

The Competency Concept Revealed: Its Nature, Relevance, and Practice

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The Competency Concept Revealed
Its Nature, Relevance, and Practice

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Bussum, November 2007

Hanneke Heinsman

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CHAPTER 1

Introduction

Despite the critics' argument that the competency concept is nothing more than old wine in new bottles (e.g., Barrett & Depinet, 1991; Hollenbeck, McCall, & Silzer, 2006), past decades attention devoted to initiatives involving competencies has been overwhelming. The popularity of the competency concept has increased enormously. Competency workshops, competency symposia and conferences, and training with respect to competencies are the order of the day. Many organizations, in The Netherlands as well as in the rest of the world, have started the implementation of competency related human resource systems or competency management systems. Suddenly, managing competencies became managers' top priority.

Regardless of its popularity in practice and regardless of the growing amount of literature on the competency concept (e.g., Bartram, 2005; Boyatzis, 1982; Hamel & Prahalad, 1994), empirical research on competencies has lagged behind resulting in a gap between practice and science (Lievens, Sanchez, & De Corte, 2004). This dissertation takes on the challenge of narrowing the gap between practice and science by studying the competency concept in detail. By focusing on the nature, relevance and practice of the competency concept, we aim to answer the question whether competencies are a farce, a fad, or a concept that could be fruitfully used in the future. In order to answer this main question we conducted four empirical studies focusing on the concept's underlying characteristics, on the relationships between competencies and effectiveness, on the additional value of competencies over and above other individual characteristics in predicting effectiveness, and on the use of competencies in daily practice.

In this introductory chapter we will first briefly describe the history and the nature of the competency concept. Based on the numerous definitions available we will review literature on the link between competencies and intelligence, personality, and behavior. Second, we will discuss the link between competencies and employee effectiveness. Third, we will focus on the application of competencies in practice by introducing the concept of

competency management and by discussing different ways to implement such an application. All in all, this introductory chapter provides the reader with a summary of the literature on which the four empirical chapters of this dissertation are based.

History and Nature of the Competency Concept

The competency concept was first introduced by McClelland (1973). He proposed to test for competencies rather than for intelligence. According to McClelland testing should involve criterion sampling. As he stated, “If you want to test who will be a good policeman, go find out what a policeman does” (p. 7). In other words, testing for competencies would be more related to life outcomes than testing for intelligence. After the publication of McClelland’s article numerous authors have shed their light on the competency concept, resulting in lots of different definitions. Boyatzis (1982), for example, defined competencies as “an underlying characteristic of an individual which is causally related to superior performance in a job” (p. 20-21). According to Boyatzis an individual can use a trait, a motive, a skill, an aspect of one’s self image or social role, or a body of knowledge to achieve effective or superior performance.

Spencer, McClelland, and Spencer (1992) stated that “competencies include an intention, action, and outcome” (p. 7). Personal characteristics, such as motives, traits, self-concept, and knowledge, are at the basis of the intention. They combined their ideas in a competency causal flow model. Hoekstra and Van Sluijs (2003) define competencies in terms of expertise and behavioral repertoire. Expertise is described as the availability of knowledge, experience, and insight necessary given the nature of a problem or task. Behavioral repertoire is described as the availability of behavior, attention, and emotion necessary given the changing context or situation in which a task must be accomplished. Furthermore, according to the aforementioned authors, temperament, intelligence, and personality are considered prerequisites for developing competencies. Kurz and Bartram (2002) view competencies as “repertoires of capabilities, activities processes and responses available that enable a range of work demands to be met more effectively by some people than by others” (p. 230), and not as the behavior or performance itself.

When comparing the different definitions it becomes clear that there is no uniform idea with respect to the nature of competencies. Competencies might be a result of knowledge, skills, and abilities. Personality, behavior, and motives might, however, play a role as well. The confusion surrounding the nature of the competency concept is subscribed by Schippmann et al. (2000), who interviewed subject matter experts and asked them to define competencies. Schippmann et al. showed that there was no consensus between the subject matter experts and that competencies were defined using a wide range of

characteristics related to the individual. Subject matter experts mentioned for example knowledge, skills, abilities, and behavioral capabilities. In line with the findings of Schippmann et al., Morgeson, Delaney-Klinger, Mayfield, Ferrara, and Campion (2004) state that “perhaps one of the most vexing issues involves actually defining a competency” (p. 676).

In conclusion, different authors hold different viewpoints and it thus seems unclear what competencies really are. Ambiguity is surrounding the competency concept. Competencies might be based on personality, intelligence, behavior, or other individual characteristics. The *first step* in answering our main question “Are competencies a farce, a fad, or a concept that could be fruitfully used in the future?” is to give insight in the nature of competencies. Therefore, we study the relationship between competencies and different individual characteristics. More specifically, we focus on the relationships between competencies and three possible predictors often mentioned in the various definitions (e.g., Morgeson et al., 2004), namely; cognitive ability, personality, and behavioral aspects (see Figure 1, p. 8).

Competencies and Effectiveness

Despite the ambiguity surrounding the competency concept, competencies are widely used to match a job and an individual in order to increase employee effectiveness, for example during employee selection. According to Spencer et al. (1992), “The better the fit between the requirements of a job and competencies of a person, the higher will be the person’s job performance and job satisfaction” (p. 27). Many different competencies are identified during the search for competencies responsible for effective performance. This has resulted in many different lists of competencies varying in length and broadness (Hollenbeck et al., 2006). In an attempt to organize the growing amount of different competencies practitioners and scientists started to create competency taxonomies. These taxonomies often contain those competencies that are thought to be necessary to distinguish between effective and ineffective performance.

Most of the work on effective and ineffective performance is done in the managerial or leadership field, starting with for example Fayol (1916) and Gulick (1937) who identified competencies such as planning and organizing. Many different methodologies, such as questionnaires, interviews, and diaries, were used to study managerial performance (for an overview see Borman & Brush, 1993), resulting in various taxonomies. Examples of such taxonomies can be found in the work of, for example, Borman and Brush (1993) and Tett, Guterman, Bleier, and Murphy (2000). The taxonomies that are described in their studies contain the competencies that make up the managerial performance domain.

Given the fact that competencies are couched in terms of production and achievement (e.g., Sparrow & Bognanno, 1993) and that they are often formulated as behavioral indicators, competencies may be considered as prerequisites of effective performance. This makes a direct relationship between competencies and effectiveness conceivable. The relationship between competencies and effectiveness has been empirically verified in several studies (e.g., Posner & Kouzes, 1988; Smither, London, & Reilly, 2005). However, these studies are mostly indirect and general in nature. For example, based on a literature review, Stogdill (1948) concluded that an average leader distinguishes itself from the average group member by being for example sociable, persistent, self-confident, and cooperative. The personal factors that Stogdill wrote about closely resemble the leader practices or competencies distinguished in the empirical study done by Posner and Kouzes (1988). They examined relationships between leader practices and managerial effectiveness in order to establish the validity of a leader practices inventory. Analyses pointed out that nearly 55% of the variance in effectiveness was explained for by competency domains.

Hooijberg and Choi (2000) focused on the relationship between leadership roles and effectiveness using the competing values framework of Quinn (1988) and examined the extent to which raters vary in the leadership roles they associate with effectiveness. Results showed that indeed different raters held different perspectives. For subordinates the broker and goal achievement role are important and peers stress the innovator and facilitator roles. For superiors not only the innovator role is important, they also focus on the goal achievement role when assessing leader effectiveness. It is important to realize that Hooijberg and Choi studied leader roles and, although there seems to be an apparent connection between these roles and competencies, the results of their study do not provide clear insights in the relationship between separate competencies and effectiveness.

Even though studies have consistently shown that there are relationships between competencies and effectiveness, none of the studies have given insight in the importance of the separate competencies for the prediction of effectiveness. Thus, studying the link between competencies and effectiveness more explicitly seems worthwhile and necessary. Hence, the second and third step in answering our main question (“Are competencies a farce, a fad, or a concept that could be fruitfully used in the future?”) focus on the relevance of the competency concept. The *second step* is to study the direct link between different competencies and effectiveness, and to contribute to knowledge on the predictive value of competencies (see Figure 1, p. 8). More specifically, we aim to give insight in exactly which competencies are related to effectiveness. In doing this we take the perspectives of different rater sources into account.

Knowing that competencies and competency taxonomies are used in practice and that competencies are frequently integrated in assessment center procedures, it becomes more and more important to study the added value of competencies over and above, for example, intelligence and personality in predicting effectiveness. Literature on the predictive value of competencies over and above other individual characteristics has consistently shown that competencies contribute to the prediction of effectiveness (e.g., Shaffer, Harrison, Gregersen, Black, & Ferzandi, 2006). However, these studies have all focused on general effectiveness and on competency domains and were seldom conducted in an assessment center context. Therefore, the *third step* in answering the main question of this dissertation (“Are competencies a farce, a fad, or a concept that could be fruitfully used in the future?”) is to study the added value of six specific competencies in predicting sales and managerial effectiveness in an assessment center context, thereby contributing to the literature on the competency concept’s added value (see Figure 1, p. 8).

Competencies and Competency Management

Competencies and competency taxonomies are the basic components of what is called “competency modeling” or “competency management”. Competency management is described as an integrated set of human resource activities aimed at optimizing the development and the use of employee competencies in order to increase individual effectiveness, and, subsequently, to increase organizational effectiveness (e.g., Van Beirendonck, 1998). Competency management differs from the more traditional job analysis method. According to Schippmann et al. (2000), “job analysis may be thought of as primarily looking at ‘what’ is accomplished, and competency modeling focuses more on ‘how’ objectives are met or how work is accomplished” (p. 713). In line, Kurz and Bartram (2002) state that, “competency profiling differs from job analysis in that the focus of the former is on the desirable and essential behaviors required to perform a job, while the latter focuses on the tasks, roles, and responsibilities associated with a job” (p. 229). Thus, a shift from a task oriented towards a more person oriented approach is noticeable. Furthermore, in contrast to traditional job analysis, competency management ties the derivation of job specifications to the strategy of the organization. Strategic and nonstrategic requirements are then used to generate a broadly accepted language that consists of competencies (Lievens et al., 2004). Thus, by using the same competencies throughout the organization a specific language is created based on which the organization’s strategy can be translated into human resource practices.

In sum, competency management deals with managing competencies in order to increase individual effectiveness as well as organizational effectiveness. This can be done in

various ways, for example by means of selection and assessment, coaching, individual development, career planning, and/or performance appraisal, making competency management a widely applicable human resource tool.

Since competency management is so widely applicable it is not surprising that the competency approach to human resource management has gained rapid popularity over the past decades. Technological change, globalized competition, and an ongoing interest in development fuelled the rise of competency management. Implementing competency management is complicated and it requires congruence with other human resource practices and with organizational structure and strategy (Wright & McMahan, 1992). However, if successfully implemented and well embedded, the use of competency management can bring about a lot of advantages for the organization (e.g., Becker & Huselid, 1999). Competency management provides employer and employee with a common language through the use of competencies and their definitions formulated in terms of overt behavior. As such, it can provide for example clear behavioral guidelines that can in turn be used as a starting point during performance appraisal. Organizations as well as employees can thus benefit from the use of competency management and it therefore seems worthwhile to stimulate the use of competency management throughout the entire organization.

A closer look at the expansion of competency management in the course of the past decades reveals shifts from performance oriented towards development oriented approaches and back. The competency movement dates from the late 1960s and early 1970s and has its foundations in the United States of America. Due to the rise of the Human Relations movement the focus on mass production and standardization of work processes was replaced by a focus on employee development and consequently managing employee competencies became an important human resource tool (Van Merriënboer, Van der Klink, & Hendriks, 2002).

In the Netherlands the interest in competency management has developed after the publication of Prahalad and Hamel (1990) on 'core competencies' of organizations. The following years, the Dutch economy slowly changed into a knowledge economy and employee development became increasingly important. In dealing with a tight labor market it appeared essential to retain and commit employees. Competency management became a helpful human resource tool for managers in achieving such loyalty. Past years, organizations had to cope with economic downfall and therefore direct labor costs had to be reduced in order to increase organizational effectiveness. The primary interest was no longer on developing, committing, and maintaining individual employees. On the contrary, increasing performance standards and maintaining wages became organizations' top priority. Consequently, competency management was increasingly used for performance appraisal and

selection purposes. In other words, competency management was used to control the workforce instead of to develop the workforce. Nowadays, the economy is improving and as a result, just like in the early days, competency management is used more and more for employee development, coaching, and career management.

Based on the historical outlines presented above two distinct approaches to human resource management in general or to competency management in particular were identified; the commitment and the control approach. The commitment approach represents a more ‘soft’ approach towards human resources (Boselie, Paauwe, & Den Hartog, 2004) and is characterized by viewing workers as means rather than objects, and by winning hearts and minds (Guest, 1999). Autonomy, involvement, and trust are keywords (e.g., Bijlsma & Koopman, 2003; Koopman, 1991) and employees are motivated through personal development (Bach, 2000). Furthermore, jobs are broadly defined, hierarchy is minimized, and control and coordination depend on shared goals rather than on formal positions.

The control approach has its origins in Scientific Management (Taylor, 1911) and is characterized by the wish to exercise control, establish order, reduce labor costs, and achieve competitive advantage by increasing market share (e.g., Arthur, 1994; Truss, Gratton, Hope-Hailey, McGovern, & Stiles, 1997; Walton, 1985). Employees are motivated by extrinsic rewards that depend on measurable output criteria (Walton, 1985). They are not allowed to participate in decision making. As such there is no doubt that the steering wheel is in hands of management since almost all decisions are made top-down (Koopman, 1991).

The commitment and the control approaches have been an important topic in human resource literature. Researchers have been focusing primarily on the relations between both approaches and organizational or individual performance (e.g., Boselie et al., 2004; Huselid, 1995; Truss et al., 1997). It is argued and empirically verified that the commitment approach brings about more positive outcomes, such as higher organizational performance and lower turnover, than the control approach. Recently, the interest is in the effects of human resource management on employee attitude and behavior and several authors have emphasized the need to study the impact of human resource practices upon the recipients of these practices more closely (e.g., Arthur, 1994; Storey, 1989). Guest (1999) made a first attempt to actually study the way employees view human resource initiatives. He suggested that the impact of human resource practices on employees’ performance depends on their perception and evaluation of these practices.

Following the ideas of Arthur (1994), Guest (1999), and Storey (1989) and keeping in mind that competency management can bring about many advantages provided that it is well implemented, the *fourth and final step* in answering the main question of this dissertation (“Are competencies a farce, a fad, or a concept that could be fruitfully used in the future?”) is

to examine competencies in daily practice. We therefore study the effects of commitment and control approaches on, for example, attitude towards and the use of competency management (see Figure 2, p. 9). Moreover, we attempt to give insight in factors related to the use of competency management.

Overview of the Chapters to Follow

As is stated in the outline above empirical research on competencies and competency management has lagged behind. As a result there is no sound answer to the question whether competencies are a farce, a fad, or a concept that could be fruitfully used in the future. This question has been the driving force of the empirical work that is presented in the following chapters. We aim at answering this main question by means of four empirical studies in which we focus on the nature of competencies, on their relationship with perceived effectiveness, on their added value, and on their application in daily practice. Each study is described in a separate chapter, and each chapter is written in such a way that it can be read independently from the other chapters. This has resulted in some overlap between the chapters in theory and method description. Some of the research questions and aims are addressed in more than one chapter. Figure 1 and Figure 2 present the relationships that are examined in the following chapters of this dissertation.

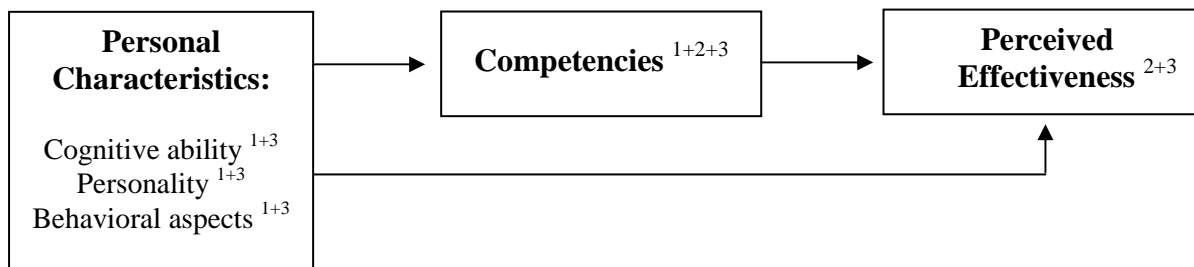


Figure 1. Overview of Research model 1

Key. ¹refers to the first empirical study reported in Chapter 2; ²refers to the second empirical study reported in Chapter 3; ³refers to the third empirical study reported in Chapter 4.

The first empirical study (Chapter 2) focuses on the nature of competencies and uses a multi-source and multi-method approach. The study is carried out in order to examine the relationship between three competency domains (Thinking, Feeling, and Power) and intelligence, personality, and behavior (assessment center exercise performance). As is stated, there is confusion surrounding the competency concept (e.g., Morgeson et al., 2004) and empirical evidence on the nature of this concept is scarce (e.g., Schippmann et al, 2000). It is unknown whether different competencies are related to different underlying personal

characteristics. Therefore, we examine the relationship between competencies and other personal characteristics. Participants were candidates for a one-day assessment procedure for selection purposes.

In the second empirical study (Chapter 3) we examine the link between competencies and perceived effectiveness. In this study, managers' competencies were assessed by different types of colleagues (supervisors, peers, and subordinates) using a 360-degree feedback method. We not only shed a light on the different rater perspectives; we also examine the predictive value of competencies in assessing perceived managerial effectiveness.

The third empirical study (Chapter 4) not only focuses on the relationship between competencies and perceived effectiveness, but also examines the added value of the competency concept. With this study we are able to investigate the added value of competencies above and beyond other individual characteristic such as cognitive ability, personality, and assessment center exercise performance. The study is especially valuable since it involves multiple raters, multiple-methods, and since measurements are conducted at multiple time-points.

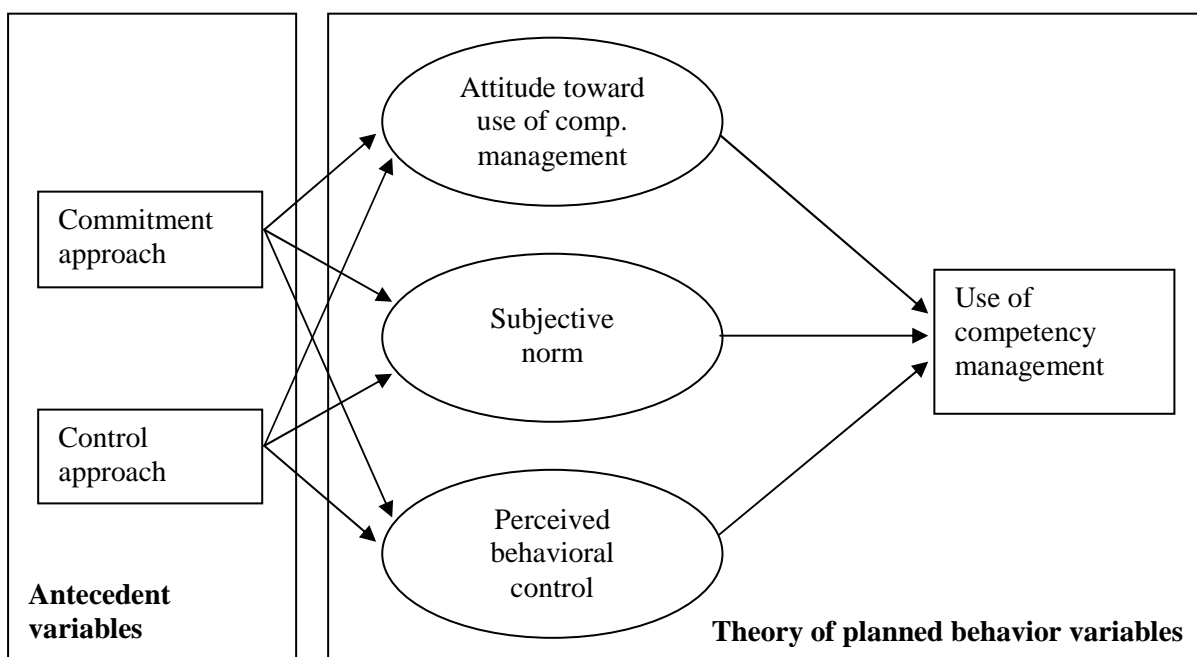


Figure 2. Overview of Research model 2 corresponding to the fourth empirical study reported in Chapter 5

The fourth empirical study (Chapter 5) was inspired by the current changes in market conditions and by the increased use of competency management within organizations. Changes in market conditions clearly show two different approaches to human resource

practices, namely a commitment and a control approach (e.g., Edgar & Geare, 2005). These approaches are thought to influence employee attitude and behavior (e.g., Guest, 1999), and thus the use of competency management. In order to benefit from the advantages competency management can bring about (e.g., Hollenbeck et al., 2006) it is important to increase the use of competency management throughout the entire organization. It therefore seemed important to study the use of competencies in practice by examining the effects of a commitment and a control approach on the use of competency management. We used questionnaires as well as a scenario study to investigate the effects of both approaches on employee attitude, subjective norm, perceived behavioral control, and behavior (the actual use of competency management). This study thus involves a multi-source and multi-method approach.

Finally, Chapter 6 summarizes and discusses the main findings of the four empirical chapters, as well as strengths and weaknesses. Moreover, this chapter provides suggestions for future research.

