Arthur & Rousseau, 1996), and the Kaleidoscope Career Model (Mainiero & Sullivan, 2006) all share the idea that careers are no longer defined by a corporation but by the individual worker, based on his/her own values and interests. Over the course of a career, employees’ personal values and interests shift which influences their career
decisions (Savickas et al., 2009). For instance, according to the Kaleidoscope Career Model, individuals determine changes in their career via three internal career parameters: (1) the need for challenge, (2) the need for balance between work and nonwork demands, and (3) the need for authenticity or to be true to one’s self (Mainiero & Sullivan, 2006; Sullivan & Baruch, 2009). During a career, these three parameters are simultaneously active, but their salience and thus their impact on an employee’s behavior shift across the career (Sullivan & Baruch, 2009).

**Challenging Assignments Early on in One’s Career**

The early career “is the time when the flame of challenge burns most brightly” (Mainiero & Sullivan, 2006, p. 116). As early-career employees enter the labor market, they are highly focused on attaining career success (Kanfer & Ackerman, 2004). Hence, they often aim to advance to new levels of responsibilities (Ng & Feldman, 2007), which is an important characteristic of job challenge (Carette, Anseel, & Lievens, 2012; McCauley, Ruderman, Ohlott, & Morrow, 1994). Additionally, as employees in their early career are generally younger than their tenured colleagues, they are more likely to be open to experience compared to their tenured and older counterparts (Roberts & Mroczek, 2008). Their openness for experience positively influences their motivation to engage in challenging work experiences that require cognitive elaboration (De Dreu, Nijstad, & van Knippenberg, 2008; Dragoni, Oh, Vankatwyk, & Tesluk, 2011; Maurer, Lippstreu, & Judge, 2008).

Besides their high motivation to accept challenging assignments, we expect that employees in their early career are also highly capable to manage challenging assignments. Early in an individual’s career, occupationally relevant schemes are likely to include relatively few elements due to the lack of experience. As a result, the schemes of early-career employees may be especially amenable to reintegration or restructuring with the inclusion of new information (Mumford & Gustafson, 1988; Schein, 1980), increasing the flexibility to adapt to new situations for employees in their early career (McClelland, Liang, & Barker, 2010; Mom, van den Bosch, & Volberda, 2009). This flexibility combined with their higher openness to experience may enhance their ability to learn (DeRue, Ashford, & Myers, 2012), which should yield a
positive relationship with in-role job performance when having challenging assignments.

Taken together, we propose that in the early career, individuals will be highly motivated to accept challenging assignments and will be highly capable to cope with the demands set by these assignments. Therefore, we hypothesize that for employees early in their career, a positive relationship between having challenging assignments and in-role job performance will emerge.

Hypothesis 1. For employees early in their career, challenging assignments have a positive influence on in-role job performance.

Challenging Assignments Later on in One’s Career

By the time individuals enter mid-career, they have often reached some level of career achievement (Williams & Savickas, 1990). As a result, occupational achievement starts to play a smaller role in their lives (Bertolino, Truxillo, & Fraccaroli, 2011) and makes place for attaining work-life balance (Ng & Feldman, 2007). This often causes a hierarchical plateau, referring to a decline in individual’s vertical movement within an organization (Bardwick, 1986). Hierarchical plateauing does not necessarily have negative job performance effects. The employee often becomes a “solid citizen” in the organization whose performance is of an outstanding level (Briscoe & Hall, 2006; Ettington, 1998; Ference et al., 1977; Feldman & Weitz, 1988). Organizations need solid citizens to maintain stability, provide continuity, and keep the level of competition for higher level jobs within manageable bounds (Ference et al., 1977).

When solid citizens who are hierarchically, vertically plateaued also experience job content, horizontal plateauing (i.e., a lack of challenge, stability in responsibilities, and overall staleness of the job itself; Bardwick, 1986), they may evolve into ineffective, underperforming “deadwood” (Ference et al., 1977). Indeed, employees who simultaneously feel plateaued vertically and horizontally (i.e., double plateaued employees) report higher depression (McCleese et al., 2007) and less favorable job attitudes, including less job involvement, lower levels of commitment, and lower levels of job satisfaction.
(Allen, Poteet, & Russell, 1998), which may ultimately impede on optimal job performance. The fact that organizations have become flatter (increasing the prevalence of vertical plateauing) highlights the importance of attending to job content plateauing to prevent double career plateauing.

In order to prevent mid-career employees from becoming double plateaued “deadwood”, organizations may consider giving them challenging assignments, which require them to break with the everyday routine and limit the risk of job content plateauing (Brown et al., 2012). Even though work-life balance often gets a more prominent role for the mid-career employee (Ng & Feldman, 2007), challenge still remains important (Maniero & Sullivan, 2006). Hence, similar to early-career employees, we expect that challenge will have a positive influence on in-role job performance for mid-career employees. However, as challenge gets a lower rank on the priority list (Maniero & Sullivan, 2006), we expect that mid-career employees will not be willing to deal with an equal amount of challenge as compared to employees in their early career. Additionally, by the time employees enter mid-career, cognitive demands become more difficult to manage, which negatively influences their ability to deal with cognitively demanding challenging assignments (Fried, Grant, Levi, Hadani, & Slowik, 2007).

Taken together, we propose that for mid-career employees, cognitive and motivational declines will constrain them from dealing with an equal amount of challenge as compared to early-career employees. Therefore, we propose that passed a certain point, experiencing more challenge will negatively impact in-role job performance. Thus, we expect a curvilinear, inverted U-shaped relationship between challenge and in-role job performance for mid-career employees.

**Hypothesis 2.** For mid-career employees, the relationship between having challenging assignments and in-role job performance exhibits an inverted U-shaped curve, such that having challenging assignments has a positive influence on in-role job performance up to some point and then begins to exhibit decreasing, diminishing returns.
METHOD

Sample
A paper-and-pencil survey was personally distributed among 300 employees of a local branch of an international furniture retailer. 149 employees returned a usable questionnaire (49.67% response rate). The dataset was carefully screened on randomness of responses; if the number of years of work experience someone had was impossible with regard to the age of the participant, the case was deleted. Of the 144 remaining employees, 60% was female, 93% had at least a high school degree, the mean age was 34.23 years ($SD = 10.73$), and their mean organizational tenure was 5.33 years ($SD = 6.02$). Participants were recruited from different departments of the organization, with the majority of participants working in the sales department (30.56%) or customer service department (20.83%). On average, participants had engaged in 3.28 different jobs over the course of their career. Work tenure ranged between 0 and 40 years, and the average participant had been working for 11.06 years. The standard deviation for work tenure was 10.25 years, indicating that our sample was more heterogeneous in time-based experience terms compared to prior studies (e.g., De Pater, Van Vianen, Fisher et al., 2009; DeRue, Nahrgang et al., 2012; Dragoni et al., 2009), which enabled us to investigate our hypotheses.

Subsequently, in each department where employees participated in our study, we approached colleagues (peers) of the respondents and invited them to rate the in-role job performance levels of the participating employees. The performance levels of 102 of our respondents were rated by their peers (70.83% response rate). 59% of these peers were female, the mean age was 32.75 years ($SD = 8.31$), and the mean organizational tenure was 4.80 years ($SD = 4.30$). The average time peers had been working together with the participating employees was 2.39 years.

Measures
Challenging assignments. The extent to which respondents experienced challenging assignments during the last year, was measured with the challenge measure of De Pater and colleagues (De Pater, Van Vianen, Bechtoldt, & Klehe,
This 10-item scale was developed on the basis of the descriptions and items of the Developmental Challenge Profile (McCauley et al., 1994; McCauley, Ohlott, & Ruderman, 1999). Respondents were asked to indicate how well each statement described something they faced in their current jobs, ranging from 1 (not at all descriptive) to 5 (extremely descriptive). A sample item is “During the last year, it has been your responsibility to carry out tasks that your colleagues consider risky”. Cronbach’s alpha of this scale’s ratings was .85.

**Work tenure.** Work tenure was measured by asking people how many years they had been working since graduation from high school (cf. Lam, Ng, & Feldman, 2012; Stumpf & Tymon, 2012). In line with recommendations of Dawson and Richter (2006) and Edwards (2001), we treated work tenure as a continuous variable instead of categorizing it in subgroups.

**In-role job performance.** Peers of the respondents assessed the respondents’ in-role performance during the last year with seven items measuring quality and quantity of work that we adapted from Williams and Anderson (1991). A sample item is “This employee adequately completes assigned duties”. Each item needed to be rated on a scale ranging from 1 (completely disagree) to 5 (completely agree). Chronbach’s alpha of this scale’s ratings was .88.

**Control variables.** We controlled for respondents’ organizational tenure, gender, and age.

**RESULTS**

Table 1 presents the means and standard deviations, as well as the correlations among the focal variables. As can be seen, age was highly correlated with work and organizational tenure (cf. Ng & Feldman, 2008). Furthermore, in line with previous research findings described above, having had challenging assignments during the last year was positively related to job performance.
We expected that career timing of challenging assignments would explain incremental variance in in-role job performance beyond challenge and time-based measures of experience. Our hypothesized pattern of diminishing returns for mid-career employees implied a quadratic relationship between challenge and in-role job performance, with work tenure moderating this relationship. Following the recommendations of Baron and Kenny (1986) and Cohen and Cohen (1983), this hypothesized quadratic moderation effect was tested by regressing in-role job performance on (1) our control variables, (2) experienced challenge, (3) work tenure, (4) the interaction between challenge and work tenure, (5) the quadratic effect of challenge, and (6) the interaction between squared challenge and work tenure. The results are summarized in Table 2. The interaction term between squared challenge and tenure was significant, $b = -0.03$, $p = 0.01$. Adding the interaction term between squared challenge and work tenure to our model explained 5.9% of incremental variance in in-role job performance, yielding an overall explained variance of 21.0%.
### Table 2

**Results of Hierarchical Regression Analysis for In-Role Job Performance**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<td>.00</td>
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<td>-.05**</td>
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<td>-.02†</td>
<td>-.02†</td>
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<td>.06**</td>
<td>.07**</td>
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<td>-.01</td>
<td>-.02†</td>
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<td><strong>Quadratic main effect</strong></td>
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<td>Challenge squared</td>
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<td><strong>Quadratic interaction</strong></td>
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<tr>
<td>Challenge squared x work tenure</td>
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<td></td>
<td>-.03**</td>
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</tbody>
</table>

| $R^2$                         | .02     | .14     | .15     | .15     | .21     |
| $\Delta R^2$                  | .02     | .12     | .01     | .00     | .06     |
| $\Delta F$                    | .56     | 6.75**  | 1.35    | .07     | 7.01**  |

**Note.** $N = 102$. † $p < .10$, * $p < .05$, ** $p < .01$.

For the interpretation of the career timing effect, early-career and mid-career timing were calculated by respectively subtracting one standard deviation from and adding one standard deviation to the mean of work tenure (Aiken & West, 1991). Accordingly, the average mid-career employee had 21 years of work tenure and was 44 years old, which corresponds with previous research.
(e.g., Chen, Veiga, & Powell, 2011; Morison et al, 2006; Rabinowitz & Hall, 1981). As depicted in Figure 1, in the early career, having had challenging assignments positively influenced in-role job performance. Conversely, for mid-career employees, the positive relationship between experiencing challenging assignments and in-role job performance was not unlimited. For them, too much challenge resulted in a decline in in-role job performance. In an exploratory way, we also investigated how job challenge affected in-role job performance of late-career employees (mean work tenure plus two standard deviations). Similar to our results for mid-career employees, we found a curvilinear, inverted U-shaped relationship between having challenging assignments and in-role job performance. Together, these data provided support for our hypotheses.

Figure 1. The interaction effect of (1) the degree of challenge experienced during assignments in the last year and (2) work tenure on in-role job performance.

**Discussion**

Having challenging assignments is often presented as a panacea to keep work life motivating and developmental (e.g., Brown et al., 2012; Dragoni et al.,
However, current research providing evidence for the positive effects of job challenge is limited in its conclusions to the early career. Hence, there exists an urgent need to investigate whether challenging assignments have a differential impact on in-role performance for early-career employees compared to mid-career employees (Dragoni et al., 2009; McCall, 2004; Tesluk & Jacobs, 1998). In a first attempt to address this need, we examined the role of career timing on the relationship between challenging assignments and in-role job performance.

Our findings have several theoretical implications that extend previous work experience studies. According to Tesluk and Jacobs (1998), the career timing hypothesis refers to an interaction of two work experience measures: (1) the amount of challenge recent assignments carried with them, and (2) the number of years of work experience. Due to mutually exclusive operationalizations of work experience in whether quantitative (e.g., tenure) versus qualitative terms (e.g., challenge) (Dragoni et al., 2011), scant research has been able to investigate such interaction modes of work experience. Our findings indicated that adding the interaction term between work tenure and experienced challenge during recent assignments explained almost 6% of incremental variance beyond the variance explained by gender, age, and the main effects of these experience measures. The combination of all work experience features explained more than one fifth of the variance in peer-rated job performance.

The significance of the career timing effect provides new insights regarding individual differences that determine the effectiveness of employees to deal with challenging work experiences. For employees in their early career, having had challenging assignments was positively related to job performance. Conversely, for mid-career employees, the relationship between having challenging assignments and in-role job performance exhibited an inverted U-shaped curve. This provides support for contemporary career theories which state that interests and values are not stable but shift across the career (e.g., Sullivan & Baruch, 2009). The different influence challenging assignments have on in-role job performance at different points in a career could be explained by a change in (1) motivation to thoroughly process a challenging assignment (i.e.,
epistemic motivation; Carette & Anseel, 2012) and (2) the subsequent emergence of adaptive learning processes (e.g., counterfactual thinking, feedback seeking; DeRue, Ashford et al., 2012). Evidently, future work is needed to empirically examine the explanatory value of these proposed mechanisms.

Our results may clarify previously inconsistent research findings. That is, whereas Dragoni et al. (2009) found a positive relationship between having challenging job stressors and end-state competencies that are critical for effective performance, others reported a curvilinear, inverted U-shaped curve between having challenging job stressors and the development of critical skills and job performance (DeRue & Wellman, 2009; Takeuchi, Wang, & Marinova, 2005). These conflicting findings may possibly be explained by the fact that the respondents in these different studies were at different stages in their career. The fact that the average age in the studies of DeRue and Wellman (2009) and Takeuchi et al. (2005) is slightly higher than in the study of Dragoni et al. (2009) is consistent with this idea.

Our findings have some practical implications. Given the changes in salience of individuals’ need for workplace challenge over the course of a career, one single career counseling session will rarely be sufficient. As recommended by Savickas et al. (2009), as employees design and live their lives counselors should adapt their strategies for motivating them accordingly. For employees in their early career, career counselors may advise to proactively seek challenging assignments in order to diminish the performance gap between the employee and his/her more experienced colleagues. To protect the mid-career employee for the potential threats of the double plateau (i.e., hierarchical plateau and job-content plateau), s/he may also be advised to seek challenging assignments. However, as mid-career employees can cope with less challenge compared to their less experienced counterparts, it is important to adjust the assignment to challenging tasks to the experiential background of the employee.

The present study is not without limitations. First, due to the cross-sectional nature of our study design, we cannot rule out the possibility that our findings are driven by cohort differences in cognitive and motivational functioning instead of career stage effects. It would be valuable for future
research to examine whether the observed effect can be replicated with a longitudinal design. That is, by following people over the course of their career, it could be investigated whether the relationship between challenging job assignments and job performance changes as people move through different career stages. Such replications (with other study designs) would increase the robustness of the reported interaction effects.

Second, our dependent variable was assessed by another source than the study participant to limit common method variance. However, in contrast to previous studies investigating the effects of challenge, we measured our dependent variable with peer-ratings instead of supervisor-ratings. Future research may want to investigate whether the reported relationships hold when using supervisor-ratings of job performance.

Third, we are limited in our conclusion to the moderating role of career timing as only one interaction mode of work experience (Tesluk & Jacobs, 1998). Tesluk and Jacobs (1998) introduced density as a second interaction mode of experience, and defined it as the interaction between (1) the number of experiences and (2) the nature of these experiences. On a career level, density refers to the extent to which someone has executed a high number of jobs that are highly challenging within his/her career. In this respect, future research could examine whether the relationship between job mobility (i.e., having executed a high number of jobs) and job performance depends on the amount of challenge these jobs carry with them.

In sum, we extend career and work experience research by investigating the role of career timing of challenging assignments. A positive relationship between challenge and in-role job performance only emerges for employees in their early career. As employees grow into mid-career, challenging assignments only have a positive influence on in-role job performance up to some point and then begin to exhibit decreasing, diminishing returns. Hence, challenging mid-career employees may be a meaningful way to rekindle their fires, but only if the challenging assignments are adjusted to their experiential background.
REFERENCES


Dragoni, L., Oh, I. S., Vankatwyk, P., & Tesluk, P. E. (2011). Developing executive leaders: The relative contribution of cognitive ability,
personality, and the accumulation of work experience in predicting strategic thinking competency. *Personnel Psychology, 64*, 829-864.


It is a common belief that job mobility is a way to broaden one’s experience and to attain career success. However, transferring and adjusting knowledge from one job to another is often demanding, and may impede on optimal job performance. We argued that the relationship between having a history of high job mobility and job performance depends on the aggregate degree of challenge in one’s entire career history. Data were collected in a local branch of an international professional services organization. Our results showed that the interaction between (1) job mobility and (2) career challenge, explained incremental variance in supervisor-rated job performance beyond the variance explained by the main effects of these experience indicators and our control variables. Specifically, having a history of high job mobility was positively related with supervisor ratings of job performance but only when career challenge was low. As the level of career challenge increased to medium and high levels, the relationship between job mobility and job performance became insignificant and even slightly negative. Our findings support the idea that mutually exclusive operationalizations of work experience in whether quantitative (e.g., number of executed jobs) versus qualitative terms (e.g., challenging experiences) may lead to a restricted understanding of work experience.