CHAPTER 2

Competencies Through the Eyes of Psychologists: A Closer Look at Assessing Competencies¹

Competencies have become a leading construct in human resource practices. However, empirical research on competencies has lagged behind resulting in a gap between practice and science. In this study, we focused on the nature of competencies by examining the relationships of three competency dimensions with cognitive ability, personality, and assessment center exercise performance. Data of 932 applicants participating in a one-day selection procedure were used. Results showed that to assess the competency dimension Thinking psychologists focus on cognitive ability. To assess the competency dimension Feeling psychologists rely on performance during interview simulation exercises and on measures of personality. In assessing the dimension Power psychologists focus mainly on personality, although they also rely on cognitive ability and performance during interview simulation exercises.

Competencies have become the leading construct in many different human resource practices, such as recruitment and selection, career development, performance management, and the management of change. Literature on competencies has expanded rapidly (e.g., Bartram, 2005; Boyatzis, 1982; Hamel & Prahalad, 1994; Hollenbeck, McCall, & Silzer, 2006). However, empirical research on competencies has lagged behind, and a gap between practice and science has emerged (Lievens, Sanchez, & De Corte, 2004). Due to this gap, it is still unclear what competencies are, and consequently competencies have become a construct with a wide range of definitions, causing confusion even among human resource experts (Schippmann et al., 2000).

In the present study, we aim to fill part of the gap between practice and science by examining the nature of competencies. Therefore, we investigate competency ratings made by psychologists during employee selection. In assessing competencies of different applicants,

¹ The corresponding reference is: Heinsman, H., De Hoogh, A.H.B., Koopman, P.L., & Van Muijen, J.J. (2007b).

do psychologists focus on cognitive ability and conscientiousness of the applicants, the main predictors of job performance (for meta-analytic reviews see e.g., Barrick & Mount, 1991; Schmidt & Hunter, 1998)? Do they focus on other aspects of a selection procedure, such as the performance of applicants on assessment center exercises? In other words, what do psychologists consider to be the constructs underlying competencies? To answer these research questions we use data of 932 applicants who participated in a one-day selection procedure. We focus on the relationships between competency ratings made by psychologists and scores of applicants on cognitive ability tests, personality tests, and assessment center exercises.

The Rise of Competencies

Past decades competencies have become a popular phenomenon in human resource management. Competencies were first introduced by McClelland (1973). He proposed to test for competence rather than for intelligence, because testing for competence would be more valid in predicting job performance. Technological change, globalized competition, and the need for a more strategic human resource management fuelled the rise of competencies (e.g., Paulsson, Ivergård, & Hunt, 2005; Sparrow & Bognanno, 1993). Following McClelland, numerous authors have shed their light on the competency concept, creating a whole range of what appeared to be fundamentally different definitions (e.g., Boyatzis, 1982; Ulrich, Brockbank, Yeung, & Lake, 1995).

A closer look at the different definitions shows that there is confusion about the constructs that underlie competencies. Competencies are, for example, defined in terms of knowledge, skills, abilities, or personality characteristics. For an overview of different individual characteristics used in competency definitions we refer to Morgeson, Delaney-Klinger, Mayfield, Ferrara, & Campion (2004, p. 676). Spencer, McClelland, and Spencer (1992) distinguish, for example, motives, traits, self-concepts, content knowledge, and cognitive and behavioral skills as the basis of competencies. According to Bartram (2005) and Kurz and Bartram (2002) a competency is a construct that is defined in relation to its significance for performance at work. Thus, they state, “a competency is not the behavior or performance itself, but the repertoire of capabilities, activities, processes and response available that enable a range of work demands to be met more effectively by some people than by others” (Kurz & Bartram, 2002, p. 230). In their opinion, the cluster of characteristics that defines a competency can vary from extensive to limited depending on the competency.

It is obvious that the proliferation of definitions causes confusion among practitioners and scientists, and that ambiguity is surrounding the competency concept. Additionally, the scientific community has not been particularly interested in the competency concept. As far as

we know, only a few studies have investigated the nature of competencies (e.g., Baron, Bartram, & Kurz, 2003; Bartram, 2005) leaving a lot of questions unanswered. Additional empirical research is necessary to provide for a scientific underpinning of the nature of competencies. None of the studies so far has examined competencies through the eyes of psychologists or has incorporated assessment center exercise performance. Therefore, the aim of this study is to examine the relationships between competency ratings made by psychologists and possible predictors such as personality, cognitive ability, and assessment center exercise performance.

Competencies and Dimensions

Competencies are widely used to match a job and an individual, for example during employee selection. As Spencer et al. (1992) stated: “The better the fit between the requirements of a job and competencies of a person, the higher will be the person’s job performance and job satisfaction” (p. 27). One thing that different authors agree on is the fact that competencies focus on output, and that they are couched in terms of production and achievement (e.g., Sparrow & Bognanno, 1993). As a result, competencies are often formulated in terms of behavior. Due to the emphasis on behavior, competencies can be easily used to create a wide range of assessment tools providing for agreed standards and a realistic job preview (Feltham, 1992).

In an attempt to label behavioral indicators into meaningful titles, practitioners and scientists formulated numerous competencies, such as decision making, sociability, customer focus and so on. In practice, the multitude of competencies made assessment, career planning, employee development and so forth complex and almost unfeasible. As a consequence, practitioners and scientists started to create competency taxonomies to organize the growing amount of competencies. Those taxonomies often contain constructs that make up the managerial job performance domain (e.g., Conway, 2000; Tett, Guterman, Bleier, & Murphy, 2000).

In line with Ones and Viswesvaran (1996), we argue that the use of more general dimensions provides convenient frameworks for research. Furthermore, based on assessment center research, it can be concluded that individuals are not capable of rating a large number of dimensions, and that individuals, to compensate for cognitive overload, reduce the number of dimensions during the rating process (e.g., Sagie & Magnezy, 1997; Shore, Thornton, & MacFarlane Shore, 1990). Previous research pointed out that a reduction in the number of dimensions caused, for example, an increase in dimension variance (Lievens & Conway, 2001), and a more accurate classification of behaviors (Gaugler & Thornton, 1989).

Table 1

The categorization of competencies with behavioral anchors into the competency dimensions Thinking, Feeling, and Power

| Thinking | Feeling | Power |
|---|--|---|
| <u>Analytical ability</u> The ability to distinguish between primary and secondary issues, to divide a problem into its component parts and to establish logical links between the parts | <u>Empathy</u> The ability to view matters from others' perspectives, to show concern for the welfare of others, and to demonstrate sensitivity | <u>Initiative</u> The ability to take matters in his/her own hands, to identify opportunities, and to take appropriate actions |
| <u>Planning</u> The ability to create a time schedule and/or to establish priorities within one's own work or that of others | <u>Customer orientation</u> The ability to think and act in the best interest of the client or customer | <u>Direction</u> The ability to specify to subordinates what needs to be done, and to manage and monitor processes |
| <u>Judgment</u> The ability to make an adequate judgment based on the analysis of a given situation and the information available | <u>Sociability</u> The ability initiate and maintain new contacts | <u>Result orientation</u> The ability to set and to accomplish concrete goals |
| <u>Inventiveness</u> The ability to generate different, sometimes unconventional, ideas and solutions | <u>Cooperation</u> The ability to accomplish goals through constructive collaboration with others, both within and outside the organization | <u>Persuasion</u> The ability to exert influence over people and situations based on personal conviction and authority by gaining acceptance and overcoming resistance |
| <u>Acuity of understanding</u> The ability to process new information and to adjust to unfamiliar situations or circumstances quickly | <u>Coaching</u> The ability to support and advice others with respect to work-related activities and personal development | <u>Risk awareness and acceptance</u> The ability to take a chance or personal risk |
| <u>Vision</u> The ability to approach matters with a broader perspective, to demonstrate conceptual and policy related long term thinking | <u>Relationship management</u> The ability to establish and maintain relationships with clients and other (business) contacts | <u>Decisiveness</u> The ability to make tough decisions whenever required, to act firm in order to contribute to clarity |
| <u>Organizational awareness</u> The ability to observe and understand organizational processes and organizational culture, to know how the organization works | | <u>Stress resistance</u> The ability to work under pressure, to deal effectively with job related stress and the causes |
| | | <u>Responsibility</u> The ability to accept accountability for own and others' actions |

Note. This categorization is based on the work of Kolk, Born, & Van der Flier (2004).

Furthermore, a smaller number of dimensions may cause an adequate explanation of variance in criteria of interest (e.g., Jones & Whitmore, 1995; Sackett & Hakel, 1979). These are all desirable outcomes that are in favor of a small number of competency dimensions instead of an endless list of separate competencies. The optimal number of (competency or behavioral) dimensions varies between three and seven in overall assessment ratings, and between two and four in assessment center exercises (e.g., Arthur, Anthony Day, McNelly & Edens, 2003; Gaugler & Thornton, 1989).

Given the fact that individuals have a limited capacity to process information at least in part because of the number of dimensions they can retain (Lachman, Lachman, & Butterfield, 1979), and that individuals reduce the number of dimensions during the rating procedure, competencies used in the present study were designed to tap three dimensions; Thinking, Feeling, and Power. This triadic approach is adopted from the work of Kolk, Born, and Van der Flier (2004), which studied the construct validity of assessment center exercises, and concluded that each exercise tapped three dimensions. Kolk et al. regarded the dimensions as category labels for clusters of competencies and named them the Thinking, Feeling, and Power dimensions. According to Kolk et al. the origins of these three dimensions can, for example, be found in the work of Plato who, in *The Republic*, distinguished between the faculties of knowing, feeling, and volition. Furthermore, similar dimensions are reported in research on leadership and personality (Yukl, 2005; Zand, 1997).

In the present study the competency dimension Thinking relates to cognitive aspects and contains competencies such as analytical ability, inventiveness, and judgment. In the competency dimension Feeling social relations are the central aspect. The dimension Feeling is based on competencies such as empathy, cooperation, and customer orientation. The competency dimension Power contains competencies concerning action related issues, such as persuasion, risk awareness and acceptance, and decisiveness. An overview of competency dimensions, competencies, and their behavioral anchors is given in Table 1. For the current study, we used data gathered during a one-day selection procedure comprising many different assessment methods. The data were gathered in collaboration with a Dutch psychological consultancy firm that worked with the Thinking, Feeling, and Power dimensions. Based on the different assessment methods psychologists make competency ratings by translating and categorizing overt behavior into competencies and competency dimensions such as Thinking, Feeling, and Power. We focus on the influence of cognitive ability measures, personality measures, and assessment center exercise performance on ratings made by psychologists with regard to the competencies and competency dimensions Thinking, Feeling, and Power.

Competency Dimensions, Cognitive Ability, and Personality

To be able to judge an applicant's competencies, psychologists have to disentangle competencies and competency dimensions into different determinants of behavior. As McClelland (1973) argues, competencies are directly resembling or related to job performance. Therefore, ultimately, competencies should lead to positive work-related outcomes, such as increased job performance and job satisfaction. The same argument is made by Silzer in his exchange of letters with Hollenbeck and McCall (Hollenbeck et al., 2006). Silzer argues that competencies and competency models have been helpful in determining and understanding leadership effectiveness. Considering the above, we propose that, in assessing the competencies of an applicant, psychologists have to focus on those underlying constructs that lead to positive outcomes such as high job performance, low turnover, job satisfaction and so forth.

Previous research has indicated that, across a variety of occupations, general mental ability ([GMA] i.e. intelligence or cognitive ability) is the most valid predictor for job performance (e.g., Hunter & Hunter, 1984; Schmidt & Hunter, 1998), and that GMA plays an important role in learning and skill acquisition (Kanfer & Ackerman, 1989), and effective coping (LePine, Colquitt, & Erez, 2000). In line with this, we expect the competency dimensions Thinking, Feeling, and Power to be strongly related to measures of GMA, or cognitive ability. In other words, we expect psychologists to rely on measures of cognitive ability to assess applicants on the competency dimension Thinking, Feeling, and Power.

Besides cognitive ability there are other constructs that appear to have incremental validity in the prediction of work-related behaviors. The Big Five personality traits have proven to be related to work-related behaviors such as job performance (e.g., Barrick & Mount, 1991; Thoresen, Bradley, Bliese, & Thoresen, 2004). Therefore, we expect the Big Five personality traits to explain variance in the competency dimensions over and above measures of verbal and abstract reasoning. In other words, in assessing competencies related to the Thinking, Feeling, and Power dimensions, we expect psychologists not only to rely on scores of applicants on measures of verbal and abstract reasoning, but also on scores of applicants on measures of personality. Therefore, we hypothesize:

Hypothesis 1: Both measures of verbal and abstract reasoning and measures of the Big Five personality traits contribute significantly to ratings made by psychologists on competencies of the competency dimensions Thinking, Feeling, and Power.

For personality the first hypothesis can be further specified. In a meta-analysis, Barrick and Mount (1991) studied the Big Five as predictors of three job performance criteria

(job proficiency, training proficiency, and personnel data) for different occupational groups. Their results pointed out that the Big Five personality trait conscientiousness was a valid predictor of all job performance criteria for all occupational groups. Similar findings have been reported by Byrne, Stoner, Thompson, and Hochwarter (2005), Salgado (1997), and Tett, Jackson, and Rothstein (1991). Conscientious employees favor planning, and are responsible and organized (McCrae & John, 1992). These individual characteristics all contribute to job performance and they are likely to be of importance in predicting competencies such as judgment and analytical ability. A study conducted by Baron et al. (2003) indeed showed a relation between the competency organizing/executing and conscientiousness ($r = .18$). Therefore, we expect conscientiousness to play a role in assessing the competency dimension Thinking.

Besides a relationship with conscientiousness a positive relationship between the competency dimension Thinking and the openness to experience trait is expected. This expectation is based on two lines of reasoning. First, the content of the fifth trait seems directly related to mental ability. The trait has even been named intellect or intellectence (e.g., Peabody & Goldberg, 1989). Employees scoring high on openness to experience are creative and divergent thinkers that are open to change and new experiences (Costa & McCrae, 1985). Openness to experience can be seen in vivid fantasy, intellectual curiosity, and in a deliberation of social values (McCrae, 1996). A number of studies indeed have proven openness to experience to be consistently related to general intelligence (e.g., Zeidner & Matthews, 2000). Thus, in the present study, in assessing the competency dimension Thinking a substantial contribution of the openness to experience trait over and above verbal and abstract reasoning is likely.

Second, openness to experience appears to be a valid predictor of job performance. In their meta-analysis on the relationships between the Big Five personality dimensions and job performance, Barrick and Mount (1991) found openness to experience to be a valid predictor of training proficiency ($\rho = .25$), one of the three job performance criteria used in their study. In sum, due to the apparent relationship with mental ability and job performance, we expect conscientiousness and openness to experience to be primarily related to the competency dimension Thinking. In other words, in assessing competencies of the competency dimension Thinking, we expect psychologists to rely on ratings of conscientiousness and openness to experience over and above ratings of verbal and abstract reasoning. In sum, we hypothesize:

Hypothesis 2: The Big Five personality traits conscientiousness and openness to experience contribute significantly to ratings made by the psychologist on competencies of the competency dimension Thinking.

Conscientiousness and openness to experience are not the only Big Five personality traits that are expected to be of importance in rating competencies and competency dimensions. We expect the Big Five trait agreeableness to be positively related to the competency dimension Feeling. Facets of this Big Five trait, such as caring and empathy, resemble competencies underlying the competency dimension Feeling (see Table 1). Baron et al. (2003) found a strong correlation between the competency supporting/cooperating and agreeableness ($r = .21$). Bartram (2005) reported a correlation of .90 between predictors of the competency supporting/cooperating and the Big Five factor agreeableness, which was measured based on the Occupational Personality Questionnaire. The above led us to expect that the Big Five personality trait agreeableness plays a significant role in assessing the competency dimension Feeling over and above the role of verbal and abstract reasoning. In other words, in assessing competencies of the competency dimension Feeling, we expect psychologists to focus on ratings of agreeableness. In sum, we hypothesize:

Hypothesis 3: The Big Five personality trait agreeableness contributes significantly to ratings made by the psychologist on competencies of the competency dimension Feeling.

Extraversion is a Big Five personality trait that includes facets like dominance, energy, and cheerfulness. According to research done by McCrae & Costa (1987), individuals high on extraversion are dominant in their behavior and expressive when interacting with others. The described facets, as well as the characteristics proposed by McCrae and Costa, equal the competencies underlying the competency dimension Power, such as persuasion and decisiveness. According to studies carried out by Baron et al. (2003) and Bartram (2005), persuading and influencing others, both characteristics of the competency dimension Power, require extraversion ($r = .18$ in both studies). Based on the above, we expect extraversion to contribute significantly to ratings on the competency dimension Power.

Hypothesis 4: The Big Five personality trait Extraversion contributes significantly to ratings made by the psychologist on competencies of the competency dimension Power.

Competency Dimensions and Assessment Center Exercises

Assessment center exercises seem to be a valid predictor for a wide range of criteria, including for example job performance (Schmidt & Hunter, 1998). In a study done by Gaugler, Rosenthal, Thornton, and Bentson (1987) a mean corrected validity coefficient of .37 for predicting job performance and of .53 for predicting job potential was found. Although the assessment center exercise is an important predictor of job performance, it seems to have

little incremental validity over, for instance, cognitive ability in predicting work-related criteria (Schmidt & Hunter, 1998). However, for several reasons we do expect assessment center exercise performance to influence the psychologists' ratings with regard to the competency dimensions. First, a well-developed assessment center exercise strongly linked to future work-related behavior provides psychologists with insights on future performance and potential (Gaugler et al., 1987). Second, an assessment center exercise is rated by independent assessors, and thus provides psychologists with a kind of second opinion. Therefore, we expect psychologists to rely on an applicant's assessment center exercise performance. In sum, we hypothesize:

Hypothesis 5: Besides measures of verbal and abstract reasoning and measures of personality, the applicant's assessment center exercise performance rated by independent assessors contributes significantly to ratings made by psychologists on competencies of the competency dimensions Thinking, Feeling, and Power.

Method

Participants and Procedure

Data were collected in collaboration with a Dutch psychological consultancy firm specialized in one-day selection procedures between 2000 and 2005. During this selection procedure applicants were confronted with a test battery containing measures of verbal and abstract reasoning, and personality. Furthermore, applicants participated in assessment center exercises and they had an interview with a psychologist. The content of the assessment center exercises varied per position applied for. More information on the assessment center exercises is given in the measures section. During the interview the psychologists discuss the applicants' curriculum vitae as well as their motivation to apply for the job and their interests.

At the end of the day psychologists were provided with ratings of assessment center exercise performance and test results of applicants with whom they had an interview. Based on this information, psychologists had to rate the applicants on relevant competencies related to the position the applicant applied for. Each applicant thus was rated by one psychologist. Ratings were given on a four-point scale representing different competency levels; 1= *basic*, 2= *standard*, 3= *advanced*, and 4= *expert*. Competencies were designed to tap three competency dimensions Thinking, Feeling, and Power. All psychologists that were involved in the final rating had an educational background in work and organizational psychology and several years of practical experience in selecting and assessing individuals. Psychologists responsible for the final rating were not involved in rating the applicants in any other way during the one-day selection procedure. The only contact between the psychologist and the

applicant took place during the selection interview. As stated, in the present study we focus on the influence of verbal and abstract reasoning, personality, and assessment center exercise performance on competency ratings made by psychologists.

Complete data on competencies, cognitive ability, personality, and two assessment center exercises were available for 932 applicants. Data of these applicants were used in the present study. The majority of the applicants were male (64%). Age ranged between 20 and 61 with a mean of 38 years ($SD = 8.01$). Level of education varied between lower vocational training (2.6%) to master's degree (10.0%), bachelor's degree being the largest category (28.1%). A total of 440 values for educational level were missing (47.2%). Applicants applied for a wide variety of jobs, for example account manager, supervisor front office, trainee, and traffic agent. The jobs represented a wide range of industries, including healthcare (24.1%), professional services (22.0%), transport and communication (15.1%), and authorities (11.5%). A large percentage of the positions applicants applied for were on managerial level (33.8%) or on level of head of staff (15.8%).

Measures

Cognitive Ability. Cognitive ability is measured by the Differential Aptitude Test (DAT'83; Bennett, Seashore, & Wesman, 1974; authorized Dutch translation by Evers & Lucassen, 1992). The DAT'83 is a series of nine aptitude tests. The subtests for verbal reasoning (VR) and abstract reasoning (AR) were used in this study. The subtest VR is a test for the verbal part of general intelligence. Items are based on reasoning by analogy and focus on analytical and constructive thinking. Applicants are confronted with analogy-items in which they have to fill in two blanks by choosing out of four options for every blank they have to fill. The test consists of 50 items which must be completed within 30 minutes and the end score resembles the number of correct answers ($Sc. = C$). The subtest AR is a test for the non-verbal part of general intelligence and items are based on geometric series. Applicants have to detect the underlying principle of change and have to complete the series by choosing the right option out of five different possibilities. The test consists of 50 items which must be completed within 25 minutes and the end score resembles the number of correct answers minus one-fourth of the false answers ($Sc. = C - \frac{1}{4}F$).

The DAT'83 (Evers & Lucassen, 1992) is a well-developed and well-documented test which has been regularly updated. In 1992, the test was positively evaluated by the Committee of Tests Affairs of the Dutch Association of Psychologists (COTAN). The test manual reports that the split-half reliability coefficients for the DAT'83 subtest VR range between .58 and .80 for females, and between .63 and .81 for males. Split-half reliability coefficients for the DAT'83 subtest AR range between .78 and .85 for females, and between

.75 and .87 for males. Based on the DAT-test manual (Evers & Lucassen, 1992) and on the evaluation of the Committee of test Affairs of the Dutch Association of Psychologists (COTAN), it can be said that the lowest reliability coefficients are found for individuals with lower educational levels. In our sample level of education is rather high. We therefore expect that the measures of verbal and abstract reasoning are adequate. This expectation is supported by a more recent study done by Te Nijenhuis, Evers, and Mur (2000) in which Cronbach's α 's of .75 for verbal reasoning and of .85 for abstract reasoning were reported. The test manual furthermore reports good validity studies.