1 A previous version of this study was presented at the Annual Conference of the Society for Industrial and Organizational Psychology: Carette, B., Anseel, F., & Lievens, F. (2013). Job mobility: Spice of work life or a career fallacy? Paper presented at the 28th Annual Conference of the Society for Industrial and Organizational Psychology, Houston.
INTRODUCTION

Over the past decades, advances in technology and added flexibility in the workplace have significantly influenced the labor market. The idea of lifelong job security as an employment goal has been making place for the notion of job mobility, or patterns of intra- and inter-organizational transitions over the course of a person’s work life (Hall, 1996; Sullivan, 1999). According to a recent Forbes article, “ninety-one percent of Millennials […] expect to stay in a job for less than three years […]. That means they would have 15 - 20 jobs over the course of their working lives” (Meister, 2012). Career counselors have claimed that these frequent job changes are the highway to a successful career (Trunk, 2007).

The goal of the present paper is to verify whether having a career history of high job mobility affects people’s career success in terms of attaining verifiable results and meeting goals (i.e., job performance; Dries, Pepermans, & Carlier, 2008). From a work experience point of view, frequent job moving can be seen as an opportunity to broaden one’s experience. Accumulating different experiences in a variety of contexts may help people to develop job-specific knowledge (Tesluk & Jacobs, 1998), and to increase personal performance accordingly (Dragoni, Oh, Vankatwyk, & Tesluk, 2011; Quinones, Ford, & Teachout, 1995). However, transferring and adjusting knowledge from one job to another is often demanding. The new organization often lacks receptivity to external knowledge that may be distant from its current practice (Song, Almeida, & Wu, 2003). As such, adjusting established knowledge and procedures to the new firm’s culture, politics, and routines requires time and investment. Furthermore, developing clarity regarding one’s role in an established team and becoming socially accepted by colleagues are processes which also appeal one’s people temporal and executive resources (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007). If one switches jobs frequently and insufficient time is taken to transfer and adjust knowledge from prior experiences to the new job environment, previously acquired knowledge can be used inappropriately in a new situation such that performance suffers (Dokko, Wilk, & Rothbard, 2009). Hence, organizational knowledge transfer theory and
work experience theory provide two competing perspectives on the relationship between having a history of frequent job mobility and job performance.

In the current paper, we want to investigate whether the performance effect of having held few versus many different jobs depends on the nature of the executed jobs, often operationalized in terms of the challenges that these jobs produce (e.g., De Pater, Van Vianen, Bechtoldt, & Klehe, 2009; DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009). In line with DeRue, Nahrgang, Hollenbeck, and Workman (2012), our focus is on career challenge which is the aggregate degree of challenge in one’s entire career history. In essence, we want to verify whether the interaction between (1) job mobility and (2) career challenge, can explain incremental variance in supervisor-rated job performance, beyond the variance explained by the main effects of these work experience indicators. If the effect of job mobility would be contingent upon the aggregate degree of challenge of these experiences, this would suggest that current mutually exclusive operationalizations of work experience in whether quantitative (e.g., job mobility) versus qualitative terms (e.g., career challenge) may lead to a restricted understanding of work experience.

**THEORETICAL DEVELOPMENT AND HYPOTHESES**

**Effects of Job Mobility on Job Performance: Two Competing Perspectives**

Job mobility refers to patterns of intra- and inter-organizational job changes over the course of a person’s work life. Examples of these changes include promotions, transfers, demotions, and changes in the employing firm. Following Wille, De Fruyt, and Feys (2010), job instability in this study refers to the aggregate of three different types of moving behaviors: (1) moving to a different job within the same company, (2) moving to the same type of job with a different organization, and (3) moving to a different type of job with a different organization.

**Work experience theory.** From a work experience perspective, a career that is characterized by high job mobility indicates that the employee has high amount-based experience (Tesluk & Jacobs, 1998). Amount-based operationalizations of work experience refer to numerical counts of the number of experiences someone has had (Quinones et al., 1995). Work experience
theory suggests that broadening one’s experience across jobs may help people to improve the way they perform on their job. That is, having different experiences in a variety of contexts may help people to refine their job-related mental frameworks (Tesluk & Jacobs, 1998). Similarly, encountering a situation multiple times creates a sense of familiarity. A reference point may be created which facilitates the interpretation of new situations in terms of what one already knows on the basis of previous encounters (Dokko & Gaba, 2012). The idea that amount-based experience leads to learning and development is supported by research in the field of leadership, where it has been found that there is developmental value in reencountering the same leadership activity over time (Dragoni et al., 2011; Van Iddekinge, Ferris, & Heffner, 2009). Hence, from a work experience point of view, frequent job hoppers may be better performers because they have accumulated a higher number of job experiences over the course of their careers.

Importantly, the leadership studies noted above have operationalized amount-based experience on a task level. That is, the focus of interest was on the amount of leadership activities one had executed – and one’s role in those activities – but not on the job in which these tasks were conducted. Examples of these activities included providing performance feedback to subordinates or being involved in a project where failure would have significant financial consequences to the organization. These experiences do not reveal any information about the number of different jobs in which these activities were conducted. Thus, two managers may have conducted a similar amount of these leadership activities in similar periods of time, but one may have conducted these activities in one leadership position (in one business unit in one organization), whereas the other may have conducted the same activities within a variety of leadership positions (in different business units and/or across different organizations).

**Organizational knowledge transfer theory.** Rather than considering amount-based experience on a task level, amount-based experience is operationalized on a job level in the present study. We argue that on a job level, increases in amount-based experience may have different performance consequences than on a task-level. Research in the organizational learning
literature suggests that job mobility within and across organizations is characterized by knowledge transfer processes which are often demanding (Song et al., 2003; Palomeras & Melero, 2010). An increase in job mobility implies that the employee has to frequently reacquaint him/herself with the new job and/or the new environment, which pose different requirements to the employee. That is, job-related knowledge can be deeply embedded in the organization through established norms, routines, and procedures (Song et al., 2003; Palomeras & Melero, 2010). Identifying the key success factors of these established practices and adjusting them to new firm’s culture, politics, and routines requires time and investment. Furthermore, someone’s knowledge is often complementary to that of other employees within a department. Hence, switching between jobs requires time to develop clarity regarding the nature of one’s new job tasks and priorities and to discover how one’s knowledge and expertise fits within the new team (Palomeras & Melero, 2010). On a related note, when switching between jobs, becoming socially accepted by the new colleagues – which is significantly related to job satisfaction, turnover intention, and job performance (Bauer et al., 2007) – also requires time and resources.

Hence, high mobility is associated with different knowledge transfer costs and transition processes, which appeal on people’s temporal and executive resources. The resulting scarcity of resources may cause feelings of time pressure and cognitive overload, which are detrimental for the likelihood that adaptive learning processes (e.g., feedback seeking, reflection, counterfactual thinking; DeRue, Ashford, & Myers, 2012) will emerge to work through the transition stage (Carette & Anseel, 2012). If insufficient investment is being made to work through these transitions, performance may be inadequate which may cause feelings of threat to the employee’s self-concept and create high costs for the organization (Pinder & Schroeder, 1987).

In sum, work experience theory and knowledge transfer theory lead to different predictions regarding the relationship between job mobility and job performance. Frequent job switching leads to an increase in amount-based experience. This accumulation of experience may help people to enrich their mental frameworks, leading to improved job performance. However, job mobility also involves transition periods, which may take a substantive amount
of time (up to multiple years; Dragoni, Park, Soltis, & Forte-Trammell, in press; Tesluk & Jacobs, 1998). If the employee takes insufficient time to work through these transitions, s/he may not be able to grasp the knowledge that is necessary to properly conduct the job, negatively impacting one’s job performance.

**Interaction Between Job Mobility and Career Challenge**

In order to reconcile these competing perspectives, we argue that the relationship between job mobility and performance is contingent upon the nature of one’s work experience. As job mobility merely assesses work experience in quantitative terms, it is useful to extend this approach with a *qualitative* assessment of work experience. A qualitative or content-based approach to work experience aims to assess the nature of the jobs that someone has held, and has often been operationalized in terms of the challenges that these jobs produce (Dragoni et al., 2009). Examples of challenging work experiences include having to determine new directions for the department/organization, working at high stakes, and experiencing external pressure (see Chapter 2). According to DeRue, Nahrgang et al. (2012) career challenge reflects the degree to which one’s career history includes such challenging work experiences.

Below, we argue that having held multiple jobs may differentially affect job performance depending on the degree of challenge these experiences carry with them. Hence, we suggest an interaction effect between (1) job mobility and (2) the aggregate degree of challenge encountered in the executed jobs (i.e., career challenge).

**Performance effect of job mobility at high levels of career challenge.** Being challenged at work implies that performance expectations are set that are reasonably high (“a stretch”) (Berlew & Hall, 1966). Challenging experiences motivate people to think about a situation in an alternative way; they force people to step out of their comfort zone of the daily routine and experiment with new ways to deal with the situation at hand (McCall, Lombardo, & Morrison, 1988). Through exploring new ways of working through challenging experiences, having challenging assignments has been found to be predictive of a variety of adaptive outcomes, including job performance behaviors and career development (e.g., Chapters 2 and 3; De Pater et al., 2009; Dragoni et al., 2009). In short, challenging work experiences require exploration behavior which may
lead to enrichment of one’s job-related knowledge and to improved performance.

The transition processes that are involved when switching between jobs, require the development of new routines that are adjusted to the organizational culture and politics. The development of routine performance is based on exploitation rather than exploration behavior (Bledow et al., 2009). Rather than search, variation, experimentation, discovery, and innovation which characterize exploration behavior, exploitation includes activities such as refinement, efficiency, implementation, and execution (March, 1991).

Hence, when frequently switching between challenging jobs, the individual is required to display exploration behaviors to deal with the challenging jobs. At the same time, s/he must also display exploitation behaviors to deal with the transitions that characterize job mobility. However, exploration and exploitation activities compete for scarce resources. Pursuing both activities has been proposed to pose inconsistent psychological demands on individuals, teams, and organizations (Bledow, Frese, Anderson, Erez, & Farr, 2009). As a result, the requirement to simultaneously display both exploration and exploitation activities when switching between challenging jobs, may lead to an inadequate execution of these processes. If one falls short of demonstrating exploitation behaviors, there is a risk that one fails to adapt one’s cognitive structures to the demands of the new job environment, which may result in negative transfer. Negative transfer of learning occurs when previously acquired cognitive structures are inappropriately used in a new situation, which can hinder performance (Dokko et al., 2009; Gick & Holyoak, 1987). Conversely, if one cannot display exploration behaviors, one may fail to adequately deal with the challenging work experiences, also negatively impacting job performance.

In short, frequently switching between challenging jobs may pose requirements to the employee that he cannot achieve. As such, we hypothesize that when having a career history that includes challenging work experiences, limited job mobility yields better job performance outcomes as compared to high job mobility.

**Performance effect of job mobility at low levels of career challenge.**

When someone has a career history that lacks challenge, this implies that s/he
has been conducting jobs, that require less exploration activities (McCall et al., 1988). More resources can be devoted to exploitation activities, in order to optimally adjust previously developed knowledge and procedures to the new organizational environment. The result is a diminished risk on negative transfer.

Instead, we posit that switching between modestly challenging jobs may yield positive performance outcomes. That is, repetitively encountering similar experiences in different contexts allows people to keep up with idiosyncrasies of the diverse environments, including new technologies and changing working methods (Sonnentag & Kleine, 2000). Hence, we propose that through executing non-challenging, similar jobs in different environments, job-related knowledge further develops that allows for behavioral and cognitive adaptation in response to environmental requirements.

Furthermore, motivational effects might have an influence. When conducting a routine job for a long time, progression stalls (Avolio, Waldman, & McDaniel, 1990; Sturman, 2003), which may lead to decreased motivation to engage in information processing (Roets, Van Hiel, Cornelis, & Soetens, 2008). Executing non-challenging, routine jobs in different environments may re-increase work motivation, due to the “honeymoon effect”, referring to the fact that the novelty of a new job environment motivates people to perform better (Helmreich, Sawin, & Carsrud, 1986). Thus, we propose that when having a non-challenging career history, high job mobility yields better job performance outcomes as compared to low job mobility.

In summary, career challenge and the number of executed jobs are two indicators of work experience. We propose that the interaction between the two can explain incremental variance in job performance, beyond the variance explained by the main effects of the experience indicators. Specifically, we hypothesize that:

\textit{Hypothesis 1.} When career challenge is low, having a history of frequent job mobility has a positive effect on job performance.

\textit{Hypothesis 2.} At high levels of career challenge, having a history of frequent job mobility has a negative effect on job performance.
METHOD

Sample and Procedure

The present study took place in a local branch of an international accountancy firm (see also Chapter 2). An online survey was distributed among all employees working in the division. The HR director of the division encouraged all employees to participate with the study. To further ensure the employees’ motivation, movie tickets were randomly distributed among the participants, and every participant was promised to receive a personalized feedback report at the end of the study. Of the 1,035 employees working in the company, 424 participated with the first data collection wave (40.97% response rate). 45% of the participants was female, the mean age was 31.04 years (SD = 8.27), and the mean organizational tenure was 5.48 years (SD = 6.58). Job mobility ranged between 0 and 15, and the average participant had changed jobs 1.97 times (SD = 2.26). 95% held at least a bachelor’s degree and 74.7% held at least a master’s degree.

The performance levels of 213 of our respondents were rated by their supervisors (50.23% response rate). Of the supervisors providing information on their demographic background, 33.6% was female, the mean age was 39.48 years (SD = 8.05), and the mean organizational tenure was 10.90 years (SD = 7.61). 98.60% held at least a bachelor’s degree and 83.90% held at least a master’s degree. The average time an employee had been working together with his/her supervisor was 4.02 years.

Measures

Career challenge. Career challenge was measured using the revised Developmental Challenge Profile (McCauley, Ruderman, Ohlott, & Morrow, 1994; McCauley, Ohlott, & Ruderman, 1999). The Developmental Challenge Profile was originally designed to assess the developmental challenge of specific job assignments. In line with DeRue, Nahrgang, et al. (2012), we adapted the measure by changing the scale referent for each item to focus on participants' total work experience they had acquired over the total course of their career thus far. Sample items are “During your career, you have conducted jobs in which your success or failure was evident to higher management” and “During your career, you have been responsible for numerous different products, technologies,
or services”. All responses were recorded using a 5-point response scale (1 = not at all descriptive; 5 = extremely descriptive). The analyses were conducted using the 28 items (one item was not administered because the participating organization did not find it relevant in the organizational context) that fitted the theoretically relevant 10 dimensional challenge model (Chapter 2). The average Cronbach’s alpha of the challenge dimension’s ratings was .80. In line with the multidimensional composite measurement model of the challenge scale, we unit-weighted the ten challenge dimensions to form a composite challenge score (Bobko, Roth, & Buster, 2007).

**Job mobility.** Job mobility was measured by asking respondents how many times they had already switched jobs in their career, considering both external (a change of employer) and internal mobility (a change of job with the same employer).

**Job performance.** The supervisor of the respondent assessed the respondent’s job performance with a combination of three items measuring task performance (quality and quantity of work), and job dedication as a facet of contextual performance (Hurtz & Donovan, 2000; Van Scotter & Motowidlo, 1996). Supervisors were asked to rate each item according to the relative percentile method (Goffin, Gellatly, Paunonen, Jackson, & Meyer, 1996; Goffin & Olson, 2011). Specifically, supervisors had to rate their participating employees on the three items on a 0 to 100 scale, relatively to one another. Chronbach’s alpha of this scale’s ratings was .86.

**Control variables.** Given that career challenge and job mobility are essentially two indicators of work experience (Tesluk & Jacobs, 1998), we controlled for years of work experience in one’s job and in one’s organization to better isolate the effects of career challenge, job mobility, and their interaction. Similarly, as older employees have had more time to switch jobs, we controlled for respondents’ age. Finally, we also controlled for gender.

**RESULTS**

Table 1 presents the means and standard deviations, as well as the correlations among the focal variables. Although not always significant, positive relationships emerged between different measures of work experience and job
performance, ranging between .05 and .15. In line with previous research (e.g., De Pater, Van Vianen, & Bechtoldt, 2010), men were slightly more likely to have had a challenging career, $r = -.09, p = .07$. Furthermore, people who have held multiple jobs were more likely to be older, $r = .60, p < .01$, highlighting the importance of controlling for age in our analyses.

Table 1

Descriptive Statistics of Study Variables, and Correlations Among Them

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>424</td>
<td>.45</td>
<td>.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>423</td>
<td>31.04</td>
<td>8.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Organizational tenure</td>
<td>421</td>
<td>5.48</td>
<td>6.58</td>
<td>.10*</td>
<td>.77**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Current job tenure</td>
<td>418</td>
<td>2.46</td>
<td>4.07</td>
<td>.17**</td>
<td>.55**</td>
<td>.67**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Number of jobs</td>
<td>421</td>
<td>1.97</td>
<td>2.26</td>
<td>.01</td>
<td>.60**</td>
<td>.21**</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Career challenge</td>
<td>424</td>
<td>3.10</td>
<td>.65</td>
<td>-.09</td>
<td>.42**</td>
<td>.21**</td>
<td>-.01</td>
<td>.49**</td>
<td></td>
</tr>
<tr>
<td>7. Job performance</td>
<td>213</td>
<td>68.56</td>
<td>15.81</td>
<td>.05</td>
<td>.15*</td>
<td>.11</td>
<td>.05</td>
<td>.11</td>
<td>.15*</td>
</tr>
</tbody>
</table>

Note. * $p < .05$, ** $p < .01$. For the dichotomous variable gender, the mean denotes the percentage of females.

We expected that the interaction between career challenge and job mobility would explain incremental variance in job performance, beyond the variance explained by the control variables and by the main effects of career challenge and job mobility. As can be seen in Table 2, our results show that this was the case, $\Delta R^2 = .03$, $\Delta F(1,201) = 6.35$, $p = .01$. As shown in Figure 1, the direction of the relationship between job mobility and performance is contingent upon the level of career challenge. In line with H1, we found that at low levels of career challenge ($M - 2SD$), a history of frequent job mobility was positively related to job performance, $b = 2.72, p = .05$. At high levels of career challenge ($M + 2SD$), a history of frequent job mobility was marginally negatively related to job performance, $b = -1.67, p = .08$. Although this effect was only marginally
significant, the direction of the relationship is in line with what was predicted in H2.²

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE(b)</td>
<td>β</td>
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<tr>
<td>Gender</td>
<td>1.55</td>
<td>2.22</td>
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</tr>
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<tr>
<td>Organizational tenure</td>
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<td>.03</td>
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<td>Current job tenure</td>
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<td>Job mobility</td>
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<td></td>
</tr>
<tr>
<td>Career challenge</td>
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<td></td>
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<tr>
<td>Job mobility x Career</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>challenge</td>
<td>Career challenge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔR²</td>
<td>.03</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>ΔF</td>
<td>1.35</td>
<td>1.03</td>
<td>6.35**</td>
</tr>
</tbody>
</table>

Note. N = 209. * p < .05, ** p < .01.

DISCUSSION

“Job hopping is the new normal for Millennials” (Meister, 2012). Today, it is a common belief that job mobility is a way to broaden one’s experience and to attain career success. However, transferring and adjusting knowledge from one job to another is often demanding, and may impede on optimal job performance. The goal of the present paper was to examine the relationship

² As career challenge approached intermediate levels, the same pattern of relationships emerged but it was less pronounced (at just below average levels of career challenge (M – 1SD): b = 1.63, p = .12; at just above average levels of career challenge (M + 1SD): b = -.60, p = .45).
between having a history of high job mobility and career success in terms of attaining verifiable results and meeting goals (i.e., job performance; Dries, Pepermans, & Carlier, 2008). We hypothesized and found evidence for the idea that the relationship between having a career history of job mobility and job performance is contingent upon the level of career challenge, which is the aggregate degree of challenge the executed jobs carry with them.

![Figure 1. The interaction effect of (1) the degree of career challenge and (2) job mobility on job performance.](image)

Our findings have a number implications that may advance both theory and practice. In their seminal work experience paper, Tesluk and Jacobs (1998) argued that work experience is a multidimensional construct. For instance, tenure, job mobility, and job challenge are three different experience indicators that reveal different kinds of information regarding someone’s experience. Job mobility sheds light on the amount of different job experiences someone has executed during his/her years of experience, whereas career challenge clarifies the nature of these different experiences. Tesluk and Jacobs (1998) posited that different experience indicators may interact with each other. Although the existence of such interaction modes of experience was suggested more than 15 years ago, scant research has been able to empirically test them because
researchers typically apply only one of these indicators to operationalize work experience (Dragoni et al., 2011). This study provides new evidence for the existence of these interaction modes. That is, we found that when career challenge is low, a history of frequent job mobility can have a positive impact on job performance. These results correspond with previous research findings in the work experience literature, where amount-based experience has been considered primarily on a task level and was found to be positively related to job performance (e.g., Dragoni et al., 2011; Van Iddekinge et al., 2009). Our findings suggest that on a job level, amount-based experience is also positively related to job performance at low levels of career challenge.

Importantly, our findings suggest that when career challenge is high, a history of frequent job mobility (high amount-based experience) can have a negative impact on job performance. Devoting insufficient time and resources to social and task transitions (which may take multiple years; Dragoni et al., in press) due to frequent job switches, may cause negative transfer, negatively impacting job performance. However, caution is warranted when interpreting this latter relationship, given that it was only significant at the $p = .08$ level. Future research is needed to investigate whether this effect can be replicated.

The interaction between career challenge and job mobility can be seen as an operationalization of “career density” (Tesluk & Jacobs, 1998). If two individuals have an equal number of years of work experience, and one has had multiple challenging jobs while the other has switched less frequently between challenging jobs, the career described in the first scenario may be characterized as displaying greater “density”. As shown in Figure 2, a highly dense career is characterized by frequent job hopping between highly challenging jobs. A career that scores low on density is characterized by infrequent job hopping between non-challenging jobs. Our findings suggest that medium levels of career density - obtained through (1) infrequent job hopping between highly challenging jobs, or through (2) frequent job hopping between non-challenging jobs - yield better performance outcomes as compared to high or low levels of career density.

Future research could extend the nomological network of the interaction mode. Besides job performance, future research could investigate how career density relates to other objective (e.g., employability) and subjective (e.g., career
satisfaction) career success indicators. In line with the idea that job mobility positively influences one’s motivation when conducting routine jobs, job mobility may positively impact one’s career satisfaction when having a modestly challenging career. With regard to employability, the positive employability effects of having a challenging career (De Pater et al., 2009) might be offset when this career is dispersed across multiple jobs, as high job mobility may be interpreted as a signal of limited organizational commitment. Studies investigating these research questions may want to differentiate between different types of moving behaviors. For instance, the interplay between upward job mobility and career challenge may have different effects on both satisfaction and employability as compared to the interplay between downward job mobility and career challenge.

**Number of Jobs**

<table>
<thead>
<tr>
<th>Career Challenge</th>
<th>Few</th>
<th>Many</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low density</td>
<td>Medium density</td>
</tr>
<tr>
<td>High</td>
<td>Medium density</td>
<td>High density</td>
</tr>
</tbody>
</table>

Figure 2. *Career density as the interaction between number of jobs and career challenge.*

Furthermore, the antecedents of career density could be further scrutinized. For instance, as performance oriented people have goals that are based on other-referenced standards of competence (Payne, Youngcourt, & Beaubien, 2007), they may switch their work environment more frequently when they have challenging jobs, in order to publically display their ability to deal with challenging situations. Learning oriented people on the other hand, who have goals that are based on self-referenced standards of competence (Payne et al., 2007), may want to stay in the same work environment when they have challenging jobs, so they can accurately compare their current level of performance with previous levels.
From a practical point of view, our findings suggest that career counselors should take into account both job mobility and the nature of the executed jobs when guiding an individual in his/her pursuit of a successful career. A balance needs to be found between the level of challenge one seeks in his/her job and the frequency with which one switches jobs. If an employee is having a history of high developmental challenge, characterized by a frequent requirement to step outside the comfort zone of the daily routine, it may be recommendable to limit the frequency of job hopping. Conversely, if an employee has been doing non-challenging, routine work, switching job environments on a regular basis may be advisable in order to keep the employee motivated.

Some limitations should be mentioned. Due to the cross-sectional nature of the study, we cannot make firm conclusions regarding the causality of our findings. We argued that job performance is influenced by the interplay between career challenge and job mobility. An alternative explanation for our findings could be that employees who are not capable of dealing with challenging jobs and thus perform poorly are laid off more frequently, so they need to switch jobs more often. In essence, this kind of explanation would suggest that the relationship between density and performance is due to the attrition (dismissal) of individuals who cannot (or are not willing to) deal with a challenging job, rather than a learning effect of individuals who stay in a challenging job. However, this explanation cannot explain why we found that people who do not have a challenging career perform better when they change jobs frequently. If the reported relationships were due to a selection or drop-out effect, it would be expected that people who perform good when having a non-challenging job would stay in their job. Yet, this does not correspond with the reported interaction effect. Nevertheless, future research could test this alternative explanation more directly. For instance, it could be investigated whether employees who were identified as high potentials on the basis of their abilities and interests in the beginning of their career, perform differently at a certain point in their career depending on the degree of career density they have experienced. As these employees are supposed to be relatively similar in terms of their abilities and career aspirations, these factors may be less plausible as alternative explanations for observed differences in performance.
Such a study could also test the proposed underlying motivational and transfer processes more directly. That is, we argued that the positive relationship between job mobility and job performance at low levels of career challenge emerged via successful knowledge transfer and rekindled motivation when working in a new job. Conversely, we argued that the negative relationship between job mobility and job performance at high levels of career challenge emerged due to the difficulty of combining exploration behaviors (which are required to tackle the challenging assignments) and exploitation behaviors (which are required to work through the transitions). Future research could test the explanatory value of these mechanisms empirically. Support for the explanatory value of these mechanisms might be instrumental to identify modalities of the relationship between career density and job performance. For instance, it has been suggested that some people are better able to deal with the conflicting demands posed by exploration and exploitation (i.e., ambidextrous employees; Bledow et al., 2009). Consider individuals who score high on ‘openness to experience’ and ‘conscientiousness’. They may be able to explore new ways and break with routines when having challenging assignments, and at the same time confirm to established courses of action and become used to extant organizational routines when switching between jobs.

In conclusion, we found that the interaction between job mobility and career challenge could explain incremental variance in job performance, beyond the variance explained by other work experience measures. A history of frequent job mobility had a positive influence on job performance, but only when career challenge was low. Hence, job mobility may be a good idea to attain career success, but only when conducting routine jobs.
REFERENCES


CHAPTER 5

WHEN THE OFFICE RUG GETS PULLED:
A MODERATED MEDIATION MODEL OF THE RELATIONSHIP BETWEEN WORKPLACE ADVERSITY AND JOB PERFORMANCE

We introduced the concept of workplace adversity and defined it as a fundamental disturbance of the daily work routine that causes an important loss. On the basis of previously conducted qualitative research in the managerial development literature, we conceptualized workplace adversity as a four-dimensional second-order construct, consisting of (1) organizational crises, (2) mistakes, (3) career setbacks, and (4) ethical dilemmas. Building on self-regulation theory, we hypothesized that the experience of workplace adversity would lead to a decline in supervisor-rated job performance, through increased rumination (i.e., destructively thinking about the adversity). We argued that this relationship would only unfold for individuals with a low core self-evaluation. Data were collected in a banking organization (N = 790). We developed a 16-item scale that measured adversity at work, with four items for each of the four dimensions. Results from exploratory and confirmatory factor analyses provided support for our hypothesized four factor solution, loading on a higher-order adversity factor. We found evidence for our moderated mediation model, suggesting that when the office rug gets pulled, this will cause ruminations about the causes and consequences of this experience. However, these ponderings will least affect an individual’s work behavior when s/he has a positive self-image.

1 A previous version of this study was presented at the Biannual Conference of the European Association for Work and Organizational Psychology: Carette, B., Anseel, F., Peeters, H., & Lievens, F. (2013). Bouncing back from workplace adversity: Development and test of a moderated mediation model. Paper presented at the 16th Biannual Conference of the European Association for Work and Organizational Psychology, Münster.
INTRODUCTION

“At some point in life the rug gets pulled from under us. We get fired. A long-awaited promotion does not materialize. A business fails. […] No one is immune. Regardless of job level or level of achievement, an upset of some type is inevitable.” (Redmond & Crisafulli, 2010, p. vii).

The economic turmoil that characterizes the contemporary work environment has spurred the interest in adversity at work. Over the past years, almost 700 Forbes articles were published (on- and/or offline) that dealt in some way with the topic of adversity. Workplace adversity can come in many forms, such as the experience of an organizational crisis, making a business mistake, experiencing a career setback, and being confronted with an ethical dilemma (Wilson & Yip, 2010).

Given the prevalence of adverse situations at work, it is important to have a clear picture of the impact these experiences may have on one’s job performance. In line with popular adages such as ‘what doesn’t kill you makes you stronger’ and ‘adversity is a great teacher’, recent social psychological research has found that a history of some lifetime adversity is related to improved mental health and well-being (Seery, 2011), which may in turn positively affect one’s job performance (Wright, Cropanzano, & Bonett, 2007). Conversely, Amabile and Kramer (2011) argued that “of all events that can destroy engagement, joy, and productivity at work, having setbacks […] in the work is number one”, suggesting that what doesn’t kill you at work may in fact make you weaker. This is in line with research indicating that workplace adversities such as the confrontation with an ethical dilemma (Kammeyer-Mueller, Simon, & Rich, 2012), the experience of a career setback (McKee-Ryan, Song, Wanberg, & Kinicki, 2005), or the experience of an organizational crisis (Withers, Corley, & Hillman, 2012) may cause worry about one’s job security and emotional exhaustion. These negative affective states have been found to negatively impact one’s job performance (Gilboa, Shirom, Fried, & Cooper, 2008). Hence, it is unclear what impact adversities have on job performance.

The aim in the current paper was twofold. First, we wanted to develop a clear conceptualization of the construct of workplace adversity. To date,
empirical research on adversity at work has investigated the effects of specific adverse experiences. We will argue that these specific experiences share an underlying theme and as such comprise a general adversity construct, that can be distinguished from related constructs such as job challenge and job hindrances. To empirically test the hierarchical structure of the adversity construct, we examine the fit of a second-order factor model with the different aspects of workplace adversity – as measured by a scale developed for the purpose of this study – as first-order factors. Support for such a higher-order factor structure would advance theory, as it would suggest that we could integrate research findings on different aspects of workplace adversity, which to date have been treated independently from one another. Second, in order to shed light on the ambiguity regarding the impact of workplace adversity, we draw on self-regulation theory to advance and test a theoretical model that relates workplace adversity to job performance. We posit that experiencing workplace adversity activates a self-regulatory feedback loop, causing people to ruminate about the adverse event, ultimately harming one’s job performance. Importantly, we hypothesize that someone’s core self-evaluation – the extent to which one has a positive self-image (Judge, Erez, & Bono, 1998) – may mitigate the effect of workplace adversity on job performance via rumination, in such a way that the relationship only emerges for low core self-evaluators. The result is a nuanced understanding of (1) the different kinds of experiences that cover adversity at work, (2) the cognitive and behavioral impact experiencing workplace adversity has, and (3) the types of employees who suffer the least from experiencing adversity.

THEORETICAL BACKGROUND
Adversity at Work: Definition, Characteristics, and Related Constructs

Almost everyone experiences adversities at some point in their lives (Bonanno, 2004). These negative life experiences can take place in many forms, including being diagnosed with a severe illness (de Ridder, Geenen, Kuijer, & van Middendorp, 2008), death of a friend or family member (Ong, Bergeman, Bisconti, & Wallace, 2006), experiencing a terrorist attack (Bonanno, Brewin, Kaniasty, & La Greca, 2010), etc. What all of these unfortunate events have in
common, is that they are isolated, potentially highly disruptive events that confront the individual with a loss, often causing distress (Bonanno, 2004). These losses are divergent, with some losses being more observable than other. Examples are loss of health, loss of a beloved one, loss of one’s house, loss of safety, and loss of identity.

Besides these generic adverse life events, adversity may also occur in the specific work environment. Similar to adversities in other domains of life, the occurrence of an adverse event at work generally causes an important loss for the individual and/or the organization and therefore disturbs the daily routine in a fundamental way. An organizational crisis, for instance, may threaten the long-term survival of an organization and is often accompanied by high levels of uncertainty that highlight the critical nature of the incident for the employees. As such, organizational crises can cause a loss in viability and credibility of the organization and a loss of confidence with the employees (Withers et al., 2012). Likewise, mistakes can trigger a loss of self-worth, career setbacks can give rise to feelings of loss of identity, and ethical dilemmas diminish ideals and damage self-respect (Yip & Wilson, 2010).

Given the associated losses, we propose that adversities at work are not intentional on the part of the employee. Intentions capture the motivational factors that indicate how much effort people are willing to exert to attain something (Ajzen, 1991). We do not claim that an individual may not be partly responsible for the emergence of an adversity. It is obvious that adversities such as making a mistake that has implications for the organization (e.g., false assumptions, poor communication, and misplaced optimism) is the responsibility of the employee. However, we assume that in the large majority of the cases, these decisions are not made with the goal of creating an adverse event (or a series of adverse events). Instead, these decisions may have been made due to situational constraints (e.g., time pressure), without awareness of the fact that the result would be an adversity. Also, even if these behaviors were intentional and thus aimed at damaging the organization (e.g., causing a crisis), the majority of the employees who have to cope with the crisis had no share in its causes, and thus the adversity is unintentional on their part. For instance, it has been suggested that one of the causes of the collapse of Lehman Brothers
was malfeasance by top executives (Lenzner, 2010). Yet, the majority of employees who were eventually stricken by the crisis and lost their jobs had nothing to do with the causes of the crisis.

Below, we will argue that people are naturally inclined to react to an adversity by worrying and generating ruminative thoughts. Importantly, in order to be able to continue to function properly after an adversity has taken place, people need to find an appropriate way to find peace with the occurrence of the adversity and its consequences. The recognition and acknowledgment of the impact of the adversity may enable someone to psychologically detach from the adversity and to maintain relatively stable levels of psychological and physical functioning at work (Bonanno, 2004).

Taken together, adversity at work pertains to a fundamental disturbance of the daily work routine that causes an important loss. Adversity at work causes worry and rumination and is unintentional on the part of the employee. The ability to continue to function properly requires settlement with the adversity and its consequences. In Table 1, these characteristics of workplace adversities are summarized and are used to distinguish workplace adversity from workplace challenges and workplace hindrances.

**Workplace adversities versus workplace challenges.** Being challenged at work implies that one is having difficult and demanding job assignments or tasks that reveal a gap between someone’s current capabilities and what is required for assignment success, and – although potentially stressful – stimulate personal development through breaking with the everyday routine (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009). These stretches can come in many forms, such as having to determine new directions for the department or organization, working at high stakes, having a wide range of responsibilities, and working across national boundaries.

Despite the fact that both challenges and adversities structurally disturb the daily routine, we suggest that these are distinct work experiences. Rather than finding peace with the work event, the most adaptive response to a challenge is to actively tackle the situation. Active cognitive and behavioral processing of a challenging experience (e.g., through reflection, feedback seeking, and experimenting with alternative ways of working), are effective
Table 1

*Typical Characteristics of Workplace Adversity and Distinction with Workplace Challenge and Workplace Hindrances*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Adversity</th>
<th>Challenge</th>
<th>Hindrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
<td><em>Fundamental</em> disturbance of the daily routine due to a deterioration of one’s current state</td>
<td><em>Fundamental</em> disturbance of the daily routine due to an increase of one’s desired state</td>
<td><em>Minor</em> disturbance of the daily routine</td>
</tr>
<tr>
<td>Valence of affective response</td>
<td>Negative</td>
<td>Positive</td>
<td>Moderately negative</td>
</tr>
<tr>
<td>Elicited emotion</td>
<td>Fear, rumination, confusion</td>
<td>Excitement, flow, motivation</td>
<td>Frustration, irritation, annoyance</td>
</tr>
<tr>
<td>Prevalence</td>
<td>Rare</td>
<td>More common</td>
<td>Common</td>
</tr>
<tr>
<td>Intention</td>
<td>Unintentional</td>
<td>Intentional</td>
<td>Unintentional</td>
</tr>
<tr>
<td>Consequence/result</td>
<td>Personal Loss</td>
<td>Development</td>
<td>Decreased efficiency</td>
</tr>
<tr>
<td>Adaptive personal reaction</td>
<td>Accept: Find peace in what happened</td>
<td>Personal action: Reflection, experimenting, seeking feedback</td>
<td>Personal action: Change, invert</td>
</tr>
<tr>
<td>Examples</td>
<td>Organizational crises; mistakes; career setbacks; ethical dilemmas (Wilson &amp; Yip, 2010; Yip &amp; Wilson, 2010)</td>
<td>Unfamiliar responsibilities; creating change; high levels of responsibility; working across boundaries; managing diversity (McCauley et al., 1994; DeRue &amp; Wellman, 2009)</td>
<td>Daily hassles; role ambiguity; interpersonal problems; red tape; organizational politics (Cavanaugh et al., 2000; Podsakoff et al., 2007; Roddell &amp; Judge, 2009)</td>
</tr>
</tbody>
</table>
ways to manage the challenging situation at hand (DeRue, Ashford, & Myers, 2012).