Big Five Personality Traits. For the current study we used probably the most extensively validated self-report measure of the Five-Factor model of personality, namely the revised NEO personality inventory (NEO-PI-R; Costa & McCrae, 1992; authorized Dutch translation by Hoekstra, Ormel, & De Fruyt, 1996). This 240 item, non-timed inventory, measures 30 primary personality traits (facets) and its underlying Big Five personality factors (scales), i.e. neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Each of the five factors is measured by 48 items which are divided equally over the facets, and which are answered on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In this study, internal consistency (coefficient α) of the five scales was .83 for neuroticism, .78 for extraversion, .70 for openness to experience, .69 for agreeableness, and .80 for conscientiousness. These coefficients are in line with the coefficients as reported in previous research (Costa & McCrae, 1992; Hoekstra et al., 1996).

Assessment Center Exercises. In the current study we used interview simulation exercises as representatives for the assessment center. An interview simulation is a fairly typical (used in 47% of all assessment centers), situational exercise in which the applicant talks one-on-one with someone playing the role of a subordinate, colleague, or customer (Thornton, 1992). The one-on-one situation varies for different types of jobs, for example if the target position is in sales, the applicant (sales person) then tries to sell products or services to the interviewee / role player (client).

Applicants had 15 minutes to prepare for the exercise and another 15 minutes to perform the exercise. The rater-ratee ratio was 2:1. To minimize biases, the raters were not provided with information concerning the applicant or the job the applicant applied for before the exercise. After completion of the exercises the applicant was rated by two independent, trained and experienced assessors with at least a bachelor's degree. Most of them had an educational background in psychology. Each assessor rated the performance of the applicant on the Thinking, Feeling, and Power dimensions on a five-point scale ranging from (1) *weak* to (5) *strong* where ratings on intermediate scores (e.g., 1.8 and 2.3) were allowed. During the

rating procedure consultation between the assessors with respect to the rating was not allowed. As a consequence independent ratings were guaranteed

Control Variables. Age and gender were used as control variables², because these variables were expected to affect the psychologists' ratings of competencies due to possible biases (e.g., Marlowe, Schneider, & Nelson, 1996; Schmitt & Hill, 1977; Singer & Sewell, 1989).

Analyses

Our final data set, containing 932 applicants, was based on two related data sets. The first data set contained competency data for 3470 applicants. In other words, this data set contained the psychologists' ratings of the competencies that were salient for the jobs the applicants applied for. For each applicant a mean of nine out of 21 competencies was rated, resulting in missing data for the other competencies. Missing data are a potential problem (Graham & Hofer, 2000). According to Horton and Lipsitz (2001) three types of concerns arise with missing data: (1) loss of efficiency, (2) complication in data handling and analysis, and (3) bias due to differences between observed and unobserved data (Barnard & Meng, 1999). A growing body of research has shown that there are potential problems with the traditional pairwise, listwise, and regression imputation approaches to missing value analysis (e.g., Von Hippel, 2004; Graham & Hofer, 2000). Therefore, we used expectation maximization method operationalized using missing value analysis in SPSS 12.0.2 to impute missing competency scores, and to compute Thinking, Feeling, and Power scales.

Ratings based on missing value analysis were combined with the second data set containing ratings of cognitive ability, personality, and assessment center exercises. Combining the data sets resulted in a data set containing 932 applicants. We conducted a confirmatory factor analysis (CFA) using structural equation modeling (SEM) with LISREL 8.30 (Jöreskog & Sörbom, 1993) to determine whether the *a priori* competency dimensions we proposed could be empirically verified.

Results showed a good fit for a three-factor model, in which the separate competencies loaded on the Thinking, Feeling, and Power dimensions following the *a priori* categorization, χ^2 three-factor model (186, $N = 932$) = 3091.12, $p < .001$, NNFI = .88, CFI = .90, and SMSR = .11. The three-factor model fits the data significantly better than a one-factor model, in which all competencies loaded on a single factor, χ^2 one-factor model (189, $N = 932$) = 5972.83, $p < .001$, NNFI = .77, CFI = .80, and SMSR = .13, χ^2 diff (3) = 2881.71, $p < .001$

² In an additional analysis we controlled for level of education. Due to missing variables N ranged between 479 and 492 in hierarchical regression analysis. Although level of education explained variance, especially in the Thinking competency domain, overall patterns of beta weights were equal to patterns of beta weights when level of education was not controlled for. Furthermore, the total amount of variance explained by all variables incorporated in the regression analysis was equal to the total amount of variance when level of education was not controlled for.

(cf. Hu & Bentler, 1999). Thus, supported by the results of the confirmatory factor analysis, we decided to maintain the *a priori* categorization. Based on the *a priori* categorization the Thinking, Feeling, and Power scales were formed by computing mean scores based on the scores on the separate competencies. Alpha coefficients for the scales were .90 for Thinking, .85 for Feeling, and .87 for Power. Based on these scales, we conducted further analyses. To test the hypotheses we used correlation analysis and hierarchical regression analysis.

Results

We first examined the relationships between measures of verbal and abstract reasoning and the Thinking, Feeling and Power scales. Means, standard deviations, and correlations of these measures are reported in Table 2. As we expected, verbal and abstract reasoning are related to all three competency dimensions. However, the relationships between the competency dimension Thinking and the verbal and abstract reasoning measures are much stronger than the relationships between the Feeling and Power dimensions and these measures. All Big Five personality factors are significantly related to the competency dimensions as well, with the notable exception of agreeableness and conscientiousness. No significant relation is found between agreeableness and the competency dimension Thinking and between conscientiousness and the competency dimension Feeling.

To examine the amount of variance in the Thinking, Feeling, and Power dimensions explained by measures of verbal and abstract reasoning and personality, we conducted hierarchical regression analyses (Table 3). In the first step Thinking, Feeling, and Power were regressed on age and gender. Age and gender both had a significant main effect on the Thinking dimension in that older and female applicants were provided with lower scores on the Thinking dimension than younger and male applicants. The second step in the regression analysis showed that verbal and abstract reasoning accounted for 35% of the variance in the competency dimension Thinking, for only 2% of the variance in the competency dimension Feeling, and for 4% of the variance in the competency dimension Power above and beyond age and gender. Though significant, proportions of variance explained by verbal and abstract reasoning in competency dimensions Feeling and Power are relatively small compared to the proportion explained by the competency dimension Thinking. Thus, it seems that psychologists, in assessing competencies related to the competency dimension Thinking, rely more heavily on the applicant's scores on measures of verbal and abstract reasoning than in assessing competencies related to the competency dimensions Feeling and Power.

Besides verbal and abstract reasoning, we expected personality to be relevant to psychologists in assessing competencies related to the three competency dimensions. We focused on personality as measured by the authorized Dutch translation of the Big Five

Table 2

Means, standard deviations, and correlation of the Thinking, Feeling, and Power dimensions, intelligence test, NEO-PI-R, and interview simulation exercise dimensions

| | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|------------------------------|----------|-----------|--------|--------|--------|-------|--------|--------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| 1. Thinking | 2.76 | 0.45 | | | | | | | | | | | | | | | |
| 2. Feeling | 2.76 | 0.43 | .46** | | | | | | | | | | | | | | |
| 3. Power | 2.74 | 0.39 | .55** | .45** | | | | | | | | | | | | | |
| 4. Verbal reasoning | 33.34 | 7.74 | .55** | .13** | .16** | | | | | | | | | | | | |
| 5. Abstract reasoning | 37.54 | 7.48 | .52** | .10** | .18** | .57** | | | | | | | | | | | |
| 6. Neuroticism | 2.24 | 0.35 | -.15** | -.10** | -.32** | -.07* | -.10** | | | | | | | | | | |
| 7. Extraversion | 3.63 | 0.34 | .12** | .19** | .32** | .04 | .10** | -.38** | | | | | | | | | |
| 8. Openness | 3.47 | 0.33 | .16** | .14** | .12** | .19** | .16** | -.09** | .38** | | | | | | | | |
| 9. Agreeableness | 3.58 | 0.29 | -.01 | .10** | -.07* | -.04 | -.10** | -.20** | -.02 | .07* | | | | | | | |
| 10. Conscientiousness | 3.81 | 0.30 | .11** | .05 | .25** | .01 | .05 | -.56** | .41** | .07* | .20** | | | | | | |
| 11. <i>M</i> ISE-1: Thinking | 2.74 | 0.72 | .25** | .35** | .18** | .18** | .15** | -.04 | .09** | .12** | -.02 | -.04 | | | | | |
| 12. <i>M</i> ISE-1: Feeling | 2.74 | 0.82 | .21** | .39** | .08* | .12** | .13** | -.01 | .10** | .10** | .00 | -.05 | .62** | | | | |
| 13. <i>M</i> ISE-1: Power | 3.00 | 0.72 | .16** | .19** | .32** | .05 | .03 | -.05 | .10** | .07* | -.02 | .00 | .55** | .24** | | | |
| 14. <i>M</i> ISE-2: Thinking | 2.80 | 0.72 | .26** | .31** | .21** | .22** | .18** | -.04 | .07* | .16** | .02 | .02 | .27** | .23** | .17** | | |
| 15. <i>M</i> ISE-2: Feeling | 2.77 | 0.78 | .22** | .37** | .11** | .15** | .12** | .02 | .07* | .14** | -.01 | -.02 | .24** | .32** | .12** | .60** | |
| 16. <i>M</i> ISE-2: Power | 2.99 | 0.69 | .12** | .17** | .28** | .07* | .05 | -.07* | .07* | .07* | -.03 | .07* | .18** | .11** | .24** | .49** | .22** |

Note. $N = 932$. Results considering the Thinking, Feeling, and Power dimensions are based on missing value analysis; 1-3 based on aggregated competency scores; 4-5 based on intelligence test DAT; 6-10 based on NEO-PI-R; 11-16 based on mean ratings of independent assessors on interview simulation exercises. *M* ISE refers to the mean score on interview simulation exercise 1 or 2, and is based on the scores of the 2 independent assessors.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

inventory NEO-PI-R (Hoekstra et al., 1996). As is formulated in Hypothesis 1, we expected the Big Five factors to explain a significant amount of additional variance in the competency dimensions Thinking, Feeling, and Power over and above the variance explained by verbal and abstract reasoning. Table 3 presents the results of the hierarchical regression analyses of verbal and abstract reasoning, the Big Five factors and the Thinking, Feeling, and Power dimensions. Results showed that the Big Five factors, added to the regression equation in the third step, explained a significant amount of additional variance in the competency dimensions Thinking, Feeling, and Power over and above measures of verbal and abstract reasoning. Based on these results, Hypothesis 1 was supported by the data.

Though significant, the increase in variance explained by the Big Five factors in the Thinking and Feeling dimensions is relatively small, $\Delta R^2 = .01$, $F(5, 922) = 3.94$, $p = .00$ and $\Delta R^2 = .05$, $F(5, 922) = 10.64$, $p = .00$ respectively. In contrast, the increase in variance explained after adding the Big Five to the regression equation was larger for the Power dimension, $\Delta R^2 = .16$, $F(5, 922) = 37.98$, $p = .00$. It seems that, in the eyes of the psychologists, personality is an important predictor of the competencies in the Power dimension.

To examine the relationships between the competency dimensions and the Big Five factors more closely, we studied the correlations and beta weights. We hypothesized that the Big Five personality traits conscientiousness and openness to experience would contribute significantly to ratings made by psychologists on the competency dimension Thinking (Hypothesis 2). As Table 2 shows, the correlations with conscientiousness ($r = .11$, $p = .00$) and openness to experience ($r = .16$, $p = .00$) were both significant. The beta weights of the relationships between the competency dimension Thinking and conscientiousness and openness to experience were not significant, $\beta = .05$, $p = .18$ and $\beta = .02$, $p = .42$, respectively. Based on the results presented here, the expected relationships are not significant and, thus, Hypothesis 2 must be rejected. These results are in line with the results of Hypothesis 1, which already showed that personality plays a relatively small role in the assessment of the competency dimension Thinking.

In Hypothesis 3 we expected the Big Five factor agreeableness to contribute significantly to ratings on the competency dimension Feeling. Table 2 shows that the Feeling dimension and agreeableness are indeed related, $r = .10$, $p = .00$. In addition, the beta weight of the relation between the competency dimension Feeling and agreeableness is significant, $\beta = .10$, $p = .01$. Thus, Hypothesis 3 was supported by our data. A closer look at correlations between the competency dimension Feeling and Big Five facets showed that the agreeableness facets “trust” and “altruism” are important (Table 4). In other words, in

Table 3

Results of hierarchical regression analyses of verbal and abstract reasoning, NEO, and interview simulation exercises each rated by 2 independent assessors on the Thinking, Feeling, and Power dimensions rated by psychologists based on total assessment and corrected for age and gender

| Variable | Thinking | | | | | Feeling | | | | | Power | | | | |
|--------------------------|----------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| | St. 1 | St. 2 | St. 3 | St. 4 | St. 5 | St. 1 | St. 2 | St. 3 | St. 4 | St. 5 | St. 1 | St. 2 | St. 3 | St. 4 | St. 5 |
| Age | -.10** | .04 | .05 | .05 | .04 | .00 | .03 | .06 | .06 | .06 | .02 | .08* | .17** | .15** | .14** |
| Gender | -.09** | -.01 | .01 | -.01 | -.02 | .04 | .06 | .05 | .01 | -.01 | -.07* | -.04 | .05 | .04 | .04 |
| Verbal reasoning | | .38** | .38** | .36** | .35** | | .11** | .10** | .06 | .03 | | .07* | .08* | .08* | .06 |
| Abstract reasoning | | .31** | .30** | .29** | .28** | | .05 | .05 | .02 | .01 | | .16** | .12** | .12** | .12** |
| Neuroticism | | | -.05 | -.04 | -.04 | | | -.03 | -.01 | -.02 | | | -.20** | -.19** | -.19** |
| Extraversion | | | .04 | .02 | .02 | | | .21** | .17** | .17** | | | .25** | .22** | .22** |
| Openness | | | .02 | .02 | .01 | | | .03 | .02 | .01 | | | -.01 | -.02 | -.03 |
| Agreeableness | | | .01 | .01 | .01 | | | .10** | .10** | .10** | | | -.14** | -.13** | -.13** |
| Conscientiousness | | | .05 | .07* | .06 | | | -.08 | -.03 | -.03 | | | .07 | .09* | .07 |
| <i>M</i> ISE-1: Thinking | | | | .04 | .03 | | | | .13** | .12** | | | | -.02 | -.03 |
| <i>M</i> ISE-1: Feeling | | | | .08* | .06 | | | | .28** | .21** | | | | -.01 | -.02 |
| <i>M</i> ISE-1: Power | | | | .08* | .07* | | | | .03 | .02 | | | | .29** | .25** |
| <i>M</i> ISE-2: Thinking | | | | | .05 | | | | | .06 | | | | | .07 |
| <i>M</i> ISE-2: Feeling | | | | | .07* | | | | | .22** | | | | | -.01 |
| <i>M</i> ISE-2: Power | | | | | .01 | | | | | .03 | | | | | .15** |
| <i>R</i> ² | .02** | .36** | .38** | .40** | .41** | .00 | .02** | .07** | .21** | .28** | .01 | .05** | .21** | .28** | .32** |
| ΔR^2 | | .35** | .01** | .03** | .01** | | .02** | .05** | .14** | .06** | | .04** | .16** | .07** | .03** |

Note. Standardized regression coefficients are shown. *n* between 919 and 932. For gender 1 = male, 2 = female. *M* ISE refers to the mean score on interview simulation exercise 1 or 2, and is based on the scores of the 2 independent assessors.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

assessing competencies of the competency dimension Feeling, psychologists focus on aspects such as trust and altruism.

In addition to the expected finding, we also found positive correlations between the competency dimension Feeling and the Big Five factors extraversion and openness to experience, and a negative correlation between Feeling and neuroticism. However, regression analysis showed that, in addition to the agreeableness factor, only the extraversion factor explained a significant amount of variance in the Feeling dimension, $\beta = .21$, $p = .00$. Relatively high correlations were found between Feeling and the extraversion facets “warmth”, assertiveness”, and “positive emotions”.

With respect to Hypothesis 4, expecting the Big Five personality trait extraversion to contribute to ratings on the competency dimension Power, we found that extraversion was indeed strongly related to this competency dimension (Table 2). The beta weight of this relationship was also highly significant, $\beta = .25$, $p = .00$. As the results of Hypothesis 1 already pointed out, personality plays an important role in assessing the competency dimension Power. As a result, besides a strong relationship with extraversion, a negative relationship with neuroticism was found. More specifically, the competency dimension Power appeared to be strongly negatively correlated to the neuroticism facets “anxiety”, “self-consciousness”, “depression”, “impulsiveness”, and “vulnerability” (Table 4). Furthermore, the beta weight of the relationship between Power and agreeableness appeared significant, $\beta = -.14$, $p < .00$. This relationship was again negative, thus a high score on the Power dimension is related to a lower score on agreeableness. Especially the agreeableness facets “trust” and “modesty” played a role. Trust and modesty were negatively correlated with the competency dimension Power (Table 4).

Another remarkable and unexpected finding was the correlation between the competency dimension Power and conscientiousness (Table 2). As Hypothesis 2 stated, we expected conscientiousness to be related to the competency dimension Thinking. Contrary to our expectations, the only strong correlation we found for conscientiousness was with the competency dimension Power. To get some further insight in this unexpected finding, we examined correlations between the competency dimension Power and the Big Five facets. As Table 4 shows, the conscientiousness facets “competence”, “achievement striving”, and “self-discipline” are strongly related to the competency dimension Power. However, the beta weight of the relationship between the competency dimension Power and the conscientiousness factor was only marginally significant, $\beta = .07$, $p = .53$, so the conscientiousness factor did not explain unique variance in the competency dimension Power. This means that in assessing the competency dimension Power psychologists mainly focus on scores on the Big Five factors neuroticism, extraversion, and agreeableness.

Table 4

Means and standard deviations of NEO-PI-R facets and their correlations with the Thinking, Feeling, and Power dimensions

| Big Five facets | | <i>M</i> | <i>SD</i> | Thinking | Feeling | Power |
|-----------------|----------------------|----------|-----------|----------|---------|--------|
| N | Anxiety | 2.25 | 0.54 | -.17** | -.11** | -.29** |
| | Angry hostility | 2.08 | 0.44 | -.12** | -.11** | -.17** |
| | Depression | 2.20 | 0.50 | -.13** | -.06 | -.30** |
| | Self-consciousness | 2.18 | 0.48 | -.08* | -.11** | -.29** |
| | Impulsiveness | 2.89 | 0.52 | -.03 | .06 | -.06 |
| | Vulnerability | 1.86 | 0.36 | -.16** | -.13** | -.35** |
| E | Warmth | 3.93 | 0.42 | .09** | .21** | .15** |
| | Gregariousness | 3.64 | 0.51 | .02 | .11** | .13** |
| | Assertiveness | 3.58 | 0.51 | .18** | .20** | .47** |
| | Activity | 3.45 | 0.42 | .08* | .07* | .25** |
| | Excitement seeking | 3.20 | 0.55 | .03 | .05 | .14** |
| | Positive emotions | 3.97 | 0.50 | .11** | .19** | .19** |
| O | Fantasy | 3.11 | 0.57 | .10** | .08* | .00 |
| | Aesthetics | 3.30 | 0.63 | .03 | .07* | .06 |
| | Feelings | 3.71 | 0.43 | .07* | .17** | .07* |
| | Actions | 3.33 | 0.50 | .06 | .07* | .12** |
| | Ideas | 3.56 | 0.52 | .18** | .06 | .11** |
| | Values | 3.81 | 0.40 | .22** | .13** | .13** |
| A | Trust | 3.88 | 0.42 | .19** | .18** | .14** |
| | Straightforwardness | 3.49 | 0.56 | -.02 | .01 | -.09** |
| | Altruism | 3.89 | 0.40 | -.02 | .10** | .03 |
| | Compliance | 3.23 | 0.41 | .03 | .08* | -.06 |
| | Modesty | 3.42 | 0.51 | -.12** | -.03 | -.14** |
| | Tendermindedness | 3.57 | 0.42 | -.06 | .07* | -.11** |
| C | Competence | 3.95 | 0.34 | .19** | .12** | .29** |
| | Order | 3.48 | 0.42 | .01 | -.07* | .09** |
| | Dutifulness | 4.07 | 0.41 | .11** | .03 | .14** |
| | Achievement striving | 3.82 | 0.48 | .11** | .10** | .31** |
| | Self-discipline | 4.03 | 0.39 | .13** | .09** | .27** |
| | Deliberation | 3.48 | 0.50 | -.03 | -.06 | .02 |

Note. $n = 932$. Results with respect to the Thinking, Feeling, and Power dimensions are based on missing value analysis. N=Neuroticism, E=Extraversion, O=Openness to experience, A=Agreeableness, C=Conscientiousness.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

In the fifth and final hypothesis we stated that the applicant's performance on the interview simulation exercises as rated by independent assessors would explain additional variance over and above cognitive ability measures and personality measures. To test this hypothesis we used mean scores of assessor ratings on each dimension for each exercise separately in the regression analysis. To provide insight in rater reliability we calculated two kinds of intra-class correlation coefficients: ICC(1) and ICC(2) (see e.g., James, 1982; Shrout & Fleiss, 1979).