The prospect of being able to meet the high performance expectations set by the challenging situation turns job challenge into an opportunity for growth, yielding positive, motivating effects (e.g., a state of flow; Nakamura & Csikszentmihalyi, 2009) instead of rumination and worry. Indeed, research has found that job challenge may cause changes in employee knowledge and skills and ultimately improve job performance (Carette, Anseel, & Lievens, 2013; DeRue & Wellman, 2009; Dragoni et al., 2009). Given these potentially adaptive effects of workplace challenges, employees may actively seek out challenging assignments (Dragoni et al., 2009). Hence, in contrast to adversities at work, challenges are often intentional on the part of the individual: Individuals may actively seek out a challenging assignment, whereas it is highly unlikely that they will actively look for the occurrence of an adverse experience.

Importantly, challenges that are excessively high may lead to adverse experiences. For instance, when an individual gets a challenging promotion which is highly above his/her capacities, s/he may feel overwhelmed, reducing the likelihood that learning processes such as feedback seeking and reflection are optimally activated (Peter & Hull, 1969). The result may be a career setback, in the form of a demotion.

**Workplace adversities versus workplace hindrances.** Workplace hindrances are work-related circumstances that tend to interfere with an individual’s work achievement (e.g., Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Pearsall, Ellis, & Stein, 2009; Rodell & Judge, 2009). Examples are organizational politics and the experience of daily hassles, such as having problems with coworkers (Podsakoff, LePine, & LePine, 2007).

Given that adversities as well as hindrances interfere with the attainment of valued goals, it is highly unlikely that individuals will deliberately seek out adversities or hindrances. Hence, we posit that they both are unintentional on the part of the individual. However, as hindrances are more common than adversities, the occurrence of an isolated hindrance may have a less severe, long-lasting affective impact on the daily routine of the employee as compared to the occurrence of an adversity. For instance, Bledow, Schmitt, Frese, and
Kühnel (2011) found that encountering a number of hassles in the morning (e.g., disagreement with a colleague) was positively related with feelings of frustration. However, a positive mood in the afternoon could prevent a potential decrease in work engagement at the end of the day.

In contrast to the negative moods that are elicited by an adversity (e.g., anxiety, worry), frustration as a common affective reaction to an adversity is promotion focused rather than prevention focused (Baas, De Dreu, & Nijstad, 2008). This implies that hindrances may yield more control coping behaviors as compared to adversities. If one can find a way to redirect the hindrance, the occurrence of a loss can be prevented. For instance, interpersonal problems within a team might be solved by a team leader, enabling the team to effectively work together again as a collective unit, without the prevalence of major incidents (Morgeson, DeRue, & Karam, 2010).

However, a hindrance that cannot be inverted and that becomes chronic, might cause an adversity that has far-going consequences for the employee and for the organization. Returning to the example of the occurrence of interpersonal problems within a team, if one cannot find a way to get along with his/her colleagues and solve these problems, this disturbance in within-team communication may lead to end-of-work fatigue (Gross et al., 2011) and growing discord in team-efficacy beliefs (DeRue, Hollenbeck, Ilgen, & Feltz, 2010). The lack of communication may eventually cause a highly consequential team error (e.g., Varpio, Hall, Lingard, & Schryer, 2008). As another example, having to use political strategies within the organization such as ‘getting along to get ahead’ might pose employees for highly consequential ethical dilemmas, such as enduring inappropriate or fraudulent behaviors by a senior manager. Moreover, if employees cannot find a way to deal with organizational politics, this might negatively influence their career progress (Witt, Kacmar, Carlson, & Zivnuska, 2002). These examples illustrate that hindrances that are not properly dealt with may result in the occurrence of an adversity.

In short, as summarized in Table 1, adversities are work experiences that can be clearly distinguished from challenges and hindrances. Both adversities and challenges are work experiences that disturb the everyday routine, but adversities cause important losses and are unintentional, whereas challenges are
adaptive and developmental and are thus often intentional. Conversely, both adversities and hindrances are negative work experiences, but hindrances are more common and less consequential. Furthermore, both challenges and hindrances need to be actively tackled, whereas an adaptive reaction to an adversity is to find peace in the adversity and accept it, in order to be able to continue to function properly after the event has taken place.

**Workplace Adversity as a Four-Dimensional Construct**

Qualitative studies have explored the types of work experiences that are considered adversities (McCall & Hollenbeck, 2002; McCall, Lombardo, & Morrison, 1988; Yip & Wilson, 2010). On the basis of interviews and surveys involving more than 1,000 executives working in more than 30 different countries, a number of vital workplace experiences have been identified. A recent comprehensive integration of the results of these different studies has yielded four types of workplace adversities: Organizational crises, mistakes, career setbacks, and ethical dilemmas (Wilson & Yip, 2010; Yip & Wilson, 2010).

An organizational crisis is a low-probability situation that is perceived as a threat to the viability of the organization, and thus has a negative high-impact situation that fundamentally disturbs the daily work routine of the employees (Pearson & Clair, 1998). Due to the financial and psychological losses, experiencing organizational crises is known to be personally and socially threatening for employees (Pearson & Clair, 1998; Withers et al., 2012), causing intense emotions of fear and anxiety (Maitlis & Sonenshein, 2010).

A second potential adversity that Wilson and Yip (2010) have identified is the occurrence of a personal mistake or failure that has business consequences. The occurrence of a mistake and the associated financial and social turmoil can cause psychological problems. For instance, it has been described that entrepreneurs who fail in setting up a business and attribute the failure to a personal mistake rather than misfortune may experience a drop in self-efficacy and may be less likely to start another business (Cardon, Stevens, & Potter, 2011).

Third, experiencing career setbacks have been identified as adverse events. Unforeseen obstacles that block career progress, such as a reassignment,
missed promotion, or the loss of one's job, may evoke feelings of fear and anxiety (e.g., McKee-Ryan et al., 2005; Vinokur, Price, & Caplan, 1996).

Finally, ethical dilemmas have been suggested as a fourth adverse event. Ethical dilemmas occur when social pressures in organizations are in conflict with one’s beliefs regarding what is right and wrong (Kammeyer-Mueller et al., 2012). Ethical dilemmas are often the result of divergence between an employee’s own beliefs regarding ethical behavior and the employer’s beliefs regarding ethical behavior (King & King, 1990). For instance, ethical conflict could arise if an employee who values honesty would feel pressured to withhold important information from executives when that information is thought to be contrary to the executive agenda (Witt et al., 2002). Recent research has indicated that experiencing ethical dilemmas causes psychological distress (e.g., emotional exhaustion and lower career fulfillment; Kammeyer-Mueller et al., 2012).

In sum, drawing on previously conducted qualitative research, we distinguish four different kinds of adversity: (1) organizational crises, (2) mistakes, (3) career setbacks, and (4) ethical dilemmas. We suggest that different adversities may co-occur. For instance, organizational crises may disturb relational systems (Kahn, Barton, & Fellows, 2013). These relational problems may lead to a lack of communication within the team which may eventually cause a highly consequential team error (e.g., Varpio et al., 2008). Similarly, organizational crises are often accompanied by restructuring and a workforce reduction (Staufenbiel & König, 2010). Hence, experiencing an organizational crisis often implies a career setback for multiple employees. As an anecdotal example, in the book ‘The Murder of Lehman Brothers’, the author who was a senior investment banker at Lehman Brothers for 20 years and experienced the boom and collapse of the firm firsthand, explains how the malfeasance by a corrupt few inside Lehman had a major influence on the meltdown of the organization. He describes how he endured risky speculations by others (ethical dilemma), which did not work out (mistake) and eventually led to the bankruptcy of the organization (organizational crisis). The result was a lay-off of numerous employees, including the author himself (career setback).

**The Impact of Workplace Adversity**
The relationship between adversity and rumination. According to self-regulation, cybernetic, and control theories, a human being is a self-regulator aimed at maintaining homeostasis. People have certain desired states (i.e., goals) within the self and are aimed at attaining a balance between these desired states and their current states. The occurrence of an adverse event and the associated loss disturbs this balance and creates a discrepancy between one’s current state and one’s desired state. Consequently, a negative feedback loop is activated, consisting of a test-operate-test-exit sequence (Carver & Scheier, 1981). The initial response to the discrepancy is an increase in self-focus (Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987). This augmented self-focus has a diagnostic function: By focusing attention on the self, the individual aims to investigate whether the occurrence of the adverse event has derailed the individual in his/her pursuit of important goals. The resulting salience of the discrepancy between one’s current and one’s desired state may create a tension that leads to action (Carver & Scheier, 1981; Vancouver, 2008). In the action stage, resources are allocated in order to diminish the gap between (1) the deteriorated work situation caused by the adversity (i.e., the current state) and (2) the attainment of work-related goals (i.e., the desired state). Subsequently, by refocusing attention on the self, the individual will evaluate whether the efforts have led to a reduction of the discrepancy between the current and desired states. This negative self-regulatory feedback cycle continues until the discrepancy between the current and desired state is eliminated (Carver & Scheier, 1981; Vancouver, 2008). Once the individual has become aware of the fact that the discrepancy has been eliminated and the equilibrium has returned, the individual will quit allocating new resources to improve the situation at hand.

Given the invasive nature and the long-term consequences of workplace adversity, momentary mobilization of cognitive resources may not yield a reduction in the discrepancy between the current and desired states. The idea that some discrepancies can be irreducible has been proposed by Pyszczynski and Greenberg (1987). An irreducible discrepancy may prevent disengagement from the self-regulatory feedback cycle, thus leading to persistence in self-focusing on the irreducible discrepancy. As a result, a cumulative body of resources will be devoted to the processing of information with regard to the
discrepancy, narrowing the individual’s attentional scope. The resulting focus of attention on the same topic over time is known as rumination (Watkins, 2008).

Taken together and as summarized in Figure 1, the occurrence of workplace adversity deteriorates one’s current work situation and therefore disrupts the balance between one’s current and desired states. The initial response to this discrepancy is an increase in one’s level of self-focus. The subsequent salience of the discrepancy will cause people to mobilize their resources, aimed at reducing the discrepancy between one’s current situation and one’s goals. Given the perceived irreducible nature of the discrepancy due to the high impact an adverse work event may have, we propose that people will fail to exit the self-regulatory cycle and will persist in focusing their attention on the adversity and its personal consequences (i.e., rumination).

Figure 1. The self-regulatory feedback loop that is activated when a workplace adversity occurs. Workplace adversity deteriorates one’s current work situation, causing a discrepancy with one’s desired work situation. This discrepancy leads to an increase in self-focus, leading to an activation of cognitive resources in order to diminish the discrepancy. This cycle continues until the balance between one’s current state and desired state is restored.
The relationship between rumination and job performance. Although research on the behavioral effects of rumination is scarce (Baumeister, Masicampo, & Vohs, 2011), we argue that rumination as a natural human reaction to the experience of an adverse event may lead to a decline in someone’s job performance. First, chronic self-focused attention following the experience of an adversity may cause negative affect (Mor & Winquist, 2002; Whitmer & Gotlib, 2013). The persistent focus of attention on the adversity and the internal discrepancy causes the individual to re-experience the adverse event. The recurring confrontation with the irreducible discrepancy caused by the adversity produces negative affect (Carver & Scheier, 1981) which may negatively impact performance.

Second, because self-focus by definition increases the salience of the self, self-focused attention following the experience of an adversity may increase the internality of the person's attributions for the adversity (Pyszczynski & Greenberg, 1987). Such self-blame may exacerbate the negative emotions that are elicited by the adversity.

Third, the narrowed attentional scope and the resulting preoccupation with the adversity and its personal consequences may restrict someone’s ability to generate original and effective ways of getting around the discrepancy. Indeed, meta-analytic evidence suggests that a temporary shift from an unsolved problem facilitates divergent thinking and enables the development of a solution for the problem (Sio & Ormerod, 2009). Ruminating may cause difficulties to move attention away from the adversity and to find a way around the adversity.

Fourth, the individual's preoccupation with the adversity and its consequences may lead to neglect of other work-related concerns (Pyszczynski & Greenberg, 1987). That is, ruminative thoughts about the adversity will remain the focus of these individuals’ narrowed attentional scope, even when their job requires them to engage in other tasks. As rumination and job requirements compete for the same executive resources, rumination depletes resources, making them less available for task-relevant processing (Whitmer & Gotlib, 2013). Recent experimental lab research showing a negative relationship between the extent to which people ruminated after having read an emotionally disturbing excerpt and their performance on a working memory task (Curci,
Lanciano, Soleti, & Rimé, in press), is in line with the idea that rumination depletes the resources that people need to perform their job.

**The buffering role of core self-evaluation.** Our reasoning above suggests a mediation hypothesis in such a way that experiencing workplace adversity causes a decline in job performance through the generation of ruminative thoughts. Importantly, we propose that this mediation effect only emerges for people who have low core self-evaluations (CSE). Defined as fundamental, bottom-line evaluations that people make about themselves and their functioning in their environment, CSE is a broad latent construct indicated by at least four traits: self-esteem, generalized self-efficacy, locus of control, and (low) neuroticism (or high emotional stability) (Judge, 2009). Individuals who are high on CSE appraise themselves in a positive manner across situations; they are well adjusted, positive, self-confident, efficacious, and believe in their own agency (Judge, Erez, Bono, & Thoresen, 2003; Kammeyer-Mueller, Judge, & Scott, 2009).

We propose that CSE moderates both the first and second stage of the mediation effect. The first stage of the mediation effect refers to the relationship between adversity and rumination. Above, we argued that rumination is caused by a failure to disengage from the self-regulatory cycle that emerges following the experience of an adversity and the resulting irreducible discrepancy between someone’s current and desired states. High core self-evaluators may be equipped with certain strategies that enable them to deal more effectively with the adversity. That is, high core self-evaluators may attach less meaning to the desired state (goal) that is jeopardized by the adversity, and pursue substitute goals instead. By these means, high core self-evaluators may be able to reduce the discrepancy between current and desired states. Restoring the balance between current and desired states, may lead to disengagement of the self-regulatory cycle, reducing the generation of ruminative thoughts about the adversity. The suggestion that high core self-evaluators are better self-regulators in the face of adversity is in line with meta-analytic evidence showing that CSE is positively related to effective coping behaviors when confronted with stressful work situations (Kammeyer-Mueller et al., 2009). Taken together, we posit that CSE may attenuate the relationship between adversity and rumination.
The second stage of the mediation effect refers to the relationship between rumination and job performance. Even though high core self-evaluators may ruminate to a lesser extent, some degree of rumination is almost inevitable when confronted with workplace adversity. Virtually everyone reports intrusive rumination at some point early after they have experienced an important loss (Bonanno, 2004). However, we hypothesize that for high core self-evaluators, these ruminating thoughts interfere to a lesser extent with their ability to adequately perform their job activities. As high core self-evaluators appraise their job and their life in a more positive way (Judge et al., 2003), they may be more resilient when an adverse event occurs, limiting the negative affective impact of the re-experience of the adversity. Furthermore, given that high core self-evaluators, by definition, regard themselves in a consistently positive manner across situations, they may be less prone to self-blame when ruminating about the adversity. Thus, high core-self evaluators may be able to offset the negative affective impact that is usually evoked by an adversity. Furthermore, research indicates that individuals high in CSE exhibit more creative performance at work (Judge & Kammeyer-Mueller, 2011), making them less prone to a lack of divergent thinking when ruminating about an adversity. Taken together, high core self-evaluators may be able to execute their job activities in a proper way despite the generation of ruminating thoughts about the adverse event.

Hypotheses and Research Model

On the basis of the preceding theories and empirical literature, we developed an integrative model, which is displayed in Figure 2. This model proposes the following relationships.

**Hypothesis 1.** The experience of workplace adversity is positively related to rumination.

**Hypothesis 2.** CSE moderates the positive relationship between workplace adversity and rumination, such that workplace adversity causes less rumination for high core self-evaluators.
Hypothesis 3. Rumination leads to a decline in job performance.

Hypothesis 4. CSE moderates the negative relationship between rumination and job performance, such that rumination does not affect job performance for high core self-evaluators.

The combination of these hypotheses lead to the following moderated mediation hypothesis.

Hypothesis 5. Workplace adversity leads to a decline in job performance through the generation of ruminative thoughts, but only for low core self-evaluators.

Figure 2. Hypothesized moderated mediation model linking workplace adversity to performance development via rumination, with the first stage and the second stage of the mediation effect being moderated by CSE.

METHOD

Sample and Procedure

The study was conducted in the headquarters of a banking organization which is primarily active on the European market. Given the financial problems with which the banking sector has been struggling since the last five years, a banking organization is a particularly interesting setting for the purposes of this study. An email with a link to the survey was sent to a random sample of 2,216 employees. A total of 790 employees completed the questionnaire entirely (35.56% response rate). The mean age was 42.17 years ($SD = 9.13$), the mean
organizational tenure was 17.06 years (SD = 10.41), 60% of the participants was male, 72% worked full time, and 85% held at least a bachelor’s degree.

For the supervisor-ratings of job performance, archival data was collected. Employees’ job performance was compared on two consecutive years. We restricted the sample in which we tested our hypotheses to employees who had been working for the company in their current function since the first year (N = 430). By these means, it was possible to investigate whether an evolution in job performance had taken place. The remaining sample was randomly split in two approximately equal halves and was used for a validation test of the adversity scale that was developed for this study.

Measures

**Workplace Adversity.** To measure the extent to which respondents experienced workplace adversity during recent years, we developed a new scale. Drawing on the definitions of the different adversity dimensions, we generated an item pool of 38 items with a representation of each dimension. On the basis of a content validation (a group of 13 academics classified the items into their according dimension) of the items, we revised the items. We also dropped inappropriate items (e.g., disproportionally lengthy items).

We conducted an exploratory factor analysis on the 20 remaining items in a sample of 165 employees working in the banking organization. Respondents were asked to indicate how well each statement described something they faced in their current jobs during recent years, ranging from 1 (completely disagree) to 5 (completely agree). Four factors had an eigenvalue above 1 (ranging between 1.48 and 6.25). We deleted one item that had a cross-loading exceeding .32 (Tabachnick & Fidell, 2007). Each dimension of the remaining items was represented with four items, except for the dimension ‘Ethical Dilemmas’ which was represented with seven items. For the sake of parsimony, we dropped three items with the lowest factor loadings.

Next, we conducted a confirmatory factor analysis on the 16 remaining items in a new sample of 195 employees working in the banking organization. A model with all items loading on one factor did not show a good fit to the data [S-B χ²(104) = 1248.61; RMSEA = .24, 90% CI: .23 - .25; CFI = .34; IFI = .35]. A four-factor model with the items loading on their designated factor revealed a
good fit to the data [S-B $\chi^2(98) = 156.56; RMSEA = .055, 90\% CI: .038 - .071; CFI = .97; IFI = .97], with all factor loadings being statistically significant at $p < .05$. The final items of the scale are presented in Table 2.

In the sample in which we tested our hypotheses, the 16-item scale also showed good psychometric properties. That is, the second-order four dimensional model showed a good fit to the data, S-B $\chi^2(101) = 375.82; RMSEA = .080, 90\% CI: .071 - .088; CFI = .93; IFI = .93$. The Cronbach’s alpha of the four factor’s ratings ranged between .86 and .91. The overall Cronbach’s alpha of the scale’s ratings was .85.

**Rumination.** To measure the extent to which participants had ruminated during recent years, we administered the five brooding items of the Ruminative Responses Scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). For each statement, respondents were asked to indicate how often they had reacted to recent adverse work situations in that particular way, ranging from 1 (almost never) to 5 (almost always). A sample item is *I thought “What am I doing to deserve this?”*. Cronbach's alpha of the scale’s ratings was .86.

**Core Self-Evaluation.** Core self-evaluation was measured with the 12-item CSE-scale of Judge et al. (2003). The scale consists of six positively-worded items (e.g., *I determine what will happen in my life*) and six negatively-worded items (e.g., *I do not feel in control of my success in my career*). The items were rated on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). After having reverse coded the negative items, Cronbach's alpha of the scale’s ratings was .85.

**Job Performance.** Supervisor-rated data on job performance were obtained from archival records. Employees’ job performance was compared on two consecutive years. For each year, a single summary rating on a 7-point scale represented a composite of all relevant aspects of performance (see also Schoorman & Mayer, 2008).

**Control Variables.** We controlled for respondents’ gender and age.

**RESULTS**

Table 3 presents the means and standard deviations, as well as the correlations among the focal variables. As can be seen, experienced workplace
Table 2

*Standardized Factor Loadings for the Workplace Adversity Scale*

<table>
<thead>
<tr>
<th>Workplace Adversity item</th>
<th>OC</th>
<th>BM</th>
<th>CS</th>
<th>ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A serious crisis impacted my job activities</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. My job was influenced by an unexpected shocking organizational problem</td>
<td>.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. An unexpected and disorderly situation affected my job activities</td>
<td>.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. A harmful situation that was not under my control affected my job</td>
<td>.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. My own negligence led to adverse business consequences</td>
<td>.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. My own poor judgment of a business challenge negatively impacted our business</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I made an error which had business consequences</td>
<td>.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. A personal miscalculation caused adverse business conditions</td>
<td>.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. My career progression got stalled</td>
<td>.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I missed out on a job promotion</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. My expected career progress was impeded</td>
<td>.97</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Unforeseen obstacles blocked my career path</td>
<td>.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I endured inappropriate behavior taking place in my organization</td>
<td></td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I had suspicions of inappropriate activities occurring in my organization</td>
<td></td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I observed possibly immoral behaviors in my organization</td>
<td></td>
<td></td>
<td>.95</td>
<td></td>
</tr>
<tr>
<td>16. I knew of unethical behaviors in my organization</td>
<td></td>
<td></td>
<td></td>
<td>.97</td>
</tr>
</tbody>
</table>

*Note.* OC = Organizational Crisis, BM = Business Mistake, CS = Career Setback, ED = Ethical Dilemma. All factor loadings are significant at $p < .05$. 


adversity was positively related to rumination \((r = .42, p < .01)\) and negatively related to CSE \((r = -.41, p < .01)\). To ensure that the items loaded on separate factors, we compared the fit of a model with the four adversity dimensions, the CSE items, and the rumination items loading on three separate factors versus one factor. The three-factor model showed a good fit to the data \([S-B \chi^2(489) = 1130.77; RMSEA = .055, 90\% CI: .051 - .059; CFI = .90; IFI = .90]\), whereas the one-factor model did not show a good fit to the data \([S-B \chi^2(492) = 1536.31; RMSEA = .070, 90\% CI: .066 - .074; CFI = .83; IFI = .84]\). These findings suggest that the scores on CSE, rumination, and workplace adversity are not driven by the same underlying factor.

Table 3

Means and Standard Deviations Demographic and Focal Variables, and Correlations Among Them

<table>
<thead>
<tr>
<th></th>
<th>(N)</th>
<th>(M)</th>
<th>SD</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gender</td>
<td>430</td>
<td>.42</td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Age</td>
<td>430</td>
<td>44.34</td>
<td>8.04</td>
<td>-.16**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Workplace adversity</td>
<td>430</td>
<td>2.18</td>
<td>.54</td>
<td>-.14**</td>
<td>-.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>CSE</td>
<td>430</td>
<td>3.49</td>
<td>.53</td>
<td>.03</td>
<td>-.01</td>
<td>-.41**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Rumination</td>
<td>430</td>
<td>2.15</td>
<td>.77</td>
<td>-.09</td>
<td>-.04</td>
<td>.42**</td>
<td>-.59**</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Job performance Year 1</td>
<td>422</td>
<td>4.32</td>
<td>.74</td>
<td>-.11*</td>
<td>-.03</td>
<td>-.08</td>
<td>.09</td>
<td>-.08</td>
</tr>
<tr>
<td>7.</td>
<td>Job performance Year 2</td>
<td>423</td>
<td>4.36</td>
<td>.76</td>
<td>-.01</td>
<td>-.13**</td>
<td>-.16**</td>
<td>.19**</td>
<td>-.16**</td>
</tr>
</tbody>
</table>

Note. * \(p < .05\), ** \(p < .01\). For the dichotomous variable gender, the mean denotes the percentage of females.

Workplace adversity was negatively related to job performance in Year 2 \((r = -.16, p < .01)\). Importantly, workplace adversity was not significantly related to job performance in Year 1 \((r = -.08, p = .09)\), supporting the direction of
causality we proposed (i.e., adversity has a negative impact on job performance instead of job performance negatively affecting workplace adversity).

To test our hypotheses, a number of hierarchical regression analyses were run, always controlling for our control variables in the first step. H1 was supported: The experience of workplace adversity was positively related to rumination ($\beta = .60, p < .01$). We predicted that CSE would moderate this relationship, such that workplace adversity would cause less rumination for high core self-evaluators (H2). We could not confirm this hypothesis: The interaction term between adversity and CSE did not explain incremental variance beyond the variance explained by the main effects of adversity and CSE and by the control variables, $\Delta R^2 = .00, F(1,424) = 2.39, p = .12$.

In H3, we proposed that rumination would lead to a decline in job performance, and we predicted that having a high CSE would offset this negative relationship (H4). To test this hypothesis, we regressed job performance in Year 2 on (1) our control variables, (2) job performance in Year 1, and (3) rumination. We found that rumination was negatively and significantly related to performance development ($\beta = -.11, p < .01$). Adding rumination to our model explained incremental variance in Year 2 job performance, beyond the variance explained by Year 1 job performance and our control variables ($\Delta R^2 = .01, F(1,413) = 8.14, p < .01$). This relationship was moderated by CSE ($\Delta R^2 = .01, F(1,411) = 5.58, p = .02$). Figure 3 graphically depicts this interaction following the procedure outlined by Aiken and West (1991). In line with H4, rumination only had a negative impact on job performance for very low core self-evaluators ($M - 2SD, \beta = -.18, p = .01$), and not for high core self-evaluators ($M + 2SD, \beta = .13, p = .14$).

Finally, in H5 we predicted that workplace adversity would lead to a decline in job performance through the generation of ruminative thoughts, but only for low core self-evaluators. To test this moderated mediation hypothesis, we adopted bootstrapping moderated mediation analyses of Preacher, Rucker, and Hayes (2007). Given that we found that the interaction term between CSE and adversity on rumination was not significant, we only specified a stage 2 moderation in our mediation model, with CSE moderating the relationship between rumination and job performance. In line with our hypothesis, we found
that the indirect effect of adversity on job performance via rumination was significant for low core self-evaluators (M - 2SD; \( b = -.09 \), Bootstrap 95% CI = \(-.20 \) – \(-.01 \), \( p = .03 \)), but not for high core self-evaluators (M + 2SD; \( b = .09 \), Bootstrap 95% CI = \(-.01 \) – \(-.20 \), \( p = .10 \)).

Figure 3. Interactive effect of rumination and CSE on the change in job performance.

**DISCUSSION**

We introduced the concept of workplace adversity and conceptualized it as a four-dimensional construct. Our results suggest that what doesn’t kill you at work makes you weaker. That is, we demonstrated that experiencing adversity at work negatively impacts job performance through the generation of ruminative thoughts. Importantly, we showed that this was only the case for people with a negative self-concept. Employees who have medium or high core self-evaluations may be able to combine the generation of ruminative thoughts with the execution of their job activities. As a result, job performance of employees who have a positive self-concept is not affected by the experience of adversity at work.
Theoretical Implications

Interest in the impact of work experience is growing. Work experience has traditionally been quantified in terms of tenure (Schmidt, Hunter, & Outerbridge, 1986). However, this temporal approach to work experience neglects the importance of the content of tasks and assignments encountered during these years of experience (Tesluk & Jacobs, 1998). The specific nature of work situations has been referred to as the qualitative component of work experience and has primarily been operationalized in terms of the challenges that these tasks and assignments produce. Our research extends work experience theory by suggesting that besides challenges which positively impact skill development and job performance (Carette et al., 2013; DeRue & Wellman, 2009; Dragoni et al., 2009), employees can be confronted with adverse experiences, which may negatively impact job performance. To date, these adverse work experiences have received scant research attention.

We conceptualized adversity at work as a higher-order construct, comprising four dimensions: The experience of (1) an organizational crisis, (2) a business mistake, (3) a career setback, or (4) an ethical dilemma. The limited empirical studies that have looked into different adverse experiences at work have developed independently from one another. There has not been any empirical work that has tried to integrate research on different kinds of adversity and their consequences. We argued that these experiences underlie the same construct. That is, they share the fact that they cause a loss, such as a loss of confidence, a loss of self-worth, a loss of identity, or a loss of self-respect. Our results from confirmatory factor analyses support our assumption that the different adverse work experiences underlie the same factor. The sound psychometric properties of the scale we developed to measure workplace adversity provide an exciting opportunity for future research to measure the confrontation with adverse work experiences.

We posited that the experience of workplace adversity and the associated loss deteriorates one’s work situation. We argued and empirically confirmed that the consequence of this experience of adversity is the development of ruminating thoughts about the adversity, such as “what have I done to deserve this?” Importantly, we extend current research by moving beyond relating
adverse work experiences to self-reported states of distress. Instead, we consider self-reported rumination as a mediating mechanism in the relationship between adversity at work and supervisor-rated job performance. That is, we found that people who experienced adversity showed a decline in their job performance. This relationship can be explained by the fact that employees who experienced adversity showed higher levels of rumination, which taxes cognitive resources and impact one’s job performance. This suggests that the cognitive impact of workplace adversity is analogous to conducting a secondary task that shares working memory resources with one’s primary job activities.

We found that this effect between workplace adversity and job performance via rumination only emerges for low core self-evaluators. The fact that CSE may mitigate the negative effects of experiencing workplace adversity suggests that employees differ in their ability to cope with adversity at work. Although previous research has suggested that someone’s psychological capital may influence one’s coping strategies when being confronted with an adverse event (e.g., a career setback; Chen & Lim, 2012), our study provides what we believe is the first direct empirical evidence that employee characteristics influence the impact workplace adversity has on actual job performance.

Importantly and contrary to our expectations, CSE only played a moderating role in the relationship between rumination and job performance, and not in the relationship between adversity and rumination. This implies that some degree of rumination following the experience of an adversity is inevitable, which is in line with research findings about rumination following other adversities in life (Bonanno, 2004). This period of consideration may be an essential aspect of the coping process. However, high core self-evaluators seem to be better able to deal with these ruminating thoughts. Given their positive self-regard, high core self-evaluators may be less prone to self-blame when ruminating about an adversity. As a result, they may be able to offset the negative affective impact that is usually evoked by an adversity, and as such retain a broader attentional scope (Whitmer & Gotlib, 2013). This broader attentional scope may enable them to keep conducting their job activities in an adequate way, despite the ruminative thoughts.

**Practical Implications**
Given that during recent years, organizations have been struggling with economic hardships, our findings may be of particular interest for organizations who want to develop a better understanding of the consequences these adversities have had on their employees and how the negative consequences can be minimized. As our results showed that high core self-evaluators are most resilient when an adversity occurs, our findings suggest that besides focusing on the prevention of adversities (e.g., through implementing occupational safety programs as a means of limiting mistakes), organizations may consider looking for ways to improve the efficiency of the way employees deal with adversities. An interesting strategy would be to augment the core self-evaluation of their workforce. When considering CSE from a trait perspective, organizations may invest in the identification of high core self-evaluators during the selection process. Furthermore, research into the specific components that determine CSE has found that these components can be developed over time. As an example, task control, membership of an active improvement group, and breadth of training have been found to be positively associated with self-efficacy (Axtell & Parker, 2003). Hence, in order to improve their employees’ resilience when being confronted with adversities (at work), organizations may consider investing in these HR practices.

Furthermore, as our findings suggest that some degree of rumination following the experience of an adversity is inevitable, organizations may look for ways to optimally structure this period of deep thought. Elaborating on how to achieve the goal and how past missteps possibly could have been rectified - rather than focusing on current feelings and implications of failure - has been shown to improve performance (Ciarocco, Vohs, & Baumeister, 2010). Hence, in order to improve the cognitive elaboration process, organizations may consider implementing systematic reflection interventions that prompt for adaptive reflective thoughts (e.g., self-explanation, consideration of different approaches that could have been taken; Ellis, Carette, Anseel, & Lievens, in press).

Finally, there’s a risk for employees that the adversity experience and increased rumination may limit the employee’s ability to detach from work when at home, which may amplify the psychological exhaustion that is caused
by the adversity and the ruminative thoughts. Research on recovery from work (Sonnentag, 2012) suggests that involvement in meaningful off-job activities (e.g., volunteer work) may help people to detach from their work. Furthermore, specific environmental features in which employees spend their off-job time (e.g., a natural setting that provides “soft” stimuli) may facilitate psychological detachment and recovery from adverse situations at work. Hence, employees may engage in these activities in order to limit the negative consequences caused by workplace adversity.

**Caveats and Future Research**

Notwithstanding the contributions noted above, there are several possible limitations to this study that should be noted. First, our independent variable, our moderator variable, and our mediator variable were measured at the same point in time, and were relatively highly correlated. As a result, it is possible that the tendency to ruminate crops adversity, rather than adversity causing rumination. Alternatively, CSE could be the influential factor, determining both the experience of adversity and the extent of rumination. Importantly, adversity could explain incremental variance in rumination, beyond the variance explained by CSE ($\Delta R^2 = .04$, $F(1,416) = 23.97$, $p < .01$), supporting the idea that the reported effects are not entirely driven by CSE. Also, job performance was measured at two points in time. Our finding that workplace adversity was related to performance in Year 2, but not related to performance in Year 1, is in line with the direction of causality we advanced here. Nevertheless, future research could clarify this causality issue more directly through longitudinal research. A longitudinal research design could also be used to test for reciprocal relationships between adversity and job performance. Experiencing workplace adversity may impact how one deals with future workplace adversities. In line with the research findings that people with a history of some lifetime adversity may have better mental health (Seery, 2011), employees who experienced some degree of workplace adversity may be more resilient when faced with adversity in the future. This would suggest that although workplace adversity may negatively impact one’s job performance shortly after the adversity has taken place (as reported in this study), in the long run people may benefit from the experience of adversity. Similarly, it could be investigated whether people who
have experienced adversities over the course of their life are better able to deal with adversities that they encounter at work at a later age.

Future research could also investigate other outcomes of the experience of adversity. In line with social psychological findings that adversity serves as a clear test of one’s felt commitment (Lydon & Zanna, 1990), it could be investigated whether adversity impacts one’s job/organizational commitment. The introspection that is triggered by the experience of workplace adversity may reveal important information about the self; when people are faced with adversity, they may see some meaning attached to the situation in which they are involved that impacts how they see themselves and the world. If the person perceives the situation as indicative of his/her fundamental values, his/her job and/or organizational commitment may be amplified. In the same way as a couple's commitment in the face of adversity seems a more valid indicant as compared to their self-reported commitment when they were newlyweds, someone’s organizational commitment in the face of workplace adversity may be a more valid indicator as compared to their self-reported organizational commitment in prosperous times.