The ICC(1) coefficient represents the reliability associated with a single rating of the Thinking, Feeling, and Power dimensions on an assessment center exercise. We calculated ICC(1) coefficients for all three dimensions and for both assessment center exercises. ICC(1) coefficients, as is shown in Table 5, range between .57 and .71, indicating that a single rating of an assessor is likely to provide a reliable rating. The ICC(2) coefficient is referred to as the reliability of the mean score of both assessor ratings on the competency dimensions. ICC(2) coefficients are also shown in Table 5. In our study, ICC(2) coefficients range between .72 and .83 indicating reliable ratings of the Thinking, Feeling, and Power dimensions. Keeping in mind the fact that ratings of assessment center exercise performance are given without any form of contact between both raters (see method section) these results provide support for combining assessor ratings. Thus, based on these results we calculated mean ratings of the Thinking, Feeling, and Power dimensions. These mean ratings were used in the regression analysis to establish the influence of assessment center exercise performance on the psychologists' judgments of the Thinking, Feeling, and Power competency dimensions.

Table 5

Intra-class correlation coefficients (ICC(1) and ICC(2)) across assessors for both interview simulation exercises (ISE)

| | ICC(1) | ICC(2) |
|-----------------|--------|--------|
| ISE-1: Thinking | .68 | .81 |
| ISE-1: Feeling | .71 | .83 |
| ISE-1: Power | .61 | .76 |
| ISE-2: Thinking | .69 | .82 |
| ISE-2: Feeling | .70 | .82 |
| ISE-2: Power | .57 | .72 |

Note. All coefficients are significant at the $p < .01$ level.

Table 3 shows that adding ratings of performance on the first interview simulation exercise to the regression equation caused an increase in variance explained in all three

dimensions. However, the increase of variance explained in the competency dimensions Thinking and Power was relatively small, $\Delta R^2 = .03$, $F(3, 919) = 13.20$, $p = .00$ and $\Delta R^2 = .07$, $F(3, 919) = 31.63$, $p = .00$ respectively. In contrast, the percentage of variance explained in the Feeling dimension increased from 7% to 21%, $\Delta R^2 = .14$, $F(3, 919) = 54.09$, $p = .00$. Adding the second interview simulation exercise to the regression analysis caused an increase in the variance explained in the competency dimensions Thinking, Feeling, and Power, $\Delta R^2 = .01$, $F(3, 916) = 5.02$, $p = .00$; $\Delta R^2 = .06$, $F(3, 916) = 26.89$, $p = .00$; and $\Delta R^2 = .03$, $F(3, 916) = 14.46$, $p = .00$ respectively. These results provide considerable support for Hypothesis 5. Psychologists do rely on performance on interview simulation exercises when assessing competency dimensions, especially in assessing the competency dimension Feeling.

A closer look at the beta weights, as shown in Table 3, revealed that after adding the ratings of the first interview simulation exercise to the regression analysis the assessment dimension “thinking” played a role in assessing the competency dimension Feeling, whereas the assessment dimension “feeling” played a role in assessing the competency dimensions Thinking and Feeling. The assessment dimension “power” was used in assessing the competency dimensions Thinking and Power. Adding the ratings of the second interview simulation exercise to the regression equation resulted in a significant role for the assessment dimension “feeling” in assessing the competency dimensions Thinking and Feeling, and in a significant role for the assessment dimension “power” in assessing the competency dimension Power.

In sum, based on these data, it seems that in assessing the competency dimension Thinking psychologists almost solely focus on verbal and abstract reasoning. In assessing the competency dimension Feeling the main focus is on performance on interview simulation exercises, although personality also plays a substantial role. In assessing the competency dimension Power the main focus is on personality. However, in assessing this competency dimension psychologists also rely on performance on interview simulation exercises and on verbal and abstract reasoning.

Discussion

The main purpose of this study was to examine the competency concept and to create more insight in the nature of competencies. Therefore, we investigated the relationships between competency dimensions Thinking, Feeling, and Power and verbal and abstract reasoning, personality, and performance on interview simulation exercises. We used data gathered during a one-day selection procedure and focused on ratings of competency dimensions made by psychologists based on test results as well as assessment center exercise performance.

In line with our expectations, psychologists focus on verbal and abstract reasoning when assessing the competency dimensions Thinking, Feeling, and Power. Not surprisingly, verbal and abstract reasoning appear to be the main predictor when assessing the competency dimension Thinking. The competency dimension Thinking contains competencies such as analytical ability, judgment and acuity of understanding. These competencies all require verbal and abstract reasoning. Thus, it seems that to assess an applicant's ability to, for example analyze, plan, and judge, a certain level of verbal and abstract reasoning is necessary. According to the psychologists, less verbal and abstract reasoning skills are required to be perceived competent in the Feeling and Power area. Thus, being customer oriented, sociable, cooperative, direct, persuasive, decisive, and responsible requires less verbal and abstract reasoning skills than, for example, analyzing and planning. These results are in line with findings of Bartram (2005), who reported a stronger correlation between cognitive ability and the competency analyzing/interpreting ($\rho = .40$) than between cognitive ability and the other competencies of his generic competency framework.

Unexpectedly, age and gender had a significant influence on assessing applicants in the competency dimension Thinking. It appeared that older and female applicants were provided with lower scores on the Thinking dimension than younger and male applicants. However, this influence disappears when taking cognitive ability into account. Thus, based on the results, we can conclude that psychologists in this study, without information on test results, are (consciously or unconsciously) biased in assessing the competency dimension Thinking. It would be interesting to study whether other raters display the same bias toward older and female applicants.

Furthermore, our data indicated that personality aspects make a vast contribution to assessing the competency dimensions Feeling and Power. In assessing the competency dimension Feeling, extraversion and agreeableness played an important role. As expected, according to the psychologists showing empathy, being customer oriented, sociable and cooperative (all competencies underlying the competency dimension Feeling) requires a personality characterized by trust, and altruism. Though not expected, the data showed that warmth, assertiveness, and positive emotions (which are all facets of the Big Five factor extraversion) are even more important. Apparently, psychologists assess applicants as competent in the feeling area whenever they display some form of extraversion. The content of the extraversion facets justifies the reliance on these facets when assessing the competency dimension Feeling. It is, indeed arguable that scoring high on these facets contributes to being competent with regard to social relations.

The role of personality in assessing the competency dimension Power differs from the role personality plays in assessing the competency dimension Feeling. Neuroticism,

extraversion, and agreeableness were all taken into account by the psychologists when judging, for example, the applicant's initiative, result orientation, persuasiveness, and decisiveness. According to the psychologists, being competent in the competency dimension Power requires a stable applicant who is somewhat dominant, energetic, and not inclined to trust each and everyone.

Research on the relation between personality and positive work outcomes, such as high job performance (e.g., Barrick & Mount, 1991; Salgado, 1997), has indicated the Big Five personality trait conscientiousness as an important predictor. According to McCrae and John (1992) conscientious employees favor planning, and are responsible and organized. We expected these characteristics to resemble competencies such as planning and analytical ability, underlying the competency dimension Thinking. In line with this, and based on conceptual similarity, we hypothesized that conscientiousness would be related to the competency dimension Thinking. Contrary to our expectations, conscientiousness did not play a role in predicting any of the competency dimensions at all, or, in other words, psychologists do not focus on conscientiousness when assessing the competency dimensions.

There are several possible explanations for the absence of the expected relationship. First, it might be that psychologists are not aware of the fact that conscientiousness is an important predictor of job performance and, therefore, they do not focus on conscientiousness when assessing competency dimensions. This explanation is doubtful given the educational background in psychology of each psychologist. Second, it is possible that psychologists consider competencies to differ from job performance and, therefore, do not presuppose a direct relationship between the competency dimensions and the Big Five personality trait conscientiousness. The difference between competencies and job performance is discussed in more detail later on in this section. Third, although conscientiousness is proven to be a strong predictor of overall job performance (e.g., Barrick and Mount, 1991), narrow trait measures maximize the predictive validity of specific performance criteria (e.g., Dudley, Orvis, Lebiecki, & Cortina, 2006). Following the preceding explanation, it might be that being competent is an aspect of job performance that is better predicted by a narrow trait of conscientiousness, such as achievement or dependability (e.g., Hough, 1992), than by global conscientiousness. Future research should focus on the value of more narrow personality traits in predicting ratings of competency dimensions.

Large meta-analyses (Gaugler et al., 1987; Schmidt & Hunter, 1998) have shown that assessment exercises can be regarded as valid predictors for job performance. In this study interview simulation exercises had a strong link to future work-related behaviors, and were rated by independent assessors. Therefore, we expected the ratings on interview simulation exercises to contribute to the ratings made by the psychologists on the competency

dimensions. Indeed, results show that, besides cognitive ability and personality, performance on interview simulation exercises is taken into account by psychologists when rating competency dimensions. Thus, performance on interview simulation exercises seems to be an important component in rating competencies. In line with previous studies (e.g., Schmidt & Hunter, 1998), the incremental validity over, for instance, verbal and abstract reasoning is small, especially in case of the assessment of the competency dimension Thinking. However, ratings of the competency dimension Feeling are primarily based on interview simulation exercise ratings and, thus, in assessing this competency dimension psychologists rely heavily on performance on interview simulation exercises.

Overall, the proportion of variance in the competency dimensions explained by cognitive ability, personality, and assessment center exercise performance was less than 50% indicating that other aspects play a role in assessing the applicants Thinking, Feeling, and Power competencies. In a summary of practical and theoretical implications of 85 years of research in personnel selection that is based on meta-analytic findings, Schmidt and Hunter (1998) show that general mental ability plus a work sample test together account for a mean validity of .63 for the prediction of job performance. They also reported a mean validity of .60 for general mental ability and conscientiousness for the prediction of job performance. Given the expected link between competencies and job performance, these numbers are noticeably higher than the numbers found in our study. Several remarks must be made here.

First, our study is based on the assumption that factors underlying job performance equal, or at least highly resemble, the factors underlying competency dimensions. Although factors underlying both constructs are the same, this, however, does not mean that job performance and competency dimensions are one and the same. On the contrary, competencies and competency dimensions are related to job performance (McClelland, 1973). In line with Spencer et al. (1992), Schippmann et al. (2000) and Lievens et al. (2004) argue that competencies can be regarded as overt behavior. This behavior, following McClelland (1973), is directly resembling or related to job performance. Or, as Kurz & Bartram (2002, p. 230) state: ‘A competency, then, is a construct that represents a constellation of the characteristics of the person that result in effective performance in his or her job’. Thus, competencies are a prerequisite for job performance and it might be that, aspects underlying the competency dimensions differ from the aspects underlying job performance.

Second, and following our first remark, in the current study we focused solely on the role of cognitive ability, personality, and assessment center exercise performance. However, aspects such as motives and values do also determine what people do (e.g., McClelland, 1985; Winter, John, Stewart, Klohn, & Duncan, 1998). The idea that other aspects may be underlying the competency dimensions and/or competencies is supported by Spencer et al.

(1992, p.6), who define competencies as any individual characteristic that can be measured or counted reliably and that can be shown to differentiate significantly between superior and average performers, or between effective and ineffective performers. Thus, according to Spencer et al. competencies can be motives, traits, self-concept, attitudes or values, content knowledge, or cognitive or behavioral skills. Future research should focus on the role of these aspects in assessing competencies.

Third, in the present study we examined the role of only a few components of the one-day selection procedure, thereby probably leaving out an important one: the employment interview. The employment interview is widely used to make hiring decisions (e.g., Shackleton & Newell, 1997; Moscoso, 2000). Numerous meta-analyses have shown that employment interviews, especially structured ones, predict job performance and related criteria such as training proficiency (e.g., Schmidt & Hunter, 1998). This would advocate for the inclusion of interview data in future studies to study the role of the interview when assessing competency dimensions.

Although the current study has given us insight in the competency concept by examining competencies through the eye of psychologists, there are several limitations that we would like to mention. First, each applicant was assessed on only those competencies that were relevant for the job the applicant applied for resulting in missing data. Competency scores that were left blank were imputed using MVA. Although the expectation maximalization technique is widely used, it would be better to study the relationships between competency dimensions and other aspects based on actual instead of imputed competency scores. We therefore argue for future research based on complete data on the 21 competencies (see Table 1) to test the robustness of our findings.

Second, in the current study we focused on competency dimensions. Although the triadic approach to competency dimensions used in this study is widely used in different areas, such as selection, assessment, and leadership (e.g., Kolk et al., 2004; Yukl, 2005), there has been an ongoing debate on specificity and generality of dimensions (e.g., Tett et al. 2000). As Tett et al. point out, the debate is about measuring a few things well or more things less well. The focus on general competency dimensions in the current study provided us with preliminary insight in the nature of competencies and indicated where to look for in future, more specific, studies. Thus, in addition to the current study we do argue for research with a focus on separate competencies.

A third remark should be made about the fact that overall assessment ratings were given by psychologists. It would be interesting to compare these ratings with ratings given by others, for example practitioners without an educational background in psychology or managers. Previous research has already shown that using psychologists as assessors

increases the predictive validity (Gaugler et al., 1987) and the dimension variance (Lievens & Conway, 2001) of assessment centers. Future research should focus on the effects of different types of raters on the assessment of competencies or competency dimensions. Furthermore, it would be most interesting to look at competencies through the eyes of managers and to examine the relationship between competencies and actual job performance. We therefore argue for longitudinal research, following those applicants that are actually hired based on the one-day selection procedure. Ratings on competencies and competency dimensions given by managers based on applicants' actual performance on the job together with an objective measure of actual job performance would provide further insight in the competency concept and its value beyond traditional predictors of job performance.

Fourth, final competency ratings were given by a single rater, namely the psychologist. Although we believe that psychologists are perfectly capable of giving an overall rating based on information gathered during the one-day selection procedure, the possibility of rater effects needs to be addressed. Implicit theories and halo effects may have played a role in assessing applicants. Before giving the final rating, the psychologist may have already formed an impression of the applicant influenced by rater-ratee interaction or implicit theories. Implicit theories are defined by Dweck (1986) as lay beliefs about the malleability of personal attributes that affect behavior, such as cognitive ability and personality. Halo error accounts for the part of the impression formed that is not shared with other raters and that thus is unique to the rater. Both implicit theories and halo effects appear to influence decision making and performance appraisal (e.g., Heslin, Latham, Vande Walle, 2005; Viswesvaran, Schmidt, & Ones, 2005). Thus, implicit theories as well as halo effects influence the extent to which raters (psychologists) consider all relevant information when rating applicants. Therefore, future studies should investigate the influence of implicit theories and halo effects on the assessment of competencies or competency dimensions.

Finally, data for this study were collected during a one-day selection procedure in collaboration with a single consultancy firm. Psychologists working for this firm all participated in internal courses and received training on the job. This may have led to consultancy-specific procedures, routines, or biases that may have influenced the data. Therefore, we argue for replication of this study using data gathered in collaboration with different consultancy firms.

To conclude, competencies and competency dimensions seem interesting to study in more detail using different methodologies and different data sources and thereby making an attempt to fill the existing gap between practice and science. The present study provided us with preliminary insights in the competency concept and uncovered part of the nature of competencies and competency dimensions. Our study showed that assessing the competency

Chapter 2

dimension Thinking leads psychologists to focus on cognitive ability, whereas in assessing the dimensions Feeling and Power personality and performance on interview simulation exercise played a more central role.

CHAPTER 3

Competencies and Effectiveness: Rater Perspectives and Relationships³

The competency based approach to human resource management has gained popularity. Despite this popularity, there is still no unequivocal answer to the question whether and, if so, which competencies are actually related to effectiveness when different rater sources are considered. Therefore, this study examines relationships between managerial competencies and perceived managerial effectiveness focusing on the perspectives of subordinates, peers, and supervisors using a 360-degree feedback inventory. Results revealed that different rater sources assess competencies and managerial effectiveness differently. That is, comparing ratings of different sources showed little to no similarity. Furthermore, within source competency ratings were found to be more similar than between source competency ratings. Overall, competencies appeared to be related to perceived managerial effectiveness. In addition, results showed that in the eyes of subordinates, peers, and supervisors, different competencies are considered predictors of perceived managerial effectiveness. The results are discussed and several potentially fruitful avenues for future research on the link between competencies and effectiveness are presented.

Over the past years, the competency based approach to human resource management has gained popularity. Despite the rising popularity, research on the competency concept has lagged behind resulting in a gap between practice and science (Lievens, Sanchez, & De Corte, 2004). Furthermore, there is an ongoing debate on the quality, job relatedness, and the predictive validity of the competency based approach to human resource management (e.g., Hollenbeck, McCall, & Silzer, 2006; Lievens et al., 2004).

The purpose of our study is twofold. First, our aim is to provide insight in differences in competency and perceived effectiveness ratings given by different sources. Second, we focus on the link between managerial competencies and perceived managerial effectiveness in

³ The corresponding reference is: Heinsman, H., De Hoogh, A.H.B., Koopman, P.L., & Van Muijen, J.J. (2006a).

order to examine whether different raters consider different managerial competencies necessary for managers to be perceived effective. Therefore, in the present study, we investigate the relationships between managerial competencies and perceived managerial effectiveness focusing on the perspectives of managers' subordinates, peers, and supervisors using a 360-degree feedback inventory. First, we examine the differences in competency ratings and perceived effectiveness ratings given by the different rater sources. Do different raters agree on the ratings given? Second, we investigate which managerial competencies are actually related to perceived managerial effectiveness. In other words, which managerial competencies play a role when assessing perceived managerial effectiveness?

Competencies and Competency Taxonomies

Past decades, competencies have become the leading construct in many different human resource practices such as selection, career development, and performance management. After McClelland's (1973) proposition to test for competence rather than for intelligence in order to provide for a more valid predictor of job performance, competencies were rapidly embraced by practitioners resulting in a shift from the traditional job analysis approach to a competency based approach. The essence of this competency based approach is that work is defined in terms of characteristics and behaviors of the job holder, instead of in terms of the job. According to Schippmann et al. (2000), "job analysis may be thought of as primarily looking at 'what' is accomplished, and competency modeling focuses more on 'how' objectives are met or how work is accomplished" (p.713).

As a result of the growing popularity, numerous authors have shed their light on the competency concept, creating a whole range of, at first glance, very different definitions. These definitions have included, for example, knowledge, skills, abilities, motives and interests as the basis of competencies (Morgeson, Delaney-Klinger, Mayfield, Ferrara, & Campion, 2004). Even though there are numerous definitions, they all have a thing in common: their focus on output. Boyatzis (1982), for example, defined competencies as "an underlying characteristic of an individual which is causally related to superior performance in a job" (p. 20-21). According to Kurz and Bartram (2002) a competency is "the repertoire of capabilities, activities, processes and responses available that enable a range of work demands to be met more effectively by some people than by others" (p. 230). In essence, competencies are based on individual characteristics and they are expressed in overt behavior. This overt behavior can be labeled as either effective or ineffective. As such, competencies are assumed to be related to effectiveness.

In an attempt to identify the competencies that were thought to contribute to employee effectiveness and organizational effectiveness competency taxonomies were created (e.g.,

Bartram, 2005). Most of these competency taxonomies focus on jobs at the managerial level (e.g., Borman & Brush, 1993; Tett, Guterman, Bleier, & Murphy, 2000). Adequately measuring managerial competencies in order to distinguish effective from ineffective managers became increasingly important since organizational effectiveness is largely dependent on managerial effectiveness (Borman & Brush, 1993).

In the present study, we distinguish six relatively broad managerial competencies labeled analytical ability, judgment, compassion, sociability, perseverance, and action orientation. These competencies are highly applicable to managerial jobs and they resemble competencies included in existing competency taxonomies (e.g., Bartram, 2005; Borman & Brush, 1993; Tett et al., 2000). Analytical ability, for instance, is compatible with the dimension collecting and interpreting data as proposed by Borman and Brush (1993) and with the competency problem awareness as proposed by Tett et al. (2000). Judgment shows overlap with the competency decision making as proposed by Tett et al. Compassion is fully compatible with the competency compassion defined by Tett et al. and shows considerable overlap with the dimension consideration as defined by Borman and Brush. Sociability is fully compatible with the competency sociability as defined by Tett et al., whereas perseverance shows overlap with the dimension persisting to reach goals and selling and influencing as proposed by Borman and Brush. Finally, action orientation shows overlap with the competency initiative as proposed by Tett et al.

Competencies and 360-degree Feedback

As a result of the growing popularity and the increased application of the competency concept competency assessment became increasingly important for organizations. There are many different ways to assess competencies. In the present study we focus on multi-source feedback. Multi-source feedback refers to the process by which performance evaluations of a single ratee are given by more than one rater and more than one rater source, for example subordinates, supervisors, and peers (e.g., London & Smither, 1995). Compared to single ratings, sometimes resulting in biased perspectives (Fletcher, Baldry, Cunningham-Snell, 1998), the use of multiple ratings has numerous advantages (e.g., Bozeman, 1997; Fletcher, et al., 1998), especially when ratings stem from different sources. The use of multiple raters may result in fairer and possibly less biased views which in turn contribute to objectivity (Fletcher et al., 1998). Furthermore, ratees tend to perceive multi-source feedback as more fair and acceptable than traditional single-source performance evaluation methods (McEvoy, 1990). According to Borman (1974) and Henderson (1984), the use of multiple source feedback provides a more extended conceptualization and measurement of job performance domains.

One of the most well-known multi-source feedback methods is the 360-degree feedback inventory, which can be used for different purposes (Antonioni, 1996). As Drenth (1998) and Murphy and Cleveland (1991) pointed out feedback inventories can be used for administrative or management purposes (e.g., decisions about promotion, salaries and wages, or dismissals), developmental purposes, identification of potential, and as a criterion (e.g., in selection and training). A 360-degree feedback inventory focuses on dimensions, which are operationalized in actual behavior (Drenth, 1998).

Given their operationalization in terms of behavior, competencies can be easily incorporated in 360-degree feedback inventories in order to establish a direct link between competencies and effective performance. Efforts in this area have been made by for example, Greguras and Robie (1998) who have incorporated benchmarks of Lombardo and McCauley (1994) in their multi-rater feedback instrument used to measure managerial strengths and weaknesses. Van Hooft, Van der Flier, and Minne (2006) used 14 competency dimensions based on the managerial dimensions as identified by Thornton and Byham (1982) to examine the construct validity of multi-source competency ratings. Russell (2001) used ratings on nine competency dimensions. These ratings were obtained by integrating 360-degree competency appraisals with interview data, and biodata. Based on the 360-degree feedback ratings relationships with executive performance were examined. None of these studies, however, focused on 360-degree ratings of competencies and 360-degree ratings on effectiveness at the same time. Consequently, we know little about differences between rater sources with respect to both competency and effectiveness ratings. Thus, the first purpose of the present study is to focus on differences between rater sources when rating competencies and effectiveness using a 360-degree feedback method.

360-degree Feedback and Rater Agreement

Empirical research often shows a lack of agreement between the different raters. This is not surprising given the fact that ratings are subjective evaluations obtained from different sources (Viswesvaran, Schmidt, & Ones, 2002). The use of multiple raters has led to a stream of research concerning the interrater agreement mainly focusing on performance (e.g., Conway & Huffcutt, 1997; Sanchez, Zamora, & Viswesvaran, 1997). In their meta-analysis of self-supervisor, self-peer, and peer-supervisor ratings, Harris and Schaubroeck (1988) found high correlations between peer and supervisor ratings ($\rho = .62$) but only moderate correlations between self-supervisor ($\rho = .35$) and self-peer ratings ($\rho = .36$). Conway and Huffcutt (1997) reported low mean correlations between subordinates and others (.22 with supervisor, .22 with peer, and .14 with self ratings) and between self and others (.22 with supervisor and .19 with peer ratings). Correlations between supervisor and peer ratings were higher, namely .34.

The results of studies in rater agreement consistently show that peers and supervisors agree most when asked to rate the same job incumbents. Following Borman (1991) and Murphy and Cleveland (1995), Conway and Huffcutt (1997) argue that subordinates are likely to observe a smaller and different proportion of their manager's performance when compared to peers or supervisors. As a result correlations between subordinate ratings and ratings of other sources are lower than, for example, correlations between peers and supervisors.

The majority of the studies on interrater agreement have focused on aggregated or overall ratings instead of on ratings of separate competency dimensions (e.g., Conway & Huffcutt, 1997). As far as we know the only study that has reported on separate competency dimensions has been the study done by Van Hooft et al. (2006). However, their aim was to investigate the construct validity of multi-source performance ratings instead of examining the differences between competency ratings given by different sources. The present study focuses on 360-degree feedback ratings of managerial competencies and managerial effectiveness provided by supervisors, subordinates, and peers. In studying ratings from different sources we hope to answer the question whether different raters agree on competency and perceived effectiveness ratings.

In line with, for example, Harris and Schaubroeck (1988) and Conway and Huffcutt (1997), we expect peers and supervisors to agree the most and supervisors and subordinates to agree the least with respect to the competency and effectiveness ratings given. Furthermore, we expect subordinate ratings to differ most from the ratings given by all other sources. In sum, we hypothesize:

Hypothesis 1:

- (a) Supervisor-peer ratings on competencies and effectiveness are more similar than supervisor-subordinate ratings.
- (b) Peer-other and supervisor-other ratings on competencies and effectiveness are more similar than subordinate-other ratings.

In the present study, we use a managerial sample. Managers are known to fulfill different roles with regard to peers and subordinates. According to Toegel and Conger (2003), "peers, direct reports, and bosses observe different aspects of the working situation; therefore, they focus their attention on different facets of employee's performance and attach differing weights to them" (p. 303). This is in line with results of Conway and Huffcutt (1997), who found that different sources had somewhat different perspectives on performance. In their study, relatively low correlations were found between subordinate ratings and ratings of others. They concluded that subordinates ratings were not redundant with other sources and

that excluding them would lead to deficient performance information. Following Conway and Huffcutt (1997) and Toegel and Conger (2003) we argue that there are differences between rater sources due to differences in the ratee's roles. In line with this we expect correlations between sources to be lower than correlations within sources. This expectation is in concordance with the results of studies on assessment center exercise dimensions (e.g., Kolk, Born, & Van der Flier, 2004; Schneider & Schmitt, 1992) in which correlations within sources are consistently higher than correlations between sources. In sum, we expect multitrait-monorater correlations to be higher than monotrait-multirater correlations. We hypothesize:

Hypothesis 2: Ratings given by the same rater source on different competencies (within rater sources or multitrait-monorater) are more similar than ratings given by different rater sources on the same competencies (between sources or monotrait-multirater).

Competencies and Effectiveness

Given the fact that competency taxonomies focus on effective behavior or behavior that is expected to lead to job performance, a direct relation between managerial competencies and managerial effectiveness is easily assumed. Consequently, in practice, the managerial competencies that stem from different competency taxonomies are often used to distinguish between effective and ineffective managers (Borman & Brush, 1993). For example, Stogdill (1948) concluded that, based on his literature review on personal factors associated with leadership, the average leader distinguishes itself from the average group member for example by being sociable, persistent, self-confident, alert, cooperative, and by showing initiative and knowing how to get things done. The personal factors mentioned by Stogdill closely resemble the competencies distinguished in the present study.

The results of an empirical study done by Posner and Kouzes (1988) support the conclusion of Stogdill (1948) that personal factors associated with leadership are predictors of effective leadership. Posner and Kouzes examined relationships between leader practices or competencies and managerial effectiveness in order to establish the validity of the Leader Practices Inventory (LPI). The LPI distinguishes between five practices or competency domains, each of which consists of two basic strategies. Analyses pointed out that these five practices, whenever rated by subordinates, explained nearly 55% of the variance of effectiveness also rated by subordinates. Although criterion validity may be somewhat inflated due to overlap between effectiveness items and the domains of the LPI (Russell, 2001), criterion evidence reported by Posner and Kouzes (1988) demonstrated that subordinates' responses on the LPI are in line with responses on the effectiveness items.

Most of the studies mentioned above aimed at empirically verifying the link between competencies and effectiveness (Stogdill, 1948; Posner & Kouzes, 1988) or at understanding rater agreement (e.g., Ostroff, Atwater, & Feinberg, 2004). However, none of the studies mentioned above give insight in exactly which competencies are related to managerial effectiveness when both managerial competencies and effectiveness are rated by different sources. It is here that our study hopes to contribute to the existing literature on the relationship between competencies and perceived effectiveness. In line with the findings of for example, Posner and Kouzes (1988) and Smither, London, and Reilly (2005), we propose that the managerial competencies distinguished in the present study are related to perceived managerial effectiveness. Elaborating more on this proposition, we argue that different competencies are perceived as important by different raters when they are rating managerial effectiveness. In other words, different raters are expected to focus on different managerial competencies as predictors of managerial effectiveness. As is said, according to Conway and Huffcutt (1997) and Toegel and Conger (2003) differences in ratings might be due to the observation of different aspects of performance as a result of the different role's the ratee plays.

Thus, following Conway and Huffcutt (1997) and Toegel and Conger (2003), we not only expect the manager's role to be responsible for the high within rater source relations, but we also expect subordinates, peers, and supervisors to be confronted with different competencies as a result of the manager's different roles. This line of reasoning is in concordance with the trait activation theory (see e.g., Lievens, Chasteen, Day, & Christiansen, 2006; Tett & Guterman, 2000) and the competency demand hypothesis (see e.g., Shoda, Mischel, & Wright, 1993). The trait activation theory and the competency demand hypothesis both assume that situations (or persons) can have demanding behavioral requirements in terms of abilities, skills, or traits (or competencies). This would mean that different behaviors are shown in different situations, probably as a result of different roles. It is thus likely that, for example, subordinates observe different managerial competencies than do supervisors. As a result, different managerial competencies are regarded as important for managerial effectiveness.

The expectation that different raters focus on different competencies when rating managerial effectiveness is supported by research done by Conway (1999) and Hooijberg and Choi (2000). Conway studied the extent to which contextual and task performance contributed uniquely to a manager's overall worth. Results suggested that peers and supervisors differ in the attention paid to different work-related behaviors. Peers paid far more attention to contextual performance than supervisors. Supervisors, on the other hand, paid far more attention to task performance than peers. These differences might be due to the difference in

observed managerial behavior (e.g., Toegel & Conger, 2001). Although there might be some overlap, Conway (1999) studied the influence of contextual and task performance on overall performance and not the influence of competencies on effectiveness, as is the purpose of the present study.

Hooijberg and Choi (2000) focused on the relationships between effectiveness and leadership roles that were based on the Competing Values Framework adapted from Quinn (1988). Using a 360-degree feedback approach, they examined the extent to which raters vary in the leadership roles they associate with effectiveness. Their results showed that raters indeed associate different leadership roles with perceived effectiveness. In the self-perceptions, the goal achievement role was positively and the monitor role negatively related to effectiveness. For subordinates, the broker role, the goal achievement role and the facilitator role were positively related to effectiveness, whereas the monitor role again was negatively related to effectiveness. Peers stressed the innovator and the facilitator roles, whereas superiors stressed the innovator and the goal achievement roles. We need to keep in mind, however, that the focus of Hooijberg and Choi was on leadership roles instead of on separate managerial competencies.

In sum, competencies seem to play an important role when assessing managerial performance or managerial effectiveness (Posner & Kouzes, 1988) and different rater sources pay attention to different leadership aspects, such as leadership roles, when rating managerial effectiveness (Conway, 1999; Hooijberg & Choi, 2000). However, none of the studies described above has given insight in exactly which competencies are related to managerial effectiveness when rated by different rater sources. With the current study, we would like to give some insight in the value of different competencies. We hypothesize:

Hypothesis 3: In the eyes of subordinates, peers, and supervisors different managerial competencies are related to managerial effectiveness.

Method

Participants and Procedure

At the end of a one-day assessment for evaluating managerial performance 361 participants were invited to take part in a 360-degree feedback survey. In total, 69% of the participants indicated to be willing to participate in the study. They received survey packets per mail at their private address. These packets contained a questionnaire to be completed by the participant himself or herself and six questionnaires to be completed by the subordinates, superiors, and peers of the participants. Each questionnaire was accompanied by a letter from the researchers assuring confidentiality and pre-addressed envelopes in which the

questionnaires could be returned directly to the researchers. Questionnaires in each survey packet were coded so that respondents could be correctly matched for subsequent data analyses.

A total of 98 managers participated in the 360-degree feedback study and filled out the self-report questionnaire focusing on the manager's current job (27.1% response rate). Of these 98 managers, 37 had taken part in the assessment procedure for personnel selection purposes and the other 61 participants had taken part for developmental purposes. A total of 89.2% of the participants who had participated for selection purposes were given a positive advice regarding the job they had applied for. Only 28 managers were female. The average age was 40.85 years.

Of the 98 managers that filled in the self-report questionnaire, 81 indicated that they had been in their current jobs for 6 months or more. The managers were working in a wide range of areas, for example engineering, sales, and finance. In total, 27 managers indicated that they were higher-level managers, 52 indicated to be middle-level managers, and 19 of them indicated to be lower-level managers. Seventy-nine managers had 6 or more subordinates reporting directly to them and 10 or more subordinates reporting indirectly. Most of the managers (two thirds) worked in an organization with more than 500 employees, while one-third of the managers worked in small to medium sized organizations.

In total, 435 surveys rating the 98 managers were received (74% response rate) from people with whom the managers worked closely (63% subordinates, 22% peers, 12% superiors, 3% other). Managers were rated by a mean of 3.08 subordinates, 1.74 peers, and 1.21 supervisors.

Measures

Surveys focused on characteristics of the manager's current job, on six managerial competencies and on perceived managerial effectiveness. By means of the self-report questionnaire, managers themselves provided information on their current job, such as tenure and number of subordinates. This information was used for the description of the participants. Managerial competencies as well as perceived managerial effectiveness were rated by subordinates, peers, and supervisors (but not by the managers themselves).

Managerial Competencies. Six managerial competencies were measured using single items. These managerial competencies were analytical ability, judgment, compassion, sociability, perseverance, and action orientation. Analytical ability is defined as analyzes problems, distinguishes different elements. Judgment is defined as integrates information in order to make a decision or to propose a solution. Compassion is defined as shows concern for the welfare of others and is perceptive. Sociability is defined as initiates and maintains

interactions with others and is outgoing. Perseverance is defined as is resistant to pressure and setback and shows discipline and tenacity. Finally, action orientation is defined as takes initiative, is able to influence others and to overcome resistance in order to reach goals. Each item started with: “The person that I assess...”, and followed by the definition of a particular competency. Responses were given on a seven-point scale, ranging from 1 (*not at all*) to 7 (*very much so*).

Perceived Managerial Effectiveness. Managerial effectiveness as perceived by subordinates, peers, and supervisors was measured using a scale based on De Hoogh, Den Hartog, and Koopman (2005). The scale consists of three items: “To what extent is the overall functioning of the person you evaluate satisfactory?”, “How capable is the person you are evaluating as a leader?”, and “How effective is the person you are evaluating as a leader?” Responses were given on a seven-point scale, ranging from 1 (*not at all*) to 7 (*very much so*). Thus, the measures of effectiveness are an indication of how effective managers are perceived to be. Alpha coefficients were .91 for subordinates ($n = 271$), .87 for peers ($n = 94$), and .77 for supervisors ($n = 49$).

Analyses

To gain insight in the direct relationship between competencies and perceived managerial effectiveness we computed an overall competency score as well as an overall effectiveness score for all raters together as well as per rater type. This was done because our emphasis was on differences between rater sources rather than differences between individual raters (Hooijberg & Choi, 2000), and as is shown in previous research (e.g., Conway, 1999) individual expectations or behaviors vary as a function of their organizational position. To examine the justification for aggregating individual responses to form competency scores on subordinate level we calculated two kinds of intra-class correlations, namely ICC(1) and ICC(2) (see Shrout & Fleiss, 1979).

We calculated the ICC(1) coefficient, which can be referred to as the reliability associated with a single rating of the competencies, for all six competencies. The ICC(1) coefficients range between .13 and .30. These values are in line with the median value of ICC(1) reported in organizational literature, which equals .12 (James, 1982). In addition, we calculated the ICC(2) coefficient, which can be referred to as the reliability of the mean score of all ratings on the competencies, for all six competencies. The ICC(2) coefficients range between .32 and .57. Although these values are marginal, they can be considered acceptable given that a mean of only 3.08 subordinates rated their managers and that the ICC(2) coefficient is dependent on the number of raters per group (Bliese, 2000). Taken together the results support aggregating subordinates’ responses in order to obtain aggregated competency

ratings. To examine the relationships between variables we used correlation analysis and we used regression analysis to investigate whether and which managerial competencies were related to perceived managerial effectiveness.

Results

Table 1 shows means, standard deviations, and correlations between each of the variables. As the table indicates, overall competency scores and overall effectiveness scores are related, $r = .79, p < .01$. A total of 62% of the variance in the overall effectiveness score is accounted for by the overall competency score. However, the Cronbach's α of the overall competency score is low, $\alpha = .47$, indicating a rather unreliable overall competency measure and low interrater reliability. Therefore, in order to adequately test our hypotheses, subsequent analyses were carried out on competency scores and perceived effectiveness scores aggregated per rater source.

To test Hypothesis 1a stating that supervisor-peer correlations are more similar than supervisor-subordinate correlations we used the aggregated competency scores and the aggregated perceived effectiveness score per rater source. As the results presented in Table 2 showed, at first glance, supervisor-peer and supervisor-subordinate correlations did not differ greatly. We tested the significance of the differences between both correlations using an average sample size to correct for the differences in sample size per dyad. Furthermore, we corrected for the subordinate-peer correlation. Indeed, the results showed that only for perseverance the difference between the supervisor-peer correlation ($r = .21, ns$) and the supervisor-subordinate correlation ($r = -.24, ns$) was significant, $z = -1.83, p = .03$. No significant differences between supervisor-peer and supervisor-subordinate correlations were found for the other competencies. In conclusion, Hypothesis 1a is supported for the competency perseverance; supervisors and peers agree more on ratings of perseverance than supervisors and subordinates.

For overall managerial effectiveness, it was again expected that supervisor-peer ratings were more similar than supervisor-subordinate ratings. The supervisor-peer correlation is positive and non significant, $r = .10, p = .67$, whereas the supervisor-subordinate correlation is negative, $r = -.36, p = .03$ (see Table 1 and Table 2). Given the non significant and the negative correlations, we must conclude that neither supervisor-peer overall effectiveness ratings nor supervisor-subordinate overall effectiveness ratings indicate similarity. However, taking into account the average sample size of 35 and correcting for the subordinate-peer correlation, the difference between the supervisor-peer and the supervisor-subordinate correlation is significant, $z = -2.37, p = .01$. In line with Hypothesis 1a, results thus show

Table 1

Means, standard deviations, reliabilities, and correlations among the studied variables

| | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------------------|----------|-----------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1. Overall competency score | 5.49 | 0.48 | (.47) | | | | | | | |
| 2. Competency score subordinates | 5.52 | 0.57 | .77** | (.79) | | | | | | |
| 3. Competency score peers | 5.55 | 0.55 | .75** | .13 | (.71) | | | | | |
| 4. Competency score supervisors | 5.21 | 0.66 | .65** | -.24 | -.01 | (.61) | | | | |
| 5. Overall effectiveness score | 5.61 | 0.54 | .79** | .68** | .52** | .25 | (.66) | | | |
| 6. Effectiveness score subordinates | 5.61 | 0.66 | .58** | .80** | .03 | -.43** | .81** | (.91) | | |
| 7. Effectiveness score peers | 5.67 | 0.66 | .55** | .17 | .72** | -.08 | .82** | .36* | (.87) | |
| 8. Effectiveness score supervisors | 5.55 | 0.61 | .54** | -.15 | .07 | .74** | .50** | -.36* | .10 | (.78) |

Note. $n = 97$ for overall competency and effectiveness scores, $n = 89$ for competency and effectiveness rated by subordinates, $n = 54$ for competency and effectiveness rated by peers, $n = 41$ for competency and effectiveness rated by supervisors, $n = 48$ for competency and effectiveness rated by both subordinates and peers, $n = 36$ for competency and effectiveness rated by both subordinates and supervisors, $n = 22$ for competency and effectiveness rated by both supervisors and peers.

Reliabilities are given on the diagonal.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

Table 2

Correlations among separate competencies per rater source

| Competencies | Subordinate- peer | Supervisor- subordinate | Supervisor- peer | Subordinate- other | Peer- other | Supervisor- other |
|-----------------------|----------------------|----------------------------|---------------------|-----------------------|----------------|----------------------|
| Analytical ability | .20 | .40* | .24 | .30* | .22 | .37* |
| Judgment | .16 | .04 | .10 | .13 | .19 | .06 |
| Compassion | .10 | .01 | .14 | .11 | .13 | .03 |
| Sociability | .31* | .30† | .37† | .38* | .39** | .39* |
| Perseverance | .00 | -.24 | .21 | -.12 | .05 | -.14 |
| Action orientation | .13 | .10 | -.11 | .15 | .16 | .05 |
| Overall competency | .13 | -.24 | -.01 | -.01 | .19 | -.21 |
| Overall effectiveness | .36* | -.36* | .10 | .08 | .36* | -.27† |

Note. $n = 48$ for subordinate-peer correlations, $n = 36$ for subordinate-supervisor correlations, $n = 22$ for supervisor-peer correlations, $n = 65$ for subordinate-other correlations, $n = 51$ for peer-other correlations, $n = 39$ for supervisor-other correlations.

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed.

Table 3

Correlations between separate competencies within and between rater sources

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|-------|------|------|-------|------|
| Subordinate | | | | | | | | | | | | | | | | | |
| 1. Analytical ability | | | | | | | | | | | | | | | | | |
| 2. Judgment | .79** | | | | | | | | | | | | | | | | |
| 3. Compassion | .23* | .34** | | | | | | | | | | | | | | | |
| 4. Sociability | .17 | .27** | .49** | | | | | | | | | | | | | | |
| 5. Perseverance | .30** | .32** | .26* | .42** | | | | | | | | | | | | | |
| 6. Action orientation | .33** | .46** | .30** | .65** | .59** | | | | | | | | | | | | |
| Peer | | | | | | | | | | | | | | | | | |
| 7. Analytical ability | .20 | .13 | -.18 | -.23 | -.05 | .05 | | | | | | | | | | | |
| 8. Judgment | .26 | .16 | -.05 | -.04 | .00 | .09 | .82** | | | | | | | | | | |
| 9. Compassion | .13 | -.02 | .10 | .13 | .15 | -.07 | .08 | .20 | | | | | | | | | |
| 10. Sociability | .05 | .14 | .22 | .31* | -.01 | .02 | -.03 | .13 | .05 | | | | | | | | |
| 11. Perseverance | -.05 | -.08 | .00 | -.14 | .00 | .00 | .31* | .40** | .17 | .15 | | | | | | | |
| 12. Action orientation | .20 | .16 | -.09 | .01 | .17 | .13 | .49** | .60** | .18 | .40** | .60** | | | | | | |
| Supervisor | | | | | | | | | | | | | | | | | |
| 13. Analytical ability | .40* | .12 | -.07 | -.17 | .21 | -.10 | .24 | .15 | .07 | -.32 | -.09 | .03 | | | | | |
| 14. Judgment | .16 | .04 | -.04 | -.08 | -.02 | -.15 | .15 | .10 | -.03 | -.34 | .08 | .00 | .76** | | | | |
| 15. Compassion | -.39* | -.29 | .01 | .37* | -.29 | -.03 | -.03 | -.07 | .14 | .14 | -.06 | .17 | .01 | .10 | | | |
| 16. Sociability | -.49* | -.40* | -.30 | .30 | -.38* | -.05 | -.25 | -.07 | .15 | .37 | -.32 | .01 | -.23 | -.15 | .34* | | |
| 17. Perseverance | -.11 | -.21 | -.18 | -.04 | -.24 | -.07 | .06 | .28 | -.14 | -.02 | .21 | .32 | .06 | .27 | .15 | .28 | |
| 18. Action orientation | -.28 | -.31 | -.40* | .31 | -.23 | .10 | -.25 | -.17 | -.07 | .27 | -.38 | -.11 | -.07 | .17 | .30 | .70** | .38* |

Note. $n = 89$ when rated by subordinates, $n = 54$ when rated by peers, $n = 41$ when rated by supervisors, $n = 48$ when rated by both subordinates and peers, $n = 36$ when rated by both subordinates and supervisors, $n = 22$ when rated by both supervisors and peers.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

that supervisor-peer ratings of overall effectiveness are more similar than supervisor-subordinate ratings of overall effectiveness. Furthermore, we expected peer-other and supervisor-other ratings to be more similar than subordinate-other ratings (Hypothesis 1b). To test this hypothesis we performed contrast analyses comparing the peer-other and supervisor-other correlations with the subordinate-other correlations. The analyses pointed out that none of the contrasts tested were significant. Peer-other and supervisor-other correlations did not differ in similarity compared to subordinate-other correlations; not for the separate competencies and not for the overall effectiveness measure. Thus, no support was found for Hypothesis 1b.