**CONCLUSION**

This study makes an important contribution by introducing workplace adversity and by conceptualizing adversity as a higher-order four-dimensional construct. In doing so, this study challenges academics and practitioners to more holistically consider workplace adversity as a work experience. We developed a workplace adversity measure and studied the interrelationships of workplace adversity, job performance, rumination, and CSE. Our results demonstrate that adversity at work negatively impacts job performance through rumination, but this relationship only emerges for low core self-evaluators. Put differently, when the office rug gets pulled, this will cause ruminations about the causes and consequences of this experience. However, these ponderings will least affect an individual’s work behavior when s/he has a positive self-image.
REFERENCES


CHAPTER 6

SYSTEMATIC REFLECTION: IMPLICATIONS FOR LEARNING FROM FAILURES AND SUCCESSES

Drawing on a growing stream of empirical findings that runs across different psychological domains, we demonstrate that systematic reflection stands out as a prominent tool for learning from experience. For decades, failed experiences have been considered the most powerful learning sources. Despite the theoretical and practical relevance, scant research has investigated whether people can also learn from their successes. We show that through systematic reflection people can learn from both their successes and failures. Studies have further shown that the effectiveness of systematic reflection depends on situational (e.g., reflection focus) and person-based factors (e.g., conscientiousness). Given today’s unrelenting pace and the abundance of activities in which people are involved, future research may want to investigate how to effectively integrate systematic reflection within the busy daily environment of the learner.


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INTRODUCTION

“We learn from failure, not from success!” In Bram Stoker’s (1897/2007, p. 190) classic novel Dracula, these words are spoken by Professor Van Helsing to Dr. Seward. Although it is conventional wisdom that we learn most from failures and mistakes, for decades psychologists too have considered failures the most powerful learning sources. According to Thorndike’s law of effect, negative outcomes that accompany failure serve as punishment, which increases the probability of adapted behavior in subsequent events. Furthermore, traditional attribution theories have posited that people who are capable of attributing failure to personal and controllable factors (e.g., limited effort) learn the most (Weiner, 2000).

It is remarkable that scant research attention has been paid to the question whether people want and are able to learn from their successes. Learning from successes not only is vital from a theoretical point of view but also has substantial practical relevance. For instance, in high-risk environments (e.g., hospitals, the nuclear power or aviation industries), failure can mean maiming, disability, and huge environmental, financial, societal, and psychological costs. Thus, it is key that people are also able to learn from their successes before disasters take place. Despite the motivational benefits successes may have (e.g., increased belief in one’s competence; Hall, 1971), they also confirm prior expectancies and boost confidence in old routines, which causes restricted search and reduced attention, while increasing complacency and risk aversion (Sitkin, 1992; Zakay, Ellis, & Shevalsky, 2004).

Our objective in this review was to highlight systematic reflection as an effective tool for learning from both failed and successful experiences. In the following section, we introduce systematic reflection as a learning procedure, after which we draw on a growing stream of findings that runs across different psychological domains to empirically substantiate its effectiveness. Subsequently, we review research that has sought to determine situational and person-based moderators that shape the effectiveness of systematic reflection. We end by discussing future research prospects.
**SYSTEMATIC REFLECTION: CONCEPT AND PROCESS**

Systematic reflection is a learning procedure during which learners comprehensively analyze their behavior and evaluate the contribution of its components to performance outcomes. Ellis and Davidi (2005) emphasized that to facilitate this comprehensive processing of experiential data, systematic reflection serves three functions: self-explanation, data verification, and feedback. Systematic reflection requires individuals or teams to engage in each of these activities.

*Self-explanation* is an active process whereby learners are asked to analyze their own behavior and advance explanations for the resulting success or failure. A high number of self-explanations indicates active processes of gathering, analyzing, and integrating data (Ellis & Davidi, 2005). Questions that might prompt self-explanation include, “How did you contribute to the performance observed in the experience?” and “How effective were you in this experience?” (DeRue, Nahrgang, Hollenbeck, & Workman, 2012, p. 1003), but questions that are more direct also might prompt self-explanation, such as “Why did you do A or decide B?” The relative advantage of direct questions is that they encourage learners to provide specific and internal explanations. The more learners attribute performance to specific and internal factors, the more effective is the reflection process (Ellis, Mendel, & Nir, 2006). In lay terms, accurate analysis of the experience is an important factor in the learning process, but this is not the only factor. By attributing the causes for successes and failures to themselves, people take more responsibility for their behavior.

*Data verification* is the process whereby learners are confronted with a different perception of the same data (i.e., counterfactual thinking), which enables them to cross-validate information they hold before making changes to their mental models. Data verification also enables learners to sidestep potential biases, including confirmation bias, in which information that contradicts assumptions is overlooked, and hindsight bias, in which outcomes strongly affect how experience is viewed. Possible prompts include, “Consider a different approach that could have been taken,” and “What might have happened if that approach was chosen?” (DeRue et al., 2012, p. 1003). In addition, comparing and contrasting personal actions with similar actions played out in other (more
or less successful) situations may be an effective way to develop a different perspective on the value of one’s actions (Roberto, 2009).

Finally, two kinds of feedback are generated during systematic reflection. The first type is the performance evaluation: absolute/relative success or failure. Such outcome feedback serves as a motivational trigger for the reflection process, and without outcome feedback, reflection is not focused and goal directed and, therefore, not effective (Anseel, Lievens, & Schollaert, 2009). The second type of feedback aims to improve the process of task performance. When systematically reflecting, the learner is responsible for the analysis of his or her performance data and for generating reasons why things went right or wrong. Possible prompts include, “What worked, what did not work?” “What has been learned from the experience?” and “How will you behave in the future?” (DeRue et al., 2012, p. 1003). Systematic reflection is not the same as outcome-feedback moments: Outcome feedback is merely evaluative in nature, whereas the process that follows this feedback in a reflection procedure focuses on helping the learner to systematically analyze the decisions that produced the performance outcomes.

**Effectiveness of Systematic Reflection**

Generally, the combination of the three functions that characterize systematic reflection (self-explanation, data verification, and feedback) lead to a greater willingness (motivational effect) and ability to draw lessons from prior experiences (cognitive effect) and eventually to a behavioral change (behavioral effect).

**Motivational Outcomes of Systematic Reflection**

Successful experience is not a “natural” stimulus of learning. Although successes may improve learners’ judgment of how well they can execute similar courses of action for dealing with prospective situations (i.e., self-efficacy), they also reduce one’s inclination to revise existing knowledge structures. The motivational impact of systematic reflection on these successes is twofold. First, research in military psychology has shown that systematic reflection is most effective to attract soldiers’ attention to not only the obvious failed experiences encountered during navigation exercises but also the successful experiences
(Ellis & Davidi, 2005). By becoming aware of the role these less apparent successful experiences have had in one’s performance, learners’ motivation to revise their knowledge structures (i.e., epistemic motivation) may be intensified (Ellis & Davidi, 2005). Similarly, experimental social psychological research has shown that the prompt to consider both better and worse alternatives for what actually happened (leading to a focus on successful experiences) can have a beneficial impact on an individual’s motivation to thoroughly process a subsequent task (Dyczewski & Markman, 2012). Second, by analyzing their successful experiences, learners become more aware of their share in the successes, which further increases their self-efficacy and motivation to set higher goals (Ellis, Ganzach, Castle, & Sekely, 2010; Villado & Arthur, 2013).

Cognitive Outcomes of Systematic Reflection

Increased epistemic motivation caused by reflecting on both failed and successful experiences has been shown to produce richer cognitive structures (Ellis & Davidi, 2005; Matthew & Sternberg, 2009). Research in sport and organizational psychology has suggested that systematic reflection changes the relative number of internal versus external and specific versus general perceived causes of behavior (Allen, Jones, & Sheffield, 2010; Ellis et al., 2006). Similarly, studies in aviation psychology have shown that postflight reviews after a successful flight or a close call yield specific lessons for navigating future flights (Morris & Moore, 2000; Ron, Lipshitz, & Popper, 2006). On a team level, reflection enhances similarity of team members’ task representations (Van Ginkel & Van Knippenberg, 2009). The realization that task representations are shared has been shown to increase psychological safety, which enhances group processes (Edmondson, 1999).

Behavioral Outcomes of Systematic Reflection

In organizational, social, and medical psychology, reflecting on successful and failed experiences has been shown to improve task performance (e.g., Anseel et al., 2009; Ellis & Davidi, 2005; Ellis et al., 2006; Kray, Galinsky, & Markman, 2009; Vashdi, Bamberger, Erez, & Weiss-Meilik, 2007; Wong, Haselhuhn, & Kray, 2012) and to cause changes in interpersonal behavior (e.g., DeRue et al., 2012; Grant & Dutton, 2012; Van Ginkel & Van Knippenberg, 2009; Villado & Arthur, 2013).
Ron et al. (2006) demonstrated that postflight reviews were vehicles to improve not only individuals’ learning but also aircrews’ performance via shared observations and interpretations of what went good and bad during the flights. This reflection procedure also shaped the training methods of the squadron and even helped to develop the air force doctrine.

**WHEN AND FOR WHOM IS SYSTEMATIC REFLECTION MOST EFFECTIVE?**

In an important group of studies, researchers have sought to determine under which conditions systematic reflection is most developmental. Learners can reflect on objective, video-based recordings or on subjective, memory-based recalls of their performance. Research has revealed that these ways of reflecting are equally effective (Villado & Arthur, 2013). Similarly, Ellis et al. (2010) showed that observing the filmed behavior of someone else who has participated in a reflection procedure is equally as effective as personally participating in a reflection procedure. These findings are especially relevant for contexts in which different individuals need to learn similar tasks. For instance, members of a fire brigade can learn from events that their colleagues have experienced simply by watching their colleagues’ reflection processes. In this respect, filmed reviews may offer a cost-effective, technology-based, and easy-to-use tool to provide training.

Ellis et al. (2006) demonstrated that the effectiveness of reflecting on successful versus failed experiences may depend on the focus of reflection during the self-explanation stage. They examined the relative effectiveness of three reflection foci after a failed or successful experience: a focus on (a) correct actions that supported progress in the experience, (b) erroneous actions that hindered progress, and (c) both correct and erroneous actions. Besides the fact that after a failed experience, providing any kind of reflection contributes to one’s progress, the results obtained by Ellis et al. showed that one can learn from successful experiences and that the performance improvement after failed and successful experiences is contingent on the particular focus of reflection (see Figure 1).
Figure 1. Comparison of the effectiveness of three different reflection foci after a failed versus successful experience. The effect size (Cohen’s d) represents the standardized performance difference between participation versus no participation in a reflection procedure. Effect sizes of $d = 0.2$, $0.5$, and $0.8$ are generally considered small, medium, and large, respectively (Cohen, 1988).

After a failed experience, the biggest performance improvement takes place when individuals focus on both correct and erroneous actions. However, after a successful experience, the strongest learning effect emerges when individuals reflect on the erroneous actions only. It could be that after successful experiences, learners feel more psychologically safe to discuss their errors. Conversely, after failures, self-efficacy may be harmed and psychological safety may be lacking, thereby requiring reflection on correct actions as well. Thus, through reflection, individuals can learn from both successful and failed experiences, but the focus of reflection should be adapted to the outcome of the experience.

Apart from research on situation-based moderators, it is likely that people who go through the same reflection process draw different lessons. The reflection effect is accentuated when people are conscientious, open to experience, emotionally stable, and have a rich base of prior experiences.
(DeRue et al., 2012). Furthermore, systematic reflection is more effective for learning-oriented people and for people who enjoy effortful cognitive activity (Anseel et al., 2009). Likewise, people who can accurately evaluate their performance benefit more from systematic reflection (Ellis et al., 2010; Ellis, Mendel, & Aloni-Zohar, 2009). These differences also mean that systematic reflection is likely to be less beneficial for people with the reverse personal characteristics.

**FUTURE RESEARCH PROSPECTS**

Although important progress has been made to uncover the role, effectiveness, and boundary conditions of systematic reflection, key unresolved issues also exist. We outlined three central functions in which learners should engage when reflecting (self-explanation, data verification, and feedback). To date, the outcomes of these functions have not been disentangled from each other. Thus, it remains unclear whether all functions contribute to the same extent to the effectiveness of reflection. Also, their relative functionality may depend on the outcome of the experience that is reflected on. For instance, Ellis and Davidi (2005) suggested that if learners want to analyze successful performance, they must focus on the potential misfits between the existing mental model and the conditions under which performance was executed, thereby highlighting the importance of data verification for learning from successes. Conversely, given that people are naturally inclined to attribute successes to internal actions and failures to external factors (self-serving bias), self-explanation instructions may be more important when individuals reflect on failed experiences.

Another challenging issue is motivational in nature. Despite the promising effects of systematic reflection, for most individuals, reflection is probably the least favorite activity (Ashford & DeRue, 2012). This aversion may be caused by the unrelenting pace characterizing today’s environment and the abundance of activities in which people are involved. Given that reflection is a time-intensive endeavor, being engaged in too many experiences simultaneously typically jeopardizes individuals’ inclination to engage in thoughtful deliberation of these experiences, which leads to lower levels of learning than
desirable (Carette & Anseel, 2012). Thus, researchers need to look for ways that enhance individuals’ motivation to engage in reflection despite their high mental workload.

An interesting pathway would be to complement traditional collective reflection that takes place when a long-term project is finished with individual reflection that is integrated within the learner’s daily environment (e.g., reflection via smartphone/tablet applications that successively prompt for self-explanation, data verification, and feedback). For instance, in the absence of collective “chalk talks” during the off-season, athletes could use such an application to individually reflect on their training performance. Similarly, organizations could send monthly invitations to their employees for reflecting online on personal actions of the past month that supported/hindered progress in their most time-intensive assignment. Findings from experimental simulation research have shown that such relatively brief, structured individual reflection yields significant returns for one’s development (Anseel et al., 2009). Furthermore, such implementations would make it possible to reflect solitarily and on the spot, thereby diminishing the situational constraints that characterize collective reflection procedures. All of this may facilitate a structural incorporation of reflection into the learner’s environment - by making reflection a routine rather than a momentary activity - which is a necessary precondition to maintaining long-term effects (Garvin, 2000).

**CONCLUSION**

The studies reviewed in the research presented here introduce systematic reflection as a meaningful way to draw lessons from our successful and failed experiences and improve our performance accordingly. Finding ways to learn from various forms of experience is important from both a theoretical and a practical point of view. It also exemplifies that Professor Van Helsing was only partly right. We can learn from our failures, but we can also learn from our successes.
REFERENCES


CHAPTER 7

GENERAL DISCUSSION

The goal of this dissertation was to improve our understanding of learning from experience in organizations. Borrowing from research on knowledge formation in social psychology, an experiential learning framework was developed that guided this dissertation towards addressing three research objectives. First, I wanted to identify and operationalize work experiences that impact development and job performance. Second, I wanted to shed light on individual differences in the efficiency to learn from experience. My third aim was to investigate the effectiveness of systematic reflection as an intervention to facilitate experiential learning. This general discussion provides an overview of the main findings of the studies that were presented in this dissertation and the implications for theory advancement. Practical implications with regard to the strategic development of human capital resources are discussed. I conclude this chapter by specifying a number of suggestions for future research, which may advance the field of informal learning from experience in organizations.
In the face of the current disadvantageous economic climate, organizations are becoming increasingly concerned about the ROI of formal off-site training programs. Although these traditional training programs have proven to be effective (Arthur, Bennett, Edens, & Bell, 2003), organizations are looking for less expensive ways to develop employees. As a result, there is an emerging trend within organizations of replacing formal, classroom training with development through informal, job-embedded experiences (Bell & Kozlowski, 2010). Against this backdrop, my primary goal in this dissertation was to improve our understanding of when and why experiential learning processes take place in organizations.

I started this dissertation with the development of a heuristic model of learning from experience in organizations. Drawing on Kruglanski’s Lay Epistemic Theory (Kruglanski, 1990), I argued that (1) cognitive and behavioral processes (e.g., feedback seeking, reflection, experimentation) and (2) motivational processes (i.e., epistemic motivation) work in tandem to translate work experiences in changes in job performance. Specifically, I posited that epistemic motivation is a necessary precondition for elaborate processing on an experience to take place. The developed model not only outlined the psychological learning processes that underlie learning from experience, but also identified antecedents, outcomes, and potential boundary conditions of the experiential learning process. As such, this model guided my dissertation towards addressing three research goals: (1) The identification of critical work experiences that activate the experiential learning process and as such lead to changes in performance, (2) a clarification of how individuals may differ in their effectiveness to learn from these on-the-job experiences, and (3) an investigation of systematic reflection as an organizational intervention that can facilitate effective learning from experience.

Table 1 summarizes the main findings of the conducted studies. In the remainder of this final chapter, I will briefly review these findings and their implications, and I will discuss a number of promising pathways for future research.
Table 1

*Overview of this Dissertation’s Main Research Findings*

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Work Experience</th>
<th>Moderator</th>
<th>Outcomes</th>
<th>Design/Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Challenge</td>
<td>Experienced challenge</td>
<td>Survey study (online panel)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Challenge</td>
<td>Job performance</td>
<td>Survey study (professional service organization)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Challenge</td>
<td>Career stage (work tenure)</td>
<td>Job performance</td>
<td>Survey study (furniture retailer)</td>
</tr>
<tr>
<td>4</td>
<td>Challenge</td>
<td>Job mobility</td>
<td>Job performance</td>
<td>Survey study (professional service organization)</td>
</tr>
<tr>
<td>5</td>
<td>Adversity</td>
<td>Core self-evaluation</td>
<td>- Rumination</td>
<td>Survey study (banking organization)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Job performance</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Success/ failure</td>
<td>Systematic reflection</td>
<td>- Motivation</td>
<td>Literature review</td>
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<td></td>
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<td>- Learning</td>
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<td>- Performance</td>
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**Objective 1: Identifying and Operationalizing Work Experiences that Impact Job Performance**

**Challenging work experiences.** A central premise of the experiential learning model as developed in *Chapter 1* is that the experiential learning process is activated in response to experiences that create a discrepancy between one’s current and one’s desired (i.e., goals) states. I argued that challenging work experiences create an internal discrepancy by augmenting the desired state: When faced with a challenging situation, current skills no longer seem to match with those required to deal with the challenging situation at hand. The initial response to this discrepancy is an increase in self-focus (Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987). The consequent salience of the discrepancy creates internal ambiguity. This internal ambiguity is positively
related to epistemic motivation, because the individual wants to restore internal balance and achieve a desired state of knowledge (Kruglanski, 1990). Subsequently, behavioral and cognitive processes are activated in order to gather and process information before ‘seizing’ and ‘freezing’ on accessible evidence (Kruglanski & Webster, 1996). This extensive elaboration on a phenomenon eventually results in an expansion of the cognitive scheme (Ellis & Davidi, 2005). Once the mobilization of resources has led to an elimination of the discrepancy between the current and desired state, the experiential learning process is terminated (Carver & Scheier, 1981; Vancouver, 2008).