In Hypothesis 2, we expected ratings within rater sources to be more similar than ratings between rater sources. In other words, we expected multitrait-monorater correlations to be higher than monotrait-multirater correlations. Given the fact that perceived effectiveness was measured using an aggregated score, this hypothesis could only be tested with respect to competencies. To examine the differences between the correlations within rater sources and the correlations between rater sources again separate competency ratings were analyzed. As is shown in Table 3, correlations between rater sources are much lower than correlations within rater sources. For comparison, the mean correlation within subordinates is .39, the mean correlation within peers is .30, and the mean correlation within supervisors is .20. These are the multitrait-monorater correlations. The mean correlation between subordinates and peers and between subordinates and supervisors, when rating the same competencies (mean monotrait-multirater correlation), is .15 and .10 respectively, whereas the mean correlation between peers and supervisors is -.05. In sum, multitrait-monorater correlations are indeed higher than monotrait-multirater correlations. Thus, different competency ratings given by the same rater source are more similar than the same competency ratings given by different sources. Hypothesis 2 is supported by our data.

In order to test Hypothesis 3 stating that, through the eyes of the different rater sources different managerial competencies are related to perceived managerial effectiveness, we conducted regression analyses. The results of the previous analyses pointed out that there are rather large differences in competency and perceived effectiveness ratings provided by different rater sources. We decided to look at the variance explained by competencies when both competencies and effectiveness were rated by the same rater source thereby acknowledging the differences in agreement between rater sources.

As is shown in Table 4, when both effectiveness and competencies were rated by subordinates, competencies explained a total of 70% of the variance in effectiveness, $R^2 = .70$, $F(6,82) = 31.41$, $p < .01$. The explained variance was primarily accounted for by the competencies action orientation ($\beta = .34$, $p < .01$), compassion ($\beta = .29$, $p < .01$), and

analytical ability ($\beta = .29, p < .01$). Furthermore, judgment ($\beta = .19, p < .10$) and perseverance ($\beta = .14, p < .10$) played a marginal role. Thus, a manager is perceived effective by a subordinate whenever he/she is ready to take action, is able to empathize, and has an analytical mind.

Table 4

Results of regression analyses for separate competencies explaining effectiveness per rater source

| | Effectiveness | | |
|--------------------|----------------|----------------|---------------|
| | Subordinate | Peer | Supervisor |
| Subordinate | | | |
| Analytical ability | .29** | | |
| Judgment | .19† | | |
| Compassion | .29** | | |
| Sociability | -.10 | | |
| Perseverance | .14† | | |
| Action orientation | .34** | | |
| Peer | | | |
| Analytical ability | | .35* | |
| Judgment | | .05 | |
| Compassion | | -.01 | |
| Sociability | | .25* | |
| Perseverance | | .37** | |
| Action orientation | | .11 | |
| Supervisor | | | |
| Analytical ability | | | .31† |
| Judgment | | | .03 |
| Compassion | | | .44** |
| Sociability | | | .17 |
| Perseverance | | | .21† |
| Action orientation | | | .16 |
| R^2 | .70 | .60 | .60 |
| $F(df_1, df_2)$ | 31.41 (6,82)** | 11.82 (6,47)** | 8.47 (6,34)** |

Note. Standardized regression coefficients are shown.

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed.

When both effectiveness and competencies were rated by peers, competencies explained 60% of the variance in effectiveness, $R^2 = .60$, $F(6,47) = 11.82$, $p < .01$. For a manager, in order to be perceived effective by his/her peers, perseverance ($\beta = .37, p < .01$) is

most important, followed by analytical ability ($\beta = .35, p < .01$) and sociability ($\beta = .25, p < .05$). Thus, in the eyes of his/her peers, an effective manager is persistent, friendly and warm, and has an analytical mind. A total amount of 60% of the variance in effectiveness was explained when both competencies and effectiveness were rated by supervisors, $R^2 = .60$, $F(6,34) = 8.47, p < .01$. This effect was mostly attributable to compassion ($\beta = .44, p < .01$); the beta weights of analytical ability ($\beta = .31, p < .10$) and perseverance ($\beta = .21, p < .10$) were only marginal significant.

Competencies thus are important antecedents of perceived effectiveness when both perceived effectiveness and competencies are assessed by the same rater. However, different raters rely on different competencies when assessing managerial effectiveness. For subordinates, action orientation, compassion, and analytical ability are important, whereas peers consider perseverance, analytical ability, and sociability to be prerequisites for effective performance. Supervisors, on the other hand, focus on compassion when assessing managerial effectiveness. In conclusion, Hypothesis 3 expecting subordinates, peers, and supervisors to rely on different competencies when assessing managerial effectiveness, is supported by our data.

Discussion

The purpose of our study was twofold. First, our aim was to provide insight in differences in competency and perceived effectiveness ratings given by different sources. Second, we focused on the link between managerial competencies and perceived managerial effectiveness in order to examine whether different raters consider different managerial competencies necessary for managers to be perceived effective. The results stress that there is little similarity between ratings of different sources. This holds for managerial competencies as well as for perceived managerial effectiveness. Furthermore, within source competency ratings appear to be more similar than between source competency ratings. Finally, in the eyes of subordinates, peers, and supervisors different managerial competencies are thought of as essential in order to be perceived as an effective manager.

Differences Between Rater Sources

In line with previous research (e.g., Harris & Schaubroeck, 1988), we expected supervisor-peer ratings to be more similar than supervisor-subordinate ratings. Contrary to our expectations, little similarity was found between the ratings of different sources. The results showed that only for the competency perseverance and for overall effectiveness there was more similarity between supervisor and peer ratings than between supervisor and subordinate ratings. There are two possible reasons for the absence of the expected similarity of

managerial competency and perceived managerial effectiveness ratings between sources. First, our study is based on a relatively small sample size. Although we received a total of 435 surveys with regard to 98 managers, aggregating the data resulted in rather small sub-samples. Due to pairwise deletion sample sizes of the sub-samples for subordinates, peers, and supervisors differed, making straightforward comparison rather complex. The small sample size may have influenced the power of our analyses and consequently some findings may have been significant had the sample size been larger. At the same time, it also means that the effects we did find need to be replicated across larger samples to test the robustness of our findings.

There might be a second, more conceptual reason for the absence of similarity between rater sources. It is conceivable that different rater sources hold different conceptualizations of the same competencies. This is in line with the findings reported by Viswesvaran et al. (2002) that were based on their study on the effects of construct-level convergence and rating difficulty on job performance ratings provided by peers and supervisors. Viswesvaran et al. showed that peer and supervisor ratings were similar when productivity, quality, job knowledge, leadership, overall job performance, and effort were rated. However, when rating more specific concepts, such as interpersonal competence, administrative competence, and compliance or acceptance of authority, peers and supervisors appeared to have a somewhat different conceptualization of the dimensions, resulting in dissimilar ratings. Following Viswesvaran et al., it might be that competencies or other competency related concepts are more difficult to rate. Therefore, we advocate for replication of our study using more detailed measures instead of single-item measures and using a large sample with an equal number of raters per source and per manager to test the robustness of our findings and to provide more insight in the link between competencies and perceived managerial effectiveness.

As expected, competency ratings given by the same rater source were found to be more similar than competency ratings given by different rater sources. These findings contradict the multitrait-multimethod (MTMM) approach of Campbell and Fiske (1959). Within the MTMM approach it is expected that the monotrait-multimethod correlations exceed the multitrait-monomethod correlations. However, empirical studies on the MTMM approach report ambiguous findings. While studies done by, for example Greguras and Robie (1998) and Scullen, Mount, and Judge (2003) are in line with Campbell and Fiske's expectations, studies on assessment center dimensions report contrasting findings (e.g., Schneider & Schmitt, 1992). In fact, almost all studies on assessment center dimensions report higher discriminant validity coefficients than convergent validity coefficients (e.g., Kolk et al., 2004; Schneider & Schmitt, 1992). Thus, in these studies exercise effects appear

to be stronger than dimension effects (Lievens & Conway, 2001), or, as is the case in our study, rater effects appear to be stronger than competency effects. More specifically, in the present study ratings might not primarily reflect the manager's actual level of competency, and the manager's competency score cannot be considered stable across raters.

As we argued in the theoretical part, there might be differences between raters due to different roles a manager takes on during the interaction with supervisors, peers, and subordinates (Toegel & Conger, 2003). In addition, the rater's organizational level (Harris & Schaubroeck, 1988) may have played a role as well. That is, raters at different levels within the organization may interpret and assess competencies differently. This would mean that peers and supervisors, peers and subordinates, or subordinates and supervisors disagree on competency ratings and that, for example, comparing a peer rating with another peer rating would show more similarity.

Furthermore, based on the results of the study done by Lievens and Conway (2001), we propose that the rater's limited cognitive capacity as well as the difference in expertise between the raters might be responsible for the strong rater effect. In their meta-analysis, Lievens and Conway showed that significantly more dimension variance was found when fewer dimensions were used and when the assessors of the assessment center dimensions were psychologists. In terms of the present study this would mean that having to rate six different competencies without proper education, experience or training might make the rating process difficult which in turn may have resulted in higher within rater source relationships than between rater source relationships. Thus, the manager's role, the rater's organizational level and its cognitive capacity, and differences in expertise between raters may moderate the relationship between different ratings provided by different sources. We argue for future research to examine the MTMM approach regarding competency and effectiveness ratings in more depth. Furthermore, future research should study the influence of possible moderators, such as the manager's role or the rater's organizational level, when rating managerial competencies.

Competencies and Effectiveness

All in all, ratings of managerial competencies were found to be related to ratings of perceived managerial effectiveness, at least when both were rated by the same rater source. The present study not only gives insight in whether different managerial competencies are perceived as prerequisites of perceived effectiveness but also sheds a light on which competencies are important in the eyes of each of the rater sources. As such it contributes to the existing literature on the relationship between competencies and effectiveness.

Results showed that analytical ability was a prerequisite for all rater sources. Thus, in the eyes of peers, subordinates, and supervisors an effective manager is one that analyzes problems and distinguishes different elements. According to Judge, Colbert, and Ilies (2004), “leaders are responsible for developing strategies, solving problems, motivating employees, and monitoring environments” (p.543). According to Fiedler and Garcia (1987) these are intellectual functions. Thus, we might assume that subordinates, peers, and supervisors are of the opinion that being an effective manager requires a certain level of intelligence. Further research on the link between intelligence and managerial competencies should be done to confirm this line of thought.

Moreover, besides similarities, there also appeared to be differences in competency ratings given by the different sources. For example, in the eyes of subordinates, besides analytical ability, action orientation and compassion play a large role. It is known that effective leaders are characterized as assertive and energetic and that they do not hesitate to take action (Gough, 1990; Kirkpatrick & Locke, 1991). Furthermore, according to Kirkpatrick and Locke (1991) and Zaccaro, Foti, and Kenny (1991), effective leaders are perceptive and open with their followers, but also discreet and they do not violate confidence. Thus, compassion is important as well. Although research shows that competencies seem to contribute to effectiveness, it can only be assumed why they are so important to subordinates. We propose that subordinates value a manager who has analytical skills, who undertakes action when it is necessary, and who is involved with his subordinates, because these managerial competencies might increase subordinates’ confidence and sense of belongingness. Furthermore, as a result of the competencies action orientation and compassion the perceived hierarchical distance between a manager and his/her subordinates may be lowered.

Remarkably, compassion appeared to be important for the supervisor as well. We propose that it would be helpful for supervisors if possible conflicts within a team, section, or department are avoided. Showing compassion towards subordinates and being involved might make a manager able to detect problems in an early stage and, thus, might diminish the chance of conflicts to surface or escalate. It is therefore arguable that supervisors value a manager that shows compassion towards his/her subordinates. For peers, on the other hand, we found that showing compassion was not important at all. It might be that peers consider managers that show compassion to be too soft and too considerate. Furthermore, compared to subordinates and supervisors, peers are less dependent on these managers, and consequently compassion might be regarded less important.

In addition, peers consider sociability and perseverance to be important managerial competencies. In their opinion, an effective manager initiates and maintains interactions with

others and is outgoing. Thus, not surprisingly, peers appear to value a 'nice colleague'. Being sociable serves another important purpose. Sociability is a necessary condition to increase socialized power. Leaders with a socialized power motive take account of followers' needs and this, in turn, results in empowered followers (Kirkpatrick & Locke, 1991). Thus, through socialized power, sociability contributes not only to the manager's perceived effectiveness but possibly also to organizational effectiveness. Furthermore, peers are of the opinion that managers must be resistant to pressure and setback, and that they must show discipline and tenacity. It, thus, seems that peers appreciate managers that take matters into their own hands and that are proactive, regardless of possible situational influences such as deadlines.

In sum, the results showed that different raters hold different managerial competencies responsible for perceived managerial effectiveness. While subordinates value a manager that is involved with his co-workers and that takes action whenever necessary, peers value managers that interacts easily, that initiates and maintains relationships (networking) and that is disciplined and tenacious. Supervisors seem to value managers that are involved with their co-workers, but they also appreciate, though to a lesser extent, discipline and tenacity. Although we have given several possible explanations for our findings, we argue for future research, for example using semi-structured interviews, to focus on exactly why subordinates, peers, and supervisors value these specific competencies.

In general, we expect these differences in the predictive value of competencies to be due to differences in the roles managers have to fulfill with respect to subordinates, peers, and supervisors. This is in line with Murphy and Cleveland (1995) and Toegel and Conger (2003) who stated that different rater sources would be confronted with different behavior of the same manager. Furthermore, Lawler (1967) stated that different raters have different opportunities to observe ratees. This would indeed imply that, taking into account the perspectives of different rater sources, different competencies are important in order for a manager to be assessed effective.

Although the profiles of effective managers found in the present study are, at first sight, highly plausible there might be another mechanism responsible for these findings. Implicit leadership theories may, for example, have influenced the managerial competency ratings. Implicit leadership theory assumes that people have generalized ideas about the characteristics of an effective leader and that they compare the perceived characteristics of their own leaders or managers with the generalized ideas in order to evaluate the leadership potential of their leader or manager (e.g., Hollander & Julian, 1969; Hogan, Curphy, & Hogan, 1994). Thus, in the present study, the profiles of effective managers found for subordinates, peers, and supervisors may reflect the implicit theories these raters hold. Future

studies should focus on the influence of implicit leadership theories on the relationship between competencies and perceived effectiveness.

Limitations and Future Research

Several limitations with respect to the generalizability of our study need to be addressed. First, as said before, our study is based on a relatively small sample of 98 managers. Furthermore, not all managers were rated by subordinates as well as peers and supervisors and there are differences in the number of raters per rater type per manager. As a result, when comparing different sub-samples pairwise deletion caused a drop of the number of raters per comparison. All in all, the small sample size may have influence the power of our analyses and consequently the strength of the relationships found. This implies this study may form a conservative test of our hypotheses. At the same time, it also means that the effects we *did* find need to be replicated in future research, to test their robustness. Using data from a larger number of managers will permit more powerful hypothesis tests. Therefore, we argue for future studies based on a larger sample size.

Second, our study was cross-sectional in nature and due to the relatively small sample size and pairwise deletion we were unable to fully benefit from the multi-source character of the data. As a result, common-source and common-method biases may have influenced our findings (e.g., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We argue for future research based on a larger sample to test the robustness of our findings.

A third limitation lies in the sampling method used. As in most multi-source feedback systems, the managers that were the subject of our study were asked to distribute the questionnaire to their peers, subordinates, and supervisors. As such, they selected their raters. One might thus suggest that selection of raters has resulted in a positive bias of raters toward the manager. We, however, checked for selective non-response regarding gender and age and did not find any differences. Therefore, we expect the effects of selection and sampling bias to be limited.

Fourth, for peers and supervisors the mean number of raters per rater source per manager was less than two. Most managers chose to be rated by subordinates, resulting in a mean number of raters of almost four for this group. According to Viswesvaran et al., (2002) it is arguable that “because the concept of interrater reliability rests on the premise that one is computing the correlation between parallel raters, interrater reliability for supervisor ratings is problematic because there is only one true supervisor” (p. 351). Underlying this argument is the fact that calculating interrater reliability requires at least two raters of the same rater source. Given that for peers and supervisors the mean number of raters was less than two, computing the interrater reliability seems incorrect. Thus, no ICC’s could be calculated for

peer and supervisor competency ratings. In order to test our hypothesis, we decided to aggregate peer and supervisor ratings without calculating ICC's. Future research should aim at collecting a more balanced sample in which ICC's can be calculated for each rater source.

Fifth, as can be seen in Table 1, correlations between overall competencies and overall effectiveness per rater source often exceed the alpha reliabilities of the overall competency measures. On the one hand, it might be argued that the competency measure is thus in essence not distinguishable from the effectiveness measure. On the other hand, we must note that each of these six competencies represents a different part of the overall competency area. Following Bollen and Lennox (1991), MacKenzie, Podsakoff, and Jarvis (2005) argued that measures do not always reflect underlying latent constructs (reflective measures) but sometimes combine to form them (formative measures). In the case of formative measures, internal consistency reliability is considered a less appropriate standard for evaluating the adequacy of the measurement since dropping an item from the measure may omit a unique part of the conceptual domain and change the meaning of the variable (MacKenzie et al., 2005). In the present study, combining the six separate competencies, resulting in an overall competency score per rater source, may have led to a somewhat lower alpha coefficient since all competencies are expected to tap a part of the overall competency domain.

Sixth, ratings of competencies were based on a single item per competency. Although single-item measures have received their share of criticism, especially with regard to their psychometric properties (e.g., Woods & Hampson, 2005), these measures have proven to be valuable in representing a wide range of different constructs, for example job satisfaction (e.g., Wanous, Reichers, & Hudy, 1997) and personality (e.g., Paulhus & Bruce, 1992; Woods & Hampson, 2005). In the present study, we chose to use single-item measures for practical reasons. Single-item measures are known to avoid boredom and to prevent participant fatigue (e.g., Nagy, 2002). Furthermore, the idea was that the shorter the questionnaire, the lower the threshold to actually participate voluntarily. However, considering the above, we are of the opinion that future research should focus on multiple-item measures as well as single-item measures in order to determine the value of multiple-item as opposed to single-item measures of competencies.

Furthermore, in the present study a measure of perceived managerial effectiveness instead of a more objective measure was used. Although measures of perceived effectiveness are often used in practice (e.g., De Hoogh et al., 2005), it is argued that they are potentially contaminated by implicit leadership theories, selective recall or halo effects (Judge, Bono, Ilies, & Gerhardt, 2002). Yet, Hogan et al. (1994) provided evidence that ratings of perceived leader effectiveness are similar to objective measures of work group performance (Judge et al., 2002). Following Hogan et al. (1994), we argue that our measure of effectiveness is rather

robust, especially since effectiveness was rated by subordinates, peers, and supervisors, and thus was viewed from different perspectives. Nevertheless, it would be interesting for future research to study the value of the different competencies per rater source in predicting objective managerial effectiveness.

Finally, future research could examine the influence of for example a manager's tenure, the organization's branch, or situational characteristics. Managers who are, for example, new in the job and have to get acquainted with their subordinates, peers, and supervisors might display other competencies than managers that already fulfill the position for several years. Also, in the beginning managers may be perceived effective for other reasons than after a few years. Furthermore, being perceived as an effective manager in the social services sector might require different competencies than being perceived as a manager in, for example, the financial sector. Thus, we believe that taking tenure and branch into account may lead to interesting results.

Other situational characteristics also appear to influence the follower's perception of the manager. As De Hoogh et al. (2005) pointed out in their study on personality and leadership, perceived dynamic work environment moderated the relationships of four of the Big Five factors with both charismatic and transactional leadership. They also showed that charismatic leadership was positively related to perceived effectiveness, but only in a dynamic environment. These findings are in line with Stogdill's (1948) remarks that an adequate analysis of leadership should not only study leaders or, as in the present study, managers, but also the situation in which they are functioning. According to Stogdill, "leadership is a relation that exists between persons in a social situation, and (...) persons who are leaders in one situation may not necessarily be leaders in other situations" (p. 65). Following De Hoogh et al. and Stogdill, we argue that situational characteristics might influence the relationships between competencies and perceived effectiveness. In other words, being perceived as an effective manager in one situation probably requires different competencies than being perceived effective in another situation. Therefore, we advocate for additional studies that will take situational factors into account.