The positive relationships reported throughout my dissertation between challenging work experiences and (changes in) job performance, provide indirect support for the activating effects of challenging work experiences (Chapter 2, 3, and 4). In Chapter 2, I had an in-depth look at the dimensions that constitute the conceptual domain of job challenge. What makes a work experience challenging? Challenge has been conceptualized as unidimensional, five-dimensional, and ten-dimensional. In three samples of white-collar employees, consistent support was found for a ten-dimensional job challenge framework (cf. McCauley, Ruderman, Ohlott, & Morrow, 1994; McCauley, Ohlott, & Ruderman, 1999). These ten dimensions are (1) having unfamiliar responsibilities, (2) having to determine new directions for the organization or the department, (3) inherited problems, (4) having problems with coworkers, (5) working at high stakes, (6) having a broad scope of responsibilities, (7) having to influence others without having the authority to do so, (8) experiencing external pressure, (9) working across cultures, and (10) working in a diverse team. Furthermore, it was found that specific challenge dimensions were predictive of the development of specific performance dimensions, but not of task performance in general.

Adverse work experiences. In contrast to challenging work experiences - which create an internal discrepancy by augmenting one’s desired state - adverse work experiences create an internal discrepancy through a deterioration of one’s current state. That is, adverse work experiences typically cause a loss in credibility, self-efficacy, identity, and/or self-respect. Given the invasive nature and the long-term consequences of workplace adversity, momentary
mobilization of cognitive resources may not yield a reduction in the discrepancy between the current and desired states. The idea that some discrepancies can be irreducible has been proposed by Pyszczynski and Greenberg (1987). An irreducible discrepancy may prevent disengagement from the experiential learning cycle, thus leading to persistence in self-focusing on the irreducible discrepancy. As a result, a cumulative body of resources will be devoted to the processing of information with regard to the discrepancy, narrowing the individual’s attentional scope. Focusing attention on the same topic over time is known as rumination. The resulting negative affect and inability to move away from the adversity may negatively impact one’s job performance.

In Chapter 5, the performance effects of adverse work experiences were investigated in a banking organization. Drawing on previously conducted qualitative research involving more than 1,000 executives working in more than 30 different countries, workplace adversity was conceptualized as a four-dimensional construct, comprising (1) organizational crises, (2) mistakes, (3) career setbacks, and (4) ethical dilemmas (Wilson & Yip, 2010). A 16-item adversity scale was developed, which measured the extent to which employees had been confronted with each one of the four adverse work events. The scale displayed sound psychometric properties. In line with the expectations, it was found that adverse work experiences led to a decline in supervisor-rated job performance, through increased rumination.

Taken together, the common finding throughout the empirical studies was that challenging and adverse work experiences significantly influence job performance. Hence, the developed experiential learning framework has shown to be successful in identifying challenging and adverse work experiences as influential experiences that impact job performance.

**Objective 2: Identifying Individual Differences in the Effectiveness to Learn From Experience**

The second objective was to identify individual differences in the relationship between (1) challenging and adverse experiences and (2) learning and performance. In a field study conducted in a local branch of an international furniture retailer (Chapter 3), it was found that an employee’s career stage (operationalized in terms of the years of work experience) moderated the
relationship between challenging experiences and in-role job performance. Drawing on contemporary career theories, this career timing effect was explained by the fact that employees' personal values and interests shift over the course of a career (Sullivan & Baruch, 2009). In the early career, employees are typically focused on attaining career-success (Kanfer & Ackerman, 2004). Combined with the fact that occupationally relevant schemes are likely to include relatively few elements (Mumford & Gustafson, 1988), early career employees may be highly motivated to thoroughly process challenging experiences, positively influencing the likelihood that the experiential learning process is activated in response to the challenging assignment. As a result, a positive relationship was found between having challenging experiences and peer-rated in-role job performance for early-career employees. By the time employees enter mid-career, challenge gets a lower rank on the priority list and makes place for attaining work-life balance (Mainiero & Sullivan, 2006). Consequently, mid-career employees may not be willing to invest the same amount of resources as early-career employees in response to a challenging experience. This decrease in epistemic motivation may offset the positive relationship between challenging assignments and job performance for mid-career employees. Supporting this line of reasoning, for mid-career employees, the relationship between challenge and peer-rated in-role job performance exhibited an inverted U-shaped curve, such that job challenge was positively related to on in-role job performance up to some point and then began to exhibit diminishing returns.

Besides the interaction between (1) the number years of work experience and (2) the confrontation with challenging work experiences, the relationship between having challenging experiences and job performance was found to be contingent upon the frequency with which different challenging experiences follow on one another. Support for this career density effect was found in a field study conducted in a local branch of an international accounting organization (Chapter 4). Specifically, a significant interaction effect was found between (1) job mobility and (2) the aggregate degree of challenge these job experiences carry with them. Job mobility is characterized by knowledge transfer and transition processes, which appeal on people's temporal and cognitive resources.
Effectively managing challenging assignments also requires resources. When frequently switching between challenging jobs, the dearth of resources may impede on people’s motivation and ability to adjust previously developed cognitive structures to the unique features of the new job environment, negatively impacting job performance. In line with this hypothesis, career challenge was positively related to job performance, but only when job mobility was low. When a career was dispersed across a high number of jobs (high job mobility), career challenge was no longer positively related to job performance.

In Chapter 5, a final individual difference variable was considered as a potential moderator of the relationship between work experiences and job performance. As noted above, it was found that adverse work experiences led to a decline in supervisor-rated job performance, through increased rumination. Importantly, this relationship only materialized for people who had a low core self-evaluation (CSE). CSE is defined as an appraisal about one’s self-worth, competence, and capability. It is a latent, higher order trait, indicated by self-esteem, generalized self-efficacy, neuroticism, and locus of control (Judge, 2009). Someone who scores high on CSE is someone who is well adjusted, positive, self-confident, efficacious, and believes in his or her own agency (Judge, Erez, Bono, & Thoresen, 2003). High core self-evaluators seemed to be better able to deal with the deterioration of one’s current state that characterize an adverse experience and the resulting ruminative thoughts that emerge in response to an adverse experience. Given their positive self-regard, high core self-evaluators may be less prone to self-blame when ruminating about an adversity. As a result, they may be able to offset the negative affective impact that is usually evoked by an adversity, and retain a broader attentional scope (Whitmer & Gotlib, 2013). This broader attentional scope may enable them to keep conducting their job activities in an adequate way, despite the ruminative thoughts.

In sum, the development of the experiential learning framework enabled the identification of variables that clarify how individuals may differ in the way they deal with challenging and adverse work experiences. These results add to the literature by going beyond the individual difference variables that are typically investigated with regard to learning from experience (e.g., learning
Objective 3: Investigating Systematic Reflection as an Experiential Learning Intervention

In the experiential learning framework, reflection and other forms of cognitive elaboration on an experience play a central role to translate challenging and adverse experiences into learning and performance. Yet, due to the unrelenting pace and orientation towards action characterizing today’s work environment, individuals’ inclination to engage in thoughtful elaboration on their experiences may be jeopardized. According to Holt and Seki (2012), being aware of one’s own actions and thoughts during experiences through reflection is an underutilized personal resource for many of today’s employees. Furthermore, not every form of spontaneous reflection is adaptive. That is, cognitively processing failed experiences may cause ruminative forms of reflection (e.g., unstructured task-irrelevant ponderings that are characterized by self-blame) that have a negative impact on learning and performance (cf. Chapter 5). Hence, employees may need more external guidance to optimally structure the reflection activity.

In Chapter 6, a qualitative literature review was conducted to examine the effectiveness of systematic, guided reflection for facilitating learning from experience. Rather than letting the individual decide whether and how s/he reflects on his/her experiences, systematic reflection is a learning procedure during which learners are explicitly instructed by an external instance to comprehensively analyze their behavior and evaluate the contribution of its components to performance outcomes. Systematic reflection can occur online (e.g., Anseel, Lievens, & Schollaert, 2009) or in real life (e.g., Ellis, Ganzach, Castle, & Sekely, 2010), and is preferably structured along the activities of (1) self-explanation, (2) data-verification, and (3) feedback.

Overall, the results of the studies that were reviewed in Chapter 6 supported the effectiveness of systematic reflection for facilitating learning from experience. That is, positive effects of systematic reflection have been reported with regard to: (1) motivation (e.g., epistemic motivation), (2) cognition (e.g.,
expansion of the cognitive scheme), and (3) behavior (e.g., improved performance).

**Strengths and Theoretical Contributions**

This dissertation adds to the literature in a number of meaningful ways. First, given its importance in today’s organizations, there exists an urgent need to develop a better theoretical understanding of learning from informal, on-the-job experience (Dragoni et al., 2009; Hezlett, 2010; Salas & Cannon-Bowers, 2001). As noted by former presidents of SIOP (the division of the American Psychological Association for Industrial/Organizational Psychology) and organizational training experts Paul Thayer and Irwin Goldstein: “Although everyone acknowledges the importance of informal learning and its existence in organizations, little systematic work has been done to define it, build theories about it, or do research on it.” The framework that guided my dissertation sheds new light on the experiential learning process. Extending previous research that has mainly elucidated how learning from experience takes place by inventorying behavioral and cognitive informal learning processes (e.g., feedback seeking, counterfactual thinking, and reflection; DeRue, Ashford, & Myers, 2012; Kolb, 1984), the framework also explains when and why these processes come about, through highlighting the activating role of epistemic motivation for elaboration on an experience. This framework is able to integrate findings across separate streams of research. For instance, feedback seeking behavior and counterfactual thinking, are spurred by uncertainty (Ashford, 1986) and errors (Morris & Moore, 2000), respectively. Uncertainty (De Dreu, Nijstad, & van Knippenberg, 2008) and a focus on errors (Ellis, Mendel, & Nir, 2006) both trigger epistemic motivation, which in turn is positively related to active processing of a situation (De Dreu et al., 2008). Conversely, when uncertainty decreases or when the focus is put on successes, epistemic motivation drops, diminishing the likelihood that active processing of the situation takes place. Besides integrating and improving our understanding of established empirical findings, considering epistemic motivation as a starting/stopping mechanism of cognitive and behavioral processing of experience has also proven to be instrumental in addressing unresolved research questions, such as ‘what experiences impact job
performance’, ‘what are boundary conditions of the relationship between work experience and job performance’, and ‘how can the relationship between work experience and job performance be facilitated’.

Investigating the developmental impact of specific work experiences was possible thanks to the content-based (qualitative) approach to work experience, rather than a strict time-based (quantitative) operationalization, which is a second strength of this dissertation. Traditionally, experience has been operationalized in terms of the years of work experience someone has. Although there has been found support for a (moderately) positive relationship between years of experience and job performance (Sturman, 2003; Ng & Feldman, 2010), recently an insignificant relationship between years of experience in a position and job performance was found (Ng & Feldman, 2013). These seemingly competing findings reveal an important limitation of a strictly temporal approach to work experience. That is, operationalizing work experience in time-based terms does not provide insights into the content of one’s experience (Tesluk & Jacobs, 1998). It is possible that the impact of tenure on job performance depends on the nature of the experiences encountered during these years of experience. Through differentiating between different types of experience, a more fine-grained picture was developed of the relationship between work experience and performance. That is, challenging experiences (which cause an internal discrepancy through an increase of one’s desired state) generally had a positive impact on one’s performance. Conversely, adverse experience (which cause an internal discrepancy through a decrease of one’s current state), had a negative impact on one’s performance. Hence, the seemingly competing findings in the literature regarding the relationship between years of experience and job performance may be explained by the fact that operationalizing work experience in terms in time-based terms fails to take into account the nature of the experience. Work experience is not a monolithic entity. Instead, different kinds of experience may differentially relate to job performance.

In Chapter 2, the idea of developing a fine-grained picture of work experience was taken a step further. I did not only distinguish between workplace challenges and adversities as different kinds of experience, and how
they differentially relate to job performance. In Chapter 2, the specific aspects that make a work experience challenging were also investigated in relation to specific performance dimensions. Support was found for the idea that specific challenge dimensions can explain incremental variance in specific performance dimensions, beyond the variance explained by years of experience and the other challenge dimensions. Hence, fine distinctions within both the predictor (job challenge) and criterion space (performance) can be made and specific predictors can be aligned to specific criteria. This notion of predictor-criterion matching suggests that the attention in challenge research may be shifted away from questions like “Is job challenge a predictor of (changes in) job performance?” to questions like “Which job challenge feature is predictive for the development of which performance dimension?”. Future research may want to investigate whether this notion of predictor-criterion matching in work experience research also applies to other work experiences (e.g., adversity).

A fourth contribution relates to the fact that specific work experiences were considered in relation to other experience measures, including time-based experience (tenure) and amount-based experience (job mobility). It was not only investigated whether challenging experiences could explain incremental variance in job performance beyond the variance explained by amount-based and time-based experience measures. Specific interactions between these different experience modes were also examined. The significance of the interaction modes (career timing and career density) suggests that mutually exclusive operationalizations of work experience in whether quantitative (e.g., number of executed jobs) versus qualitative terms (e.g., challenging experiences) may lead to a restricted understanding of work experience. Again, future research may want to examine whether the significance of these interaction modes is generalizable to other types of work experience (e.g., adversity).

A fifth contribution relates to the generalizability of the relationship between challenging work experiences and job performance. In former research, “the role of challenging experiences has been mainly recognized in the context of management development” (Van Vianen, De Pater, & Preenen, 2008, p. 287). The current dissertation extends previous research by going beyond the
performance effects of challenging experiences in managerial jobs. Consistent support across professions and industries was found for the impact of job challenge on job performance. Likewise, the employees who participated with the adversity study (Chapter 5) worked at different organizational levels in the banking organization. Together, these findings suggest that the impact of different kinds of experience on job performance is independent of organizational level. Importantly, other boundary conditions of the relationship between challenging and adverse experiences and performance were identified. Besides the moderating role that job mobility and work tenure play in the relationship between challenging experiences and job performance, someone’s core self-evaluation was found to mitigate the negative performance effects adverse work experiences may have. Through identifying these moderating variables, a new step is taken towards addressing the call of Dragoni et al. (2009) to identify factors that work in concert with work experiences to affect development.

**PRACTICAL IMPLICATIONS**

In a recent review of the literature on learning in organizations, Noe, Clarke, and Klein (in press, p. 4) concluded that “organizations should develop human capital resources using a broader perspective of learning, including continuous learning and informal learning”. They continued by arguing that organizations can gain a competitive advantage by improving their understanding of the antecedents and conditions that facilitate informal learning. Given that identifying antecedents (experiences) and conditions (individual differences and/or situational interventions) of learning from informal, job-embedded experiences were key research objectives of this dissertation, some valuable insights for practitioners may be deduced from our findings. A number of these practical recommendations, which are aimed at improving the strategic development of human capital resources, are summarized below.

First, giving employees developmental assignments is a first logical advice that follows from the empirical studies from this dissertation. Developmental work experiences are characterized by the fact that they challenge employees to step outside their comfort of the daily routine and as
such lead to learning and development. Challenging work experiences have also been found to be predictive of positive job attitudes (Podsakoff, LePine, & LePine, 2007), less job search behavior (Bingham, Boswell, & Boudreau, 2005), and less voluntary job turnover (Preenen, De Pater, Van Vianen, & Keijzer, 2011). In order to retain, develop, and keep their workforce motivated, organizations may find the Developmental Challenge Profile (McCauley et al., 1994) a useful tool to evaluate their employees’ experience in terms of the challenges they have encountered during a certain period of time and identify gaps in one’s experience. Subsequently, development plans could be developed that utilize particular assignments and rotation programs to increase exposure to specific challenges. By these means, employees may be able to develop specific competencies and may remain motivated, improving their performance and diminishing the likelihood that they will leave the organization.

Importantly, when applying this development strategy, the findings from my dissertation and from previous research suggest that the assignment to specific challenges should be contingent upon specific characteristics of the employee. That is, learning oriented employees (Dragoni et al., 2009) and employees who are in their early career (Chapter 3) are better able to deal with highly challenging assignments as compared to employees who score low on learning orientation and/or employees who are approaching midcareer. Similarly, in the face of organizational crises, business failures, or other adversities, employees with a positive self-image (high core self-evaluators) may be better able to deal with these adversities (Chapter 5). These results suggest ways for organizations to improve the efficiency of the way their workforce deals with challenging and adverse work experiences. For instance, organizations may invest in the identification of learning oriented individuals and/or high core self-evaluators during the selection process.

Similarly, the present dissertation suggests that when recruiting job applicants, it is not only valuable to look into the years of experience they have, but also into the content of their experience. Our findings suggest that the years of work experience, the number of different job experiences someone has, and the nature of these experiences (the degree of career challenge), should be considered jointly as experience indicators when making selecting decisions. As
such, the Developmental Challenge Profile is not only instrumental for developmental purposes, but can also be used in an assessment context. Similarly, career counselors may find the Developmental Challenge Profile or the workplace adversity scale (Chapter 5) useful to gain insights in the nature of their clients’ work experience.