Conclusions

The results of our study point to two important practical implications. First, using a 360-degree feedback inventory, it is shown that different rater sources rate competencies as well as effectiveness differently. Comparing ratings of different sources shows little to no similarity between rater sources. This is an important finding for various human resource practices, such as individual development and performance appraisal. Taking different viewpoints into account will provide a more complete perspective of actual performance or effectiveness.

Second, our study showed that overall competencies are indeed related to perceived managerial effectiveness. Assessing competencies can thus provide the organization with some preliminary insight in perceived managerial effectiveness. Furthermore, the results also showed that, in the eyes of subordinates, peers, and supervisors, different competencies are predictors of perceived managerial effectiveness. It thus appears that different rater sources consider different behaviors as a prerequisite for perceived managerial effectiveness resulting in dissimilar competency ratings. This needs to be taken into account when using 360-degree feedback as a method for performance appraisal. Supervisors should be aware of these differences in order to provide an adequate final appraisal of performance. Future research can further investigate the relationships between competencies and managerial effectiveness by including, for example, more objective measures of effectiveness or situational and organizational characteristics as possible moderators.

CHAPTER 4

Competencies as Unique Predictors of Sales and Managerial Effectiveness⁴

In this multi-source and multi-method study we investigated the added value of competencies above cognitive ability, personality, and assessment center exercise performance in predicting perceived sales and managerial effectiveness. While competencies, cognitive ability, personality, and assessment center exercise performance were measured in an assessment context, sales and managerial effectiveness were assessed nine months after the assessment had taken place. The results were in line with our hypotheses; competencies indeed contributed uniquely to the prediction of sales and managerial effectiveness. Sales effectiveness was found to be best predicted by extraversion and competencies. Managerial effectiveness was best predicted by neuroticism, assessment center exercise performance and by an overall competency score. Several implications and suggestions for further research are discussed.

While critics have questioned the nature of the competency concept and have even argued competencies to be nothing more than old wine in new bottles (e.g., Barrett & Depinet, 1991; Hollenbeck, McCall, & Silzer, 2006), advocates are of the opinion that incorporating competencies in human resource practices can bring about a lot of advantages for organizations as well as for employees (e.g., Becker & Huselid, 1999). Even though the competency concept is the subject of a lively debate (e.g., Hollenbeck et al., 2006), practitioners all over the world have incorporated the competency concept in their daily practices (e.g. Bartram, Baron, & Kurz, 2003; Kurz & Bartram, 2002; Schippmann et al., 2000). The concept is, for example, used to evaluate, promote or reward employees at different organizational levels (Levenson, Van der Stede, & Cohen, 2006). Furthermore, competencies are often incorporated in assessment procedures (e.g., Dulewicz, 1989; Schippmann et al., 2000). However, there is little empirical evidence that the use of the

⁴ The corresponding reference is: Heinsman, H., De Hoogh, A.H.B., Koopman, P.L., & Van Muijen, J.J. (2007a).

competency concept actually contributes to the prediction of work-related criteria such as effectiveness.

The present multi-source and multi-method study aims to provide insight in whether the widely used competency concept truly contributes to predicting work-related criteria. We focus on the added value of competencies as rated by psychologists during an assessment, above cognitive ability, personality, and assessment center exercise performance in predicting perceived sales and managerial effectiveness as rated by employers nine months after the assessment took place.

The Competency Concept

According to McClelland (1973), competencies would be better able to predict important behaviors than the more traditional tests because competencies would be more strongly related to life outcomes. Due to the direct relation between competencies and behavior, competencies were expected to contribute to the prediction of job related criteria. Following McClelland, other authors published on the competency concept as well (e.g., Barrett & Depinet, 1991; Prahalad & Hamel, 1990). Since then, the concept's popularity rapidly increased and practitioners started to incorporate the competency concept in their daily routines.

Nowadays the competency concept is well known and competencies are widely applied (Levenson et al., 2006). Competencies are, for example, integrated in many different human resource practices, such as recruitment, selection, assessment, and performance appraisal, in order to optimize the benefits of employee strengths and to minimize the detriments of employee weaknesses (Boyatzis, 1982). Despite the popularity of the competency concept, there is no univocal competency definition. A quick scan of the available literature indicates that there are many different definitions containing many different characteristics, traits and behaviors (e.g., Abraham, Karns, Shaw, & Mena, 2001; Antonacopoulou & FitzGerald, 1996). Competencies have, for example, been defined in terms of knowledge, skills, abilities, underlying behaviors, motives, traits, and personality (e.g., Bartram, 2005, Spencer, McClelland, & Spencer, 1992).

Although at first glance the definitions seem very different, they all appear to have one thing in common: their focus on output (e.g., Sparrow & Boganno, 1993). Boyatzis (1982), for example, defined competencies as “an underlying characteristic of an individual which is causally related to superior performance in a job” (p. 20-21). Spencer et al. (1992) described competencies as any individual characteristic “that can be shown to differentiate significantly between superior and average performers or between effective and ineffective performers” (p.6). According to Kurz and Bartram (2002) a competency is “the repertoire of capabilities,

activities, processes, and responses available that enable a range of work demands to be met more effectively by some people than by others” (p. 230).

While we agree with Morgeson, Delaney-Klinger, Mayfield, Ferrara, and Campion (2004) that “perhaps one of the most vexing issues involves actually defining a competency” (p. 676) and while we believe that providing a single all embracing competency definition is almost impossible, in essence, a competency can be defined as an employee’s ability to effectively perform a certain behavior (e.g., Spencer & Spencer, 1993). In sum, competencies are based on individual characteristics and they are expressed in overt behavior. This overt behavior can be labeled as either effective or ineffective performance. Thus, as such, competencies are assumed to be related to effectiveness. This assumption has been tested in a number of studies (e.g., Heinsman, De Hoogh, Koopman, & Van Muijen, 2006a; Posner & Kouzes, 1988; Russell, 2001). These studies have consistently shown that there are indeed relationships between competencies and effectiveness.

Competencies in an Assessment Context

Given the link between competencies and effectiveness that is proposed in the different definitions and that is examined in several empirical studies, it is not surprising that competencies are often integrated in assessment procedures in order to predict work-related criteria such as effectiveness (e.g., Dulewicz, 1989; Lievens, Chasteen, Day, & Christiansen, 2006). Bartram et al. (2003) even note that by defining constructs in terms of clearly specified behaviors, competencies have become a powerful tool for predicting the performance of people. According to Baron, Bartram, and Kurz (2003) the use of competencies “enables the investigation of different aspects of performance separately, promoting a more sophisticated understanding of the factors underlying job performance” (p.72). Incorporating competency ratings in assessment procedures thus seems a logical step to take. The question remains whether incorporating competencies contributes to the predictive validity of assessment procedures.

Several studies have focused on the incremental validity of assessment dimensions or competencies beyond traditional predictors such as personality or intelligence (e.g., Bartram, 2005; Goffin, Rothstein, & Johnston, 1996; Goldstein, Yusko, & Nicolopoulos, 2001; Lievens, Harris, Van Keer, & Bisqueret, 2003). Using a meta-analytic procedure and assessment data, Bartram (2005) studied the relationships between competencies as rated by managers, cognitive ability and personality measures, and job performance, and concluded that “personality and ability act to predict the related behaviors as rated by line managers as competencies, and these ratings of competencies are, in turn, related to job performance ratings” (p. 1199). As such, competencies do seem to explain additional variance beyond

cognitive ability and personality. However, both competencies and job performance were rated by managers or supervisors thereby increasing the possibility of common-source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Other studies on the incremental validity of competencies incorporated competency ratings based on assessment center exercise performance or on an interview (e.g., Goffin et al., 1996; Goldstein et al., 2001; Lievens et al., 2003). For example, Goffin et al. (1996) examined the incremental validity of personality testing and assessment center exercises for managerial selection. The assessment center exercises were designed to tap six dimensions or competencies, namely planning and organizing, coaching, results orientation, willingness to learn, team orientation, and communication. These competencies were rated by trained assessors. The results showed that both personality and competencies contributed to the prediction of managerial performance. Furthermore, Goldstein et al. (2001) investigated whether different job-relevant job competencies varied in terms of Black-White subgroup differences. Competency ratings were based on eight assessment center exercises and on a structured interview and were rated by trained assessors. In addition, participants completed cognitive ability tests. The results showed that when cognitive ability was controlled for 12 out of 13 competency scores contributed significantly to the prediction of supervisor job performance ratings. Also in search for the predictors of cross-cultural training performance, Lievens et al. (2003) found that the competencies of adaptability, teamwork, and communication, all measured by a group discussion exercise, explained additional variance in the criteria training performance and language acquisition, beyond cognitive ability and personality. As said, these studies all focus on competency ratings based on assessment center exercises or an interview and not on competency ratings made by psychologists in an assessment context.

Additional studies have focused on self-ratings of competencies instead of on competencies rated by others (e.g., Offermann, Bailey, Vasilopoulos, Seal, & Sass, 2004), and on contexts other than an assessment context (e.g., Shaffer, Harrison, Gregersen, Black, & Ferzandi, 2006). Thus, considering the above, relatively little is known on the added value of competencies in predicting effectiveness beyond cognitive ability, personality, as well as assessment center exercise performance in an assessment context. Since it is an assessment context in which competencies are most frequently used, in the present study, we investigate the relationships between competencies and other predictors of effectiveness in such a context in depth.

The Present Study

In the present study, we distinguish six competencies, namely analytical ability, judgment, compassion, sociability, perseverance, and action orientation. These six competencies highly resemble the competencies included in existing competency taxonomies (e.g., Borman & Brush, 1993; Tett, Guterman, Bleier, & Murphy, 2000) and are, in line with the literature, expected to add to the prediction of effectiveness. In the present study we focus on the added or unique value of competencies above well known predictors, such as cognitive ability, personality, and assessment center exercise performance when predicting perceived effectiveness in sales and managerial jobs. Both sales and managerial jobs deserve special attention given their importance, prevalence, and unique characters. Furthermore, effective selling and managing is essential for organizational success (e.g., Hogan & Kaiser, 2005; Vinchur, Schippmann, Switzer, & Roth, 1998).

Sales and managerial jobs can be described by very specific job characteristics. Ideally, these job characteristics should match the person characteristics (person-job fit) in order to increase effectiveness (e.g., Bretz & Judge, 1994; Caldwell & O'Reilly, 1990). Empirical studies on the predictors of sales and managerial effectiveness are numerous (e.g., Barrick, Stewart, Piotrowski, 2002; Conte & Gintoft, 2005; Judge, Bono, Ilies, & Gerhardt, 2002; Judge, Colbert, & Ilies, 2004; Warr, Bartram, & Martin, 2005). The main focus of previous studies has been on personality factors and cognitive ability as possible predictors.

Based on a meta-analytic review of predictors of sales performance, Vinchur et al. (1998) reported validity coefficients between .18 and .31 for the relationships between conscientiousness and extraversion, and sales ratings (subjective) and measures (objective). The subcomponents achievement and potency were particularly strong predictors of sales success. These results are in line with the results of a meta-analysis done by Barrick and Mount (1991) in which the predictor-criterion relation for salespersons was found to be .23 for conscientiousness and .15 for extraversion.

The results for cognitive ability as a predictor of sales effectiveness were somewhat ambiguous. According to Vinchur et al (1998), cognitive ability measures predicted subjective measures rather well and objective measures poorly. A validity coefficient of .40 was reported for subjective measures of sales performance, while a coefficient of .04 was reported for the objective measures. In comparison to Vinchur et al. (1998), Bertua, Anderson, and Salgado (2005) and Hunter and Hunter (1984) reported a higher magnitude of overall measures of cognitive ability. Bertua et al. (2005) examined the predictive validity of cognitive ability tests in a meta-analysis based on samples from the United Kingdom. In their study, general mental ability tests demonstrated an operational validity of .55 for sales occupations. Hunter and Hunter (1984) showed that job performance could be best predicted by cognitive ability

and they reported a validity of general cognitive ability of .61 for salespersons and of .27 for sales clerks.

Summarizing the results of previous studies, conscientiousness and extraversion were found to be good predictors of sales effectiveness (e.g., Barrick & Mount, 1991; Vinchur et al., 1998). In addition, cognitive ability was found to contribute to the prediction of sales effectiveness as well (e.g., Bertua et al., 2005; Hunter & Hunter, 1984).

Studies that have been done on the relationships between personality and leadership reported slightly different predictors for managerial effectiveness than for sales effectiveness. Judge, et al. (2002) examined the relationship between personality and leadership emergence and leadership effectiveness. Their meta-analysis, including a total of 78 studies, showed that three of the five Big Five factors were significantly correlated with leadership effectiveness. Only for neuroticism ($\rho = -.22$), extraversion ($\rho = .24$), and openness to experience ($\rho = .24$) did the credibility interval exclude zero. In other words, neuroticism, extraversion, and openness to experience were found to be significantly related to leadership effectiveness. In total, the Big Five factors explained about 15% of variance in leader effectiveness.

Additionally, as Kirkpatrick and Locke (1991) state, “leaders must gather, integrate, and interpret enormous amounts of information. (...). Thus, it is not surprising that leaders need to be intelligent enough to formulate suitable strategies, solve problems, and make correct decisions” (p. 55). The results of a meta-analysis done by Lord, De Vader, and Alliger (1986) show that, of the traits investigated, including, for example, masculinity-femininity and dominance, intelligence had the strongest correlation with leadership ($r = .50$). In contrast, Judge et al. (2004) reported much lower correlations between cognitive ability and leader effectiveness. In their meta-analysis on intelligence and leadership a moderate average correlation between intelligence and leadership of .21 was found. Atwater, Dionne, Avolio, Camobreco, and Lau (1999) even concluded that “leaders with greater cognitive ability were more likely to emerge as leaders, but were not rated as more effective” (p.1553).

Considering the results of previous studies, neuroticism, extraversion, and openness can be identified as the main predictors of managerial effectiveness in the personality domain (e.g., Judge et al., 2002). Based on most meta-analytic studies, cognitive ability appeared to predict managerial effectiveness as well (Judge et al., 2004; Lord et al., 1986).

In the present study we examine the role of competencies as an additional predictor of perceived sales and managerial effectiveness using multi-source and multi-method data collected at multiple time-points. In view of the fact that competencies are often incorporated in assessments in order to predict future effectiveness, the present study is conducted in an assessment context. Assessment center exercises are an important component of such an assessment context (e.g., Thornton, 1992). As Heinsman, De Hoogh, Koopman, and Van

Muijen (2007b) point out in their study on the nature of the competency concept, assessment center exercise dimensions are an important predictor of competency ratings made by psychologists. Moreover, assessment center exercise performance seems to be a valid predictor of a wide range of criteria, such as job performance (e.g., Schmidt & Hunter, 1998). Therefore, in studying the added value of competencies we take the role of assessment center exercise performance in the prediction of perceived sales and managerial effectiveness into account.

As stated earlier, competencies have been proposed to be more strongly related to life outcomes than, for example, intelligence tests (McClelland, 1973). Furthermore, it is argued that the use of competencies enables the investigation of different aspects of performance separately, thereby promoting a more sophisticated understanding of the factors underlying, for example, job performance (e.g., Baron et al., 2003). In line with the above, we argue that the six competencies identified earlier in this study will significantly contribute to the prediction of perceived sales and managerial effectiveness above cognitive ability, personality characteristics such as conscientiousness, extraversion, and openness to experience, and assessment center exercise performance. These competencies resemble the competencies used in existing taxonomies (e.g., Borman & Brush, 1993; Tett et al., 2000) and they are expected to be relevant for sales and managerial effectiveness. In conclusion, we hypothesize:

Hypothesis 1: Competencies will contribute to the prediction of perceived sales effectiveness above and beyond cognitive ability, the personality characteristics conscientiousness and extraversion, and assessment center exercise performance.

Hypothesis 2: Competencies will contribute to the prediction of perceived managerial effectiveness above and beyond cognitive ability and the personality characteristics neuroticism, extraversion, and openness to experience, and assessment center exercise performance.

Method

Participants and Procedure

Data were collected in collaboration with a Dutch psychological consultancy firm specialized in one-day selection procedures. During the selection procedure applicants were confronted with a test battery containing measures of verbal and abstract reasoning and measures of personality. Furthermore, applicants participated in assessment center exercises and they had an interview with a psychologist. During the interview the applicants' curriculum vitae as well as their motivation to apply for the job and their interests were discussed.

At the end of the one-day selection procedure psychologists received an overview of the scores on the tests and exercises of those applicants they had interviewed. Based on this information the psychologists had to rate the applicants on six different global competencies, namely analytical ability, judgment, compassion, sociability, perseverance, and action orientation. All psychologists involved in rating the applicants had an educational background in work and organizational psychology and several years of practical experience in assessing individuals. Psychologists responsible for rating competencies were not involved in rating the applicants in any other way during the selection procedure. Furthermore, psychologists and applicants only had face-to-face contact during the selection interview.

Based on the test results, assessment center exercise performance, the information gathered during the selection interview, and their final competency ratings psychologists had to decide whether or not to recommend the applicant to the client, further called employer. Based on the psychologist's recommendation, the employer then made the final decision on whether or not to hire the applicant for the job he/she applied for. Nine months after the employer made the hiring decision he or she received a questionnaire regarding the effectiveness of the applicant they had hired. They were asked to fill out this questionnaire and to return it to the psychologist. This nine month time-lag was chosen to make sure that applicants that were hired fulfilled their training period and could be regarded as fully socialized employees.

Data on cognitive ability, personality, assessment center exercise performance, competencies, and perceived effectiveness were available for 231 applicants. The majority of the applicants were male (61.9%). Age ranged between 22 and 58 with an average age of 36.1 years ($SD = 8.01$). The applicants' level of education varied between lower vocational training (2.6%) and master's degree (29%), with both bachelor's degree and master's degree being the largest categories (29% each). For a total of 19.5% of the applicants information on level of education was missing. Applicants were assessed for a wide range of jobs in a wide range of industries, such as manufacturing, retail trade, and construction. Applicants' sales and managerial effectiveness was assessed by the applicant's supervisor (58%) or by another person, for example by a Human Resources (HR) manager (33.4%). For 8.7% of the applicants there was no information on applicant-employer relationship available.

Measures

Cognitive Ability. Cognitive ability is measured by the Differential Aptitude Test (DAT'83; Bennett, Seashore, & Wesman, 1974; authorized Dutch translation by Evers & Lucassen, 1992). The DAT'83 is a thoroughly developed and documented test that is positively evaluated by the Committee of Test Affairs of the Dutch Association of Psychologists

(COTAN). The test manual reports adequate reliability and validity studies. The DAT'83 is a series of nine aptitude tests of which we used the subtest for verbal reasoning (VR) and abstract reasoning (AR) for the purpose of the current study.

The subtest VR is a test for the verbal part of general intelligence. Items are based on reasoning by analogy and they focus on analytical and constructive thinking. Applicants are confronted with analogy items in which they have to fill in two blanks by choosing out of four options for every blank they have to fill in. The subtest consists of 50 items to be completed in 30 minutes. The end score resembles the number of correct answers. The subtest AR is a test for the non-verbal part of general intelligence and items are based on geometric series. Applicants have to detect the underlying principle of change and, based on this principle, they have to complete the series by choosing the right option out of five different positions. The subtest consists of 50 items to be completed in 25 minutes. The end score resembles the number of correct answers minus one fourth of the false items.

Big Five Personality Traits. The Big Five personality traits were measured with the revised NEO personality inventory (NEO-PI-R; Costa & McCrae, 1992; authorized Dutch translation by Hoekstra, Ormel, & De Fruyt, 1996) which is probably the most extensively validated self-report measure of the Five-Factor model. This 240 item non-timed inventory measures 30 primary personality traits (facets) and its underlying Big Five personality factors known as neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Each facet is measured with eight items, and thus each of the Big Five factors is measured with 48 items (see for sample items Costa & McCrae, 1992; Hoekstra et al., 1996). All items are answered on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In the present study, Chronbach's α 's were .82 for neuroticism, .79 for extraversion, .68 for openness to experience, .72 for agreeableness, and .81 for conscientiousness. These reliability coefficients are in line with past research (e.g., Costa and McCrae, 1992; see also Hoekstra et al., 1996), where the average reliability is .77 across traits.

Assessment Center Exercise Effectiveness. The interview simulation exercise was used as a representative for the assessment center exercise. An interview simulation exercise is a widely used situational exercise in which the applicant has a one-on-one conversation with someone playing the role of a subordinate, colleague, or customer (Thornton, 1992). The one-on-one situation varies for different types of jobs. Applicants had 15 minutes to prepare for the exercise and another 15 minutes to perform the exercise. The rater-ratee ratio was 2:1. That is, after completion of the exercise the applicant was rated by two trained and experienced assessors. Contact between the raters during the rating procedure was prohibited resulting in independent ratings. Moreover, to minimize biases the raters were not provided with any information regarding the job the applicant applied for. Each assessor rated the overall

effectiveness of the applicant on a five-point scale ranging from (1) *weak* to (5) *strong*. Ratings on intermediate scores (e.g., 2.2 and 4.3) were allowed.

Competencies. Six global competencies were assessed using single-item measures. Psychologists were asked to rate the applicant's analytical ability, judgment, compassion, sociability, perseverance, and action orientation based on information gathered during the assessment. Analytical ability is defined as analyzes problems and distinguishes different elements. Judgment is defined as integrates information in order to make a decision or to propose a solution. Compassion is defined as shows concern for the welfare of others and is perceptive. Sociability is defined as initiates and maintains interactions with others and is outgoing. Perseverance is defined as is resistant to pressure and setback and shows discipline and tenacity. Finally, action orientation is defined as takes initiative, is able to influence others and to overcome resistance in order to reach goals. Each item started with: "The person that I assess...", and followed by the definition of a particular competency. Responses were given on a seven-point scale, ranging from 1 (*not at all*) to 7 (*very much so*).