Finally, research into learning orientation and into the specific components that determine CSE has found that these components can be developed over time. That is, managers should give their employees challenging assignments and give them feedback on their performance (DeRue & Wellman, 2009). Preferably, their employees’ performance is evaluated according to self-referenced standards (fostering a learning orientation; Carette, Anseel, & Van Yperen, 2011) rather than other-referenced standards (fostering a performance orientation; Carette et al., 2011). Furthermore, managers may consider involving their employees in active improvement groups in order to augment their core self-evaluation (Axtell & Parker, 2003). On a related note, the findings from the present dissertation suggest that providing employees with a specific instrument that enables them to systematically reflect on their experiences may be a valuable development tool. For instance, implementing After-Event Review (AER) sessions after a project has been finished – during which employees are given an opportunity to systematically analyze their behavior and to evaluate the contribution of its various components to performance outcomes – could be an opportunity for employees to learn from their own experiences and from the experiences of their colleagues. Similarly, managers should be encouraged to also share their experiences in an informal way, in order to develop an organizational culture in which employees at different organizational levels feel comfortable sharing and reflecting upon their experiences that may have caused failures.

Caveats and Suggestions for Future Research

In addition to the limitations and directions for future research that have been discussed throughout the separate chapters, other avenues in need of further investigation can be pointed out. First, although the epistemic motivation principle and the resulting elaborate processing on experience was used to guide
the choice of relevant antecedents and moderators of experiential learning, the role of these learning processes was not empirically tested. This makes some of the conclusions about the underlying mechanisms of the experiential learning process somewhat tentative. Future research could test the role of the behavioral, cognitive, and motivational learning processes empirically. For instance, through diary studies, it could be investigated whether there is both between-person and within-person variability in the emergence of feedback seeking behavior, reflection, and/or other forms of elaboration on work events. Support for such within-person variability would suggest that the emergence of experiential learning processes is not only a function of stable individual differences (e.g., learning agility; DeRue et al., 2012) but also of situational influences. Subsequently, drawing on the epistemic motivation literature, variables can be identified that may account for this within-person variability. For instance, depending on the extent to which the employee is accountable to process or on the extent of environmental noise (e.g., daily hassles), the likelihood that cognitive and behavioral processing emerges may be higher (Tetlock, 1992) or lower (Kruglanski & Webster, 1996) respectively.

Second, the majority of the studies were conducted with a cross-sectional research design. Hence, we cannot rule out the alternative explanation that a decrease or increase in performance led to adverse experiences or challenging assignments, rather than these experiences caused changes in performance as we advanced here. Longitudinal research looking at experience and performance over time may clarify this issue. Such a dynamic perspective may also be instrumental to look into how challenges and adversities relate to each other over time. For instance, a challenge that is excessively high may cause someone to feel overwhelmed, reducing the likelihood that learning processes such as feedback seeking and reflection are optimally activated (Peter & Hull, 1969). Consequently, when the levels of challenge are too high, skill development and job performance may be inadequate (Chapter 3; DeRue & Wellman, 2009). The result may be an adversity, in the form of a demotion, intensifying the decrease in job performance. However, if the employee is able to settle with the occurrence of the career setback and to craft more challenging job
characteristics, they may be able to recover from the adversity and improve their performance accordingly (cf. Reeves & Tesluk, 2014).

Third, in the present dissertation, learning is operationalized as a change in job performance. Future research could consider cognitive outcomes of learning from experience. For instance, it is a common idea that gaining experience leads to the development of tacit job knowledge (Nonaka & Takeuchi, 1995), which is an important source of competitive advantage for organizations (Song, Almeida, & Wu, 2003). Tacit knowledge is difficult to articulate in words (Polanyi, 1966) and cannot be transferred easily through formal procedures. For example, work-related procedures can be taught through instruction, but learning from experience has been suggested to play a critical role in determining when and how to apply, adopt, or abandon those practices (Noe et al., in press). Recent research using situational judgment tests (SJT) empirically supports the idea that work experience is a fundamental source of the development of tacit knowledge (Motowidlo & Beier, 2010). SJTs confront people with written or video-based descriptions of job-related scenarios and ask them to indicate how they would react by choosing an alternative from a list of predetermined responses (McDaniel, Hartman, Whetzel, & Grubb, 2007; Weekley, Ployhart, & Holtz, 2006). SJTs have proven to be instrumental in a variety of settings, ranging from the prediction of managerial job performance (Motowidlo, Dunnette, & Carter, 1990) to predicting physicians’ “bedside manners” (Libbrecht, Lievens, Carette, & Côté, in press). Motowidlo and Beier (2010) showed that scoring someone’s SJT responses with a scoring key based on expert ratings (who have multiple years of experience) explains incremental variance in job performance beyond the variance explained by the SJT score when using a scoring key based on novice ratings (who have zero years of experience). These results imply that specific knowledge about effective job behavior develops as one gains more years of experience. Future research could investigate whether this effect can be generalized to other measures of experience. For instance, it could be examined whether early-career employees who went through multiple challenging job experiences have a better SJT score (using the expert scoring key) as compared to early-career employees who went through few challenging job experiences. Alternatively, it could be examined
whether early-career employees - with a limited number of years of experience - have different opinions about the effectiveness of SJT responses (leading to the generation of different SJT scoring keys), depending on the experiences (e.g., challenges) they went through during their first years of experience. Such findings would provide empirical evidence for the idea that going through specific experiences leads to the development of tacit knowledge, which in turn may lead to changes in job performance.

Fourth, the present dissertation focused primarily on personally experienced challenges and adversities on the individual level of analysis. However, the flow of experience can be characterized along other dimensions, including the level of ambiguity, spatiality (co-located team versus a geographically dispersed team), or whether the experience is direct or indirect (Argote & Todorova, 2007). These modalities may lead to different results than the one’s reported in this dissertation. Consider the impact of other people’s successes and failures. In Chapter 6, we argued that personal successes confirm prior expectancies and boost confidence in old routines, causing restricted search and reduced attention. Therefore, people may be more likely to elaborate on and learn from personal failures as compared to their successes. Interestingly, this attentional bias toward failures rather than successes may be reversed when considering the experiences of others. That is, when striving for excellence, people frequently turn to other people’s successes (rather than their failures) as a potential source of learning (e.g., identifying best practices and benchmarking initiatives). However, failures made by others may enable people to learn from them without having to suffer negative failure consequences (e.g., decrease in self-esteem and ruminative thoughts; Chapter 5). Preliminary research findings showing a positive effect between other’s failures and one’s own performance on both the individual level (Bledow, Carette, Kühnel, & Pittig, 2014) and the organizational level (Madsen & Desai, 2010), seem to support the idea that it may be valuable to instigate a focus on other’s failures, besides their successes. Similarly, other combinations of experience dimensions could be investigated in the future.

Fifth, systematic reflection was identified as an important facilitator of learning from experience. However, many questions with regard to the role of
reflection remain unanswered. It was shown that reflection leads to positive effects following successes and failures. Many experiences at work cannot be clearly defined as a success or failure. Is reflection effective in does circumstances? Furthermore, one can reflect on what one has done and on what one could have done differently. Research in social psychology suggests that these different instructions are differentially predictive of happiness and well-being (e.g., Kray et al., 2010). Do these instructions have an additive impact on job performance when reflecting on one’s job experiences? Similarly, it has been suggested that subvocal, oral, or written reflection have a differential impact on one’s well-being as compared to spoken or written reflection (Lyubomirsky, Sousa, & Dickerhoof, 2006). Do these different reflection media have a differential impact on job performance? This latter question would be especially informative with regard to leveraging reflection online (e.g., through social media). If a team’s performance improvement following reflection on an experience would emerge independently of the fact whether reflection occurred online or in real life, online reflection may be a cost-effective way for geographically dispersed teams to reflect. Clearly, future research is needed to look into these topics.

**CONCLUSION**

I started this dissertation with a quote from Aristotle, who posited that a lot of the knowledge and skills we need in our lives is learned through experience. The central thesis running through this dissertation supports this perspective. In different studies, work experience was consistently found to be significantly related to learning and job performance. Importantly, different modalities of the relationship between work experience and job performance were identified, including individual difference variables, organizational interventions, and the nature of the experience itself. The key mechanism that was advanced to account for these moderation effects was the extent to which people were motivated to display adaptive cognitive and behavioral learning processes in response to the experience. In conclusion, and to paraphrase Aristotle, for the things we have to learn at work before we can do them, we learn by doing them, especially when we are motivated to do so.
REFERENCES


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Thayer, P. W., & Goldstein, I. L. (2010). Where have we been, and where are we going? In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, training, and development in organizations* (pp. 443-460). New York: Taylor & Francis Group.


Dutch Summary – Nederlandse Samenvatting

Dutch Summary

Naar een Beter Theoretisch Begrip van Leren uit Ervaring in Organisaties:
Een Integratie van Cognitieve en Motivationele Verklaringen

Introduction

Het ongunstig economisch klimaat dat de voorbije jaren kenmerkt heeft ertoe bijgedragen dat organisaties zich meer en meer bekommeren om de return-on-investment van klassieke trainingsmethoden. Hoewel traditionele trainingsprogramma’s hun effectiviteit deels hebben bewezen (Arthur, Bennett, Edens, & Bell, 2003), gaan organisaties op zoek naar goedkopere manieren om hun medewerkers te ontwikkelen. Bovendien is het vaak moeilijk voor medewerkers om formele trainingsprogramma’s bij te wonen, door hoge tijds- en werkdruk en omwille van het feit dat organisaties van vandaag vaak verspreid zijn over de wereld (Noe, Clarke, & Klein, in press). Het gevolg van deze evoluties is dat er een trend is binnen organisaties om formele trainingen – die vaak plaatsvinden in geïsoleerde klaslokalen – te vervangen door informele vormen van ontwikkeling, waaronder leren van ervaringen die opgedaan worden op de werkvloer zelf (Bell & Kozlowski, 2010).

Er bestaat wellicht weinig twijfel over het feit dat mensen leren door ervaring op te doen, maar de vraag rijst hoe, waarom en wanneer dat leerproces precies plaatsvindt. Leidt elke vorm van ervaring tot leren en ontwikkeling? Leert iedereen in gelijke mate uit zijn/haar werkervaringen? Kan een organisatie het proces van ervaringsleren faciliteren? Met dit proefschrift heb ik getracht een antwoord te bieden op deze vragen. Ik heb hiervoor beroep gedaan op een fundamentele theorie uit de sociale psychologie, namelijk de theorie van Kruglanski (1990) betreffende kennisvorming en -aanpassing. Ik heb beargumenteerd dat (1) cognitieve en gedragsmatige processen (bijv., feedback zoekend gedrag, reflectie, experimenteren; DeRue, Ashford, & Myers, 2012) en (2) motivationele processen (epistemische motivatie) samenwerken om
werkervaringen te vertalen in veranderingen in job prestaties. Epistemische motivatie kan begrepen worden als de behoefte die iemand voelt om een grondig begrip van een bepaalde situatie te verkrijgen. Hoe hoger iemands epistemische motivatie, hoe meer moeite hij/zij zal doen om de situatie tot op de bodem uit te spitten. Ik heb vooropgesteld dat epistemische motivatie een noodzakelijke voorwaarde is opdat cognitieve en gedragsmatige verwerking van werkervaringen zal plaatsvinden, wat op zijn beurt leidt tot leren en prestatieontwikkeling. In dit proefschrift heb ik nagegaan welke factoren zorgen voor een activatie van epistemische motivatie, en bijgevolg het ervaringsleerproces kunnen beïnvloeden/faciliteren. Meer specifiek had ik volgende doelen: (1) Het identificeren van cruciale werkervaringen die het ervaringsleerproces activeren en op die manier leiden tot veranderingen in job prestaties, (2) verduidelijken hoe individuen van elkaar kunnen verschillen in de manier waarin ze leren uit hun werkervaringen en (3) nagaan hoe systematische reflectie als een organisationele interventie ervaringsleren kan faciliteren. Deze drie doelstellingen werden onderzocht in vijf studies, waarvan de belangrijkste bevindingen hieronder achtereenvolgens kort worden toegelicht.

**BELANGRIJKSTE BEVINDINGEN VAN DIT PROEFSCHRIFT**

De rode draad doorheen dit proefschrift is dat de aard van iemands werkervaringen in grote mate bepaalt hoeveel iemand leert uit zijn/haar ervaringen. De aard van iemands werkervaring wordt niet gecapteerd door anciënniteit, maar vergt een meer verfijnde aanpak. In verschillende hoofdstukken werd evidentie gevonden voor het feit dat uitdaging een belangrijke indicator vormt van de kwaliteit van werkervaring. Een uitdagende job leidt doorgaans tot positieve gevolgen voor iemands ontwikkeling. Een uitdagende job is een job waarin men taken of opdrachten krijgt die leiden tot een kloof tussen iemands huidige vaardigheden en de vaardigheden die vereist zijn om de opdracht tot een goed einde te brengen. Hoewel uitdagende opdrachten vaak een zekere mate van stress met zich meebrengen, stimuleren ze individuele ontwikkeling door het doorbreken van de dagdagelijkse werkroutine. In *Hoofdstuk 2* heb ik nagegaan wat een job uitdagend maakt. Wat zijn
kenmerken van jobs die het breken van de routine stimuleren? In drie diverse steekproeven van bedienden werd consistente evidentie gevonden voor het feit dat jobuitdaging bepaald wordt door tien factoren. Voorbeelden van deze factoren zijn onbekende verantwoordelijkheden toegewezen krijgen, nieuwe richtingen bepalen voor de organisatie en/of afdeling, een brede diversiteit van verantwoordelijkheden hebben, opdrachten krijgen waarbij verschillende belangen mee zijn gemoeid, over culturen heen werken. Een job die gekenmerkt wordt door (sommige van) deze eigenschappen, wordt typisch als meer uitdagend gepercipieerd, wat leidt tot een hogere motivatie om opdrachten tot in de diepte te gaan verwerken, en uiteindelijk leidt tot verbeterde prestaties.

In Hoofdstuk 3 heb ik vastgesteld dat de impact van het krijgen van uitdagende opdrachten afhankelijk is van wanneer iemand die opdrachten krijgt in zijn/haar loopbaan. Mensen die vroeg in hun loopbaan uitdagende ervaringen krijgen blijken sterk gemotiveerd/beter in staat om die op een grondige wijze te verwerken, wat leidt tot een positieve relatie tussen de mate van jobuitdaging en job prestaties. Naarmate mensen de midden-carrière naderen, blijkt deze relatie te veranderen. Voor hen vertoont de relatie een omgekeerde U-vormige relatie, zodat te hoge mate van job uitdaging leidt tot verminderde prestaties. In Hoofdstuk 4 stelde ik vast dat het effect van uitdagende werkervaringen eveneens afhankelijk is van hoe vaak iemand van job verandert. Een carrière die gekenmerkt wordt door een hoge mate van uitdaging heeft een positieve impact op job prestaties, voornamelijk wanneer job hopping laag is. Wanneer job hopping hoog is, verdwijnt de relatie tussen uitdaging en job prestaties.

Naast de impact van uitdagende ervaringen, heb ik in Hoofdstuk 5 nagegaan wat er gebeurt indien iemand met tegenspoed op het werk wordt geconfronteerd. Op basis van voorgaand kwalitatief onderzoek waarbij meer dan 1,000 managers werkzaam in meer dan 30 verschillende landen bevraagd werden, heb ik tegenspoed op het werk geconceptualiseerd als een vier-dimensioneel construct, bestaande uit (1) meemaken van een organizationele crisis, (2) maken van fouten met verregaande implicaties, (3) ervaren van een carrière tegenslag en (4) geconfronteerd worden met ethische dilemma’s (Wilson & Yip, 2010). In tegenstelling tot uitdagende ervaringen leidt een confrontatie met tegenspoed tot een daling van job prestaties, omwille van het
feit dat men neigt te piekeren over de tegenslagen, wat nefast is voor de effectiviteit van iemands werkgedrag. Ik vond dat deze relatie voornamelijk optreedt voor mensen met lage inschatting van hun eigenwaarde, effectiviteit en capaciteiten (core self-evaluation; Judge, Erez, Bono & Thoresen, 2003).

Traditionele theorieën over ervaringsleren hechten veel belang aan reflectie (Kolb, 1984; Schön, 1983; DeRue et al., 2012). Echter, de hoge werkdruk en de nadruk op actie die de hedendaagse werkomgeving kenmerken, brengen de mogelijkheid om te reflecteren over werkervaringen in het gedrang (Holt & Seki, 2012). Daarom kan een organisatie er baat bij hebben om reflectie structureel in te bouwen binnen de organisatie, bijvoorbeeld via ‘after-event reviews’ waarbij individuen of teams de tijd nemen om te reflecteren over een opdracht nadat ze deze hebben afgerond. Dergelijke systematische reflectiemomenten laten de keuze om te reflecteren niet langer over aan toeval, maar worden georganiseerd en gestructureerd door de organisatie zelf. In Hoofdstuk 6 heb ik de effectiviteit nagegaan van systematische reflectie interventies door de resultaten van diverse studies te integreren die werden uitgevoerd binnen uiteenlopende domeinen van de psychologie. Globaal genomen werd evidentie gevonden voor positieve leereffecten van systematische reflectie.

ALGEMENE CONCLUSIE

In een recent overzicht van de literatuur over leren en ontwikkeling in organisaties raadden Noe en zijn collega’s (in press) organisaties aan om een ruimer perspectief aan te nemen met betrekking tot de ontwikkeling van hun human capital, waarbij ze ook informeel, on-the-job leren optimaliseren. In verschillende studies heb ik getracht om een beter begrip te ontwikkelen van ervaringsleren in organisaties. In tegenstelling tot voorgaand onderzoek werden niet enkel cognitieve en gedragsmatige leerprocessen aangeduid (DeRue et al., 2012), maar werd ook de rol van motivationele leerprocessen onderstreept. Het in beschouwing nemen van motivationele leerprocessen heeft geleid tot de identificatie van verschillende modaliteiten van ervaringsleren binnen organisaties. Deze modaliteiten hebben betrekking op zowel de werkervaring
zelf, als op de persoon die de ervaring opdoet en de ruimere organisationele context waarin de ervaring wordt opgedaan. Met het oog op het uitbouwen van een competent personeelsbestand voor het ontwikkelen van een competitief voordeel, hebben training & development managers er bijgevolg baat bij de geïdentificeerde randcondities te beschouwen bij het vormgeven van ervaringsleren in hun organisaties.
REFERENTIES