Perceived Sales Effectiveness. To measure the applicants' sales effectiveness a single-item measure was used: "To what extent is the person you are rating an effective sales person?" Responses were given on a seven-point scale, ranging from 1 (*not at all*) to 7 (*very much so*).

Perceived Managerial Effectiveness. To measure the applicants' managerial effectiveness a single-item measure was used: "To what extent is the person you are rating an effective manager?" Responses were given on a seven-point scale, ranging from 1 (*not at all*) to 7 (*very much so*).

Analyses

To examine the relationship between the variables included in the study we use correlation analysis. Hierarchical regression analysis was used to examine whether competencies contributed to the prediction of sales and managerial effectiveness above cognitive ability, Big Five personality characteristics, and assessment center exercise performance.

To justify the use of a mean score on the assessment center exercise dimension "effectiveness" we calculated two kinds of intra-class correlation coefficients; ICC(1) and ICC(2) (see e.g., James, 1982; Shrout & Fleiss, 1979). The ICC(1) coefficient represents the reliability associated with a single rating of the dimension. The ICC(2) coefficient represents the reliability of the mean score of both assessor ratings on the dimension. In our sample ICC(1) equals .72 and ICC(2) equals .84. Both ICC-coefficients are high and in support of the use of a mean score on the effectiveness dimension.

In addition, we included scores on separate competencies as well as a mean competency score in our analyses. To justify the use of an overall competency score we conducted a principal components analysis (PCA) with Oblimin rotation and a reliability analysis. The PCA yielded a one-factor solution with eigenwaarde > 2 and factor loadings ranging between .53 and .74. In total, 44% of variance was explained by this single factor. The reliability of the overall competency measure was .74. In conclusion, the results of both the PCA and the reliability analysis support the use of an overall competency measure.

Results

Table 1 shows the means, standard deviations, and correlations for each of the variables. The table reveals moderate to high correlations between the separate competencies. As can be expected, competencies representing the same underlying dimension or aspect are strongly interrelated compared to competencies representing a different underlying dimension or aspect. In other words, high correlations are found between the competencies analytical ability and judgment (both representing a mental aspect, $r = .84$), compassion and sociability (both representing an interpersonal aspect, $r = .50$), and perseverance and action orientation (both representing a personal power aspect, $r = .62$). The correlations found between the Big Five factors range between .04 and -.53 and are similar to correlations found in previous research when the same version of the NEO-PI-R was filled out by job applicants (see Hoekstra et al., 1996). In addition, Table 1 shows relatively high correlations between the competencies analytical ability and judgment and both verbal and abstract reasoning. This is not surprising since all variables seem to share a mental or thinking aspect.

Correlations between the separate competencies and perceived sales and managerial effectiveness are moderate to low. Perceived sales effectiveness correlated significantly with sociability, perseverance, and action orientation, while perceived managerial effectiveness was found to correlate significantly with analytical ability, judgment, sociability, and perseverance, and marginally significant with action orientation.

In order to examine the contribution of the separate competencies to the prediction of perceived sales and managerial effectiveness above and beyond other predictors we conducted hierarchical regression analyses. First, we conducted a hierarchical regression analysis incorporating the overall competency score as a predictor to see whether competencies explain additional variance in perceived sales effectiveness above cognitive ability, personality, and assessment center exercise performance (see Table 2). Verbal and abstract reasoning, the Big Five factors, and the score on the effectiveness dimension of the interview simulation exercise are entered in the first, second, and third step respectively. Contrary to our

Table 1

Means, standard deviations, and correlations among variables

| | | <i>N</i> | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|----|----------------|----------|----------|-----------|-------|-------|--------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | VR | 188 | 34.80 | 6.56 | | | | | | | | | | | | | | | | |
| 2 | AR | 183 | 38.89 | 5.81 | .52** | | | | | | | | | | | | | | | |
| 3 | N | 215 | 2.23 | 0.33 | -.02 | -.01 | | | | | | | | | | | | | | |
| 4 | E | 215 | 3.66 | 0.34 | -.06 | .05 | -.45** | | | | | | | | | | | | | |
| 5 | O | 215 | 3.47 | 0.33 | .16* | .09 | .03 | .22** | | | | | | | | | | | | |
| 6 | A | 215 | 3.54 | 0.29 | -.02 | -.14† | -.08 | -.07 | .11 | | | | | | | | | | | |
| 7 | C | 215 | 3.84 | 0.30 | -.04 | .06 | -.53** | .34** | .04 | .19* | | | | | | | | | | |
| 8 | ISE-Eff. | 199 | 2.74 | 0.65 | .18* | .11 | -.01 | .11 | .11 | .02 | -.08 | | | | | | | | | |
| 9 | AA | 231 | 4.87 | 1.24 | .53** | .37** | .07 | -.10 | .04 | .03 | -.08 | .24** | | | | | | | | |
| 10 | JM | 231 | 4.87 | 1.13 | .48** | .34** | .05 | -.07 | .02 | .04 | -.10 | .26** | .84** | | | | | | | |
| 11 | CP | 231 | 4.39 | 1.15 | .04 | -.10 | .07 | -.04 | .07 | .35** | -.05 | .18** | .23** | .28** | | | | | | |
| 12 | SO | 231 | 4.77 | 1.21 | -.11 | -.14 | -.15* | .42** | .07 | .17* | .00 | .26** | .14* | .19** | .50** | | | | | |
| 13 | PE | 231 | 4.97 | 1.15 | .00 | -.06 | -.17* | .31** | -.05 | -.06 | .08 | .26** | .26** | .31** | .15* | .51** | | | | |
| 14 | AO | 231 | 4.98 | 1.14 | -.07 | -.12 | -.18* | .37** | .06 | .00 | .05 | .25** | .12 | .17** | .12† | .48** | .62** | | | |
| 15 | <i>M</i> Comp. | 231 | 4.81 | 0.78 | .23** | .08 | -.08 | .22** | .06 | .13 | -.02 | .37** | .66** | .70** | .57** | .71** | .71** | .63** | | |
| 16 | Sales Eff. | 158 | 5.07 | 1.23 | -.12 | -.09 | -.22** | .27** | -.06 | -.10 | .08 | .05 | .08 | .11 | -.02 | .23** | .30** | .33** | .27** | |
| 17 | Man. Eff. | 161 | 5.04 | 1.28 | .13 | .04 | -.18* | .12 | .04 | .15† | .18* | .20* | .25** | .31** | .10 | .19* | .25** | .15† | .33** | .46** |

Note. VR / AR = verbal / abstract reasoning, N = neuroticism, E = extraversion, O = openness to experience, A = agreeableness, C = conscientiousness, ISE-Eff. = effectiveness score on the interview simulation exercise (mean score of two assessors), AA = analytical ability, JM = judgment, CP = compassion, SO = sociability, PE = perseverance, AO = action orientation, *M* Comp. = overall competency score, Sales / Man. Eff. = sales / managerial effectiveness.

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed.

expectations, conscientiousness was not significantly related to perceived sales effectiveness, $\beta = -.04$, $p = .69$. Only the Big Five factor Extraversion had a significant influence, $\beta = .24$, $p = .02$. However, after adding the overall competency score to the regression equation in the fourth step this effect disappeared. Furthermore, the results show that competencies indeed have an added value in the prediction of perceived sales effectiveness, $\Delta R^2 = .05$, $F(1, 102) = 5.66$, $p = .02$. Overall, a total of 12% of variance in perceived sales effectiveness is explained by all predictors together, $F(6, 102) = 2.32$, $p = .04$.

Based on these results, Hypothesis 1, stating that competencies would explain additional variance above cognitive ability, conscientiousness, extraversion, and assessment center exercise performance in the prediction of sales effectiveness, is supported. Indeed, competencies appeared to contribute uniquely to the prediction of perceived sales effectiveness.

Table 2

Results of hierarchical regression analyses for verbal and abstract reasoning, personality variables, mean effectiveness score of two independent assessors on the interview simulation exercise, and overall competency score explaining sales and managerial effectiveness

| Variable | Sales Effectiveness | | | | Managerial Effectiveness | | | |
|--------------------|---------------------|-------|-------|-------|--------------------------|--------|--------|--------|
| | St. 1 | St. 2 | St. 3 | St. 4 | St. 1 | St. 2 | St. 3 | St. 4 |
| Verbal reasoning | -.07 | -.05 | -.07 | -.14 | .17 | .14 | .09 | .04 |
| Abstract reasoning | -.07 | -.09 | -.09 | -.07 | -.13 | -.15 | -.17 | -.15 |
| Neuroticism | | | | | | -.29** | -.31** | -.32** |
| Extraversion | | .24* | .23** | .16 | | .00 | -.04 | -.11 |
| Openness | | | | | | .04 | .03 | .05 |
| Conscientiousness | | -.04 | -.04 | -.05 | | | | |
| ISE-Eff. | | | .07 | .01 | | | .22* | .17† |
| Overall competency | | | | .26* | | | | .22* |
| R^2 | .02 | .07 | .07 | .12* | .02 | .10* | .15** | .19** |
| ΔR^2 | .02 | .05† | .01 | .05* | .02 | .08* | .05* | .04* |

Note. $n = 109$ for sales effectiveness and $n = 111$ for managerial effectiveness.

ISE-Eff. = effectiveness score on the interview simulation exercise (mean score of two assessors).

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed.

To gain more insight in the predictive effects of the separate competencies above the other predictors we conducted an additional analysis adding the separate competencies instead of the overall competency score in the fourth and final step of the hierarchical regression analysis (see Table 3). The results of the regression analysis show that none of the separate

competencies explained a significant amount of variance in perceived sales effectiveness. Based on the beta weights we might conclude that both judgment and action orientation play a role. However, the beta weights were not significant. We need to keep in mind that, due to the relatively small sample and the rather large number of predictors the power to detect a significant contribution of one of the separate competencies in our study is reduced. This implies this analysis may form a conservative test of the contribution of separate competencies to the prediction of perceived sales effectiveness.

Second, we conducted a hierarchical regression analysis incorporating the overall competency score as a predictor to see whether competencies explain additional variance in perceived managerial effectiveness above cognitive ability, personality, and assessment center exercise performance (Table 2). Again, verbal and abstract reasoning, the Big Five factors, and the score on the effectiveness dimension of the interview simulation exercise are entered in the first, second, and third step respectively. The results show that personality and the score on the effectiveness dimension of the exercise both explain a unique part of variance in perceived managerial effectiveness, $\Delta R^2 = .08$, $F(3, 105) = 3.19$, $p = .03$ and $\Delta R^2 = .05$, $F(1, 104) = 5.45$, $p = .02$ respectively. That is, both personality and interview simulation exercise performance appear to be unique predictors of perceived managerial effectiveness measured nine months after the assessment took place. More specifically, the Big Five factor Neuroticism was significantly negatively related to perceived managerial effectiveness, $\beta = -.29$, $p = .01$, and the performance on the effectiveness dimension of the exercise significantly positively, $\beta = .22$, $p = .02$. Contrary to our expectations, extraversion and openness were not related to perceived managerial effectiveness, $\beta = .00$, $p = .98$ and $\beta = .04$, $p = .39$ respectively. In the fourth step of the analysis the overall competency score was entered. The results show that competencies explain a unique portion of variance in perceived managerial effectiveness, $\Delta R^2 = .04$, $F(1, 103) = 5.00$, $p = .03$. Overall, a total of 19% of variance is explained by all predictors together, $F(7, 103) = 3.41$, $p = .00$.

A more detailed analysis, adding the separate competencies as predictors in the fourth and final step of the analysis, showed that the competencies judgment and perseverance were of marginal influence when the effects of all other predictors were controlled for, $\beta = .28$, $p = .08$ and $\beta = .24$, $p = .09$ respectively (Table 3). However, as said before, due to the relatively small sample and the rather large number of predictors the power to detect a significant contribution of one of the separate competencies in our study is reduced. This implies this analysis may form a conservative test of the contribution of separate competencies to the prediction of perceived managerial effectiveness.

Based on the results reported above, Hypothesis 2, stating that competencies would explain additional variance above cognitive ability, neuroticism, extraversion, openness, and

assessment center exercise performance in the prediction of managerial effectiveness, can be confirmed. Indeed, competencies appeared to contribute uniquely to the prediction of perceived managerial effectiveness.

Table 3

Results of the hierarchical regression analyses for verbal and abstract reasoning, personality variables, mean effectiveness score of two independent assessors on the interview simulation exercise, and competency scores explaining sales and managerial effectiveness

| Variable | Sales Effectiveness | | | | Managerial Effectiveness | | | |
|--------------------|---------------------|-------|-------|-------|--------------------------|--------|--------|--------|
| | St. 1 | St. 2 | St. 3 | St. 4 | St. 1 | St. 2 | St. 3 | St. 4 |
| Verbal reasoning | -.07 | -.05 | -.07 | -.14 | .17 | .14 | .09 | .02 |
| Abstract reasoning | -.07 | -.09 | -.09 | -.09 | -.13 | -.15 | -.17 | -.17 |
| Neuroticism | | | | | | -.29** | -.31** | -.30** |
| Extraversion | | .24* | .23* | .12 | | .00 | -.04 | -.09 |
| Openness | | | | | | .04 | .03 | .09 |
| Conscientiousness | | -.04 | -.04 | -.06 | | | | |
| ISE-Eff. | | | .07 | -.03 | | | .22* | .17† |
| Analytical ability | | | | -.01 | | | | -.10 |
| Judgment | | | | .21 | | | | .28† |
| Compassion | | | | -.11 | | | | -.02 |
| Sociability | | | | -.02 | | | | -.01 |
| Perseverance | | | | .11 | | | | .24† |
| Action orientation | | | | .20 | | | | -.13 |
| R^2 | .02 | .07 | .07 | .18† | .02 | .10* | .15** | .23** |
| ΔR^2 | .02 | .05† | .01 | .10† | .02 | .08* | .05* | .08 |

Note. $n = 109$ for sales effectiveness and $n = 111$ for managerial effectiveness.

ISE-Eff. = effectiveness score on the interview simulation exercise (mean score of two assessors).

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed.

In sum, as expected competencies contribute uniquely to the prediction of both perceived sales and perceived managerial effectiveness. Sales effectiveness can best be predicted by extraversion and an overall competency score, whereas managerial effectiveness can be best predicted by neuroticism, performance on the effectiveness dimension of an interview simulation exercise, and an overall competency score. In other words, high scores on the Big Five factor Extraversion and on competencies correspond to a high score on perceived sales effectiveness. On the other hand, a low score on neuroticism, and high scores on the effectiveness dimension of the interview simulation exercise and on competencies correspond to a high score on perceived managerial effectiveness.

Discussion

The purpose of the present study was to investigate whether competencies contribute to the prediction of perceived sales and managerial effectiveness. Therefore, we examined the added value of competencies above predictors that are traditionally used in an assessment context, namely cognitive ability, personality, and assessment center exercise performance. Our study was multi-source and multi-method in nature, and measurements were conducted on multiple time-points. More specifically, the data on competencies, cognitive ability, personality, and assessment center exercise performance were collected in an assessment context. The data on perceived sales and managerial effectiveness were collected nine months after the assessment took place.

In line with our expectations, competencies were found to contribute to the prediction of perceived sales and managerial effectiveness above cognitive ability, personality, and assessment center exercise performance. As a result, both of our hypotheses were confirmed by our data. Our results are in line with the results reported in previous studies showing that competencies explain unique variance in the prediction of work-related criteria, such as managerial and training performance, and job performance in general (e.g., Goffin et al., 1996; Goldstein et al., 2001; Lievens et al., 2003). However, as far as we know no study has ever examined the added value of competencies above the traditional predictors, such as cognitive ability and personality, in an assessment context. Furthermore, as far as we know, no study has ever examined the added value of competencies in predicting perceived sales and managerial effectiveness using multiple time-points. As such, our study contributes to the existing literature on the added value of competencies.

Although we found that competencies appear to predict perceived effectiveness above the traditional predictors, the additional variance explained is rather low. Yet, the percentage of additional variance explained by competencies reported in the present study is in line with the percentage reported in previous studies. Goldstein et al. (2001) explored black-white subgroup differences of managerial competencies and found that competency ratings based on assessment center exercises had incremental validity above cognitive ability. They reported a change in adjusted R-square of .08, $p < .00$. Offermann et al. (2004) studied the relative contribution of emotional competence, based on self-ratings, and cognitive ability to individual and team performance. They found that, when included along with the Big Five, the set of emotional competence clusters still added significant incremental validity in the prediction of leadership emergence, $\Delta R^2 = .05$, $p < .00$, and marginally significant incremental validity in the prediction of effectiveness, $\Delta R^2 = .02$, $p < .10$. Obviously, supplementary evidence is necessary to further establish the added value of the competency concept above the traditional assessment components in predicting perceived effectiveness.

All in all, the percentage of variance, explained by all predictors together, ranges between 12 and 23 percent dependent on the number of predictors included in the analyses. Compared to other studies on the predictive validity of various predictors in performance-related criteria this is rather low. For example, Schmidt and Hunter (1998) reported predictive validity coefficients of about .60 for various selection methods, such as cognitive ability, assessment center exercises, and structured interviews. However, their meta-analysis focused on overall job performance and on training performance instead of on sales and managerial effectiveness. Furthermore, they did not include competency ratings. Our results appear to be more in line with the results reported in studies on sales and managerial effectiveness. For example, Conte and Gintoft (2005) studied the relationships between one's preference for multi-tasking, the Big Five, and sales performance and found that all predictors together explained about eight percent of variance in sales performance. De Hoogh, Den Hartog, and Koopman (2005) and Judge et al. (2002) report predictive validities of the Big Five factors in predicting managerial effectiveness of .16 and .07 respectively. However, again none of these studies have included competency ratings. Future research on the contribution of competencies and other variables in predicting sales and managerial effectiveness should thus be done in order to substantiate our findings.

Although the results of the present study show that competencies add significant incremental validity in the prediction of perceived sales and managerial effectiveness, the results are a little less straightforward than formulated in our hypotheses. To illustrate, contrary to expectations neither conscientiousness nor extraversion were found to contribute significantly to the prediction of perceived sales effectiveness. Furthermore, although neuroticism was found to contribute negatively to the prediction of perceived managerial effectiveness, neither extraversion nor openness contributed significantly. In addition, only the measures of personality (marginal) and overall competency contributed significantly to the prediction of perceived sales effectiveness. Personality, assessment center exercise performance, and competencies were found to contribute significantly to the prediction of perceived managerial effectiveness. Cognitive ability did not contribute to the prediction of either sales or managerial effectiveness. In the present study, verbal and abstract reasoning (measures of cognitive ability) were even found to be negatively related to sales and/or managerial effectiveness.

A possible explanation for the absence of expected relationships can be found in the fact that both sales and managerial effectiveness were rated regardless of the type of job applicants had applied for. That is, employers were asked to rate their newcomer's sales and managerial effectiveness regardless of their specific job description or tasks. Although employers had the opportunity to answer 'not applicable', it might be that some employers

rated sales or managerial effectiveness while the job was not a typical sales or managerial job but a job with only a small sales or managerial component. Results may have been different if we had focused only on specific sales and managerial jobs. Future research using more specified samples should point out whether our results are generalizable.

Besides the more general explanation regarding our sample, there might be two additional explanations for the relatively small role cognitive ability played in predicting perceived sales and managerial effectiveness. The first explanation has to do with a possible threshold value for cognitive ability. As outlined in our introductory paragraph, the results of studies on cognitive ability as predictors of sales and managerial effectiveness have been ambivalent (e.g., Bertua et al., 2005; Judge et al., 2004; Lord et al., 1986; Vinchur et al., 1998). Previous studies have even reported negative relationships (e.g., Vinchur et al., 1998). Perhaps the relationship between cognitive ability and effectiveness at some point reaches a limit beyond which the predictive value of cognitive ability decreases. Since the level of education of the applicants included in this study was rather high, it might be that the cognitive ability of all applicants included in our study reaches this threshold value. This line of thought might explain the weak relationship between cognitive ability and effectiveness.

A second explanation may be found in the nine month time-lag between the measures of cognitive ability and effectiveness. Ackerman (1987, 1988) and Keil and Cortina (2001) argue that the predictive validity of cognitive ability may deteriorate over time. A similar line of thought was proposed by Jansen and Vinkenburg (2006) who argued that cognitive factors would become less important during a career. The results of their study showed that verbal ability was a constant negative predictor of objective career success and that analytical ability was negatively related to objective career success within the longer-tenure groups. We argue for future research on possible threshold values and on the role cognitive ability plays in the prediction of effectiveness over time.

In sum, in studying the added value of competencies in predicting perceived sales and managerial effectiveness we took a first step in validating the competency concept and thereby we contributed to the body of empirical evidence on the added value of the concept. The results showed that competencies contribute uniquely to the prediction of both perceived sales and perceived managerial effectiveness. Given this unique contribution to the prediction of sales and managerial effectiveness competencies might be considered a valuable element in assessment procedures. We believe it is important to study the competency concept's contribution to the prediction of effectiveness for other job types. This might result in valuable findings with regard to the use of competencies in the practice of recruitment, selection, and assessment.

Limitations and Future Research

When interpreting the results of this study, one must recognize that the study has some limitations. First, we recognize that the sample size for our analyses was relatively small. Given the fact that a small sample size might influence the power of the analyses (Cohen, 1992), we may conclude that more effects may have been significant had the sample size been larger. At the same time, we may also conclude that the effects we *did* find need to be replicated across a larger sample to test for their robustness.

Second, our sample was collected in a selection setting. Effectiveness ratings were only available for those applicants that were actually hired after the assessment procedure. This may have resulted in a biased sample. We were, however, able to check for selective non-response regarding age, gender, and personality. That is, we compared our sample to a sample consisting of applicants that were not hired after the assessment procedure. No significant differences were found regarding age, gender, or personality. Therefore, we expect this sample bias to be limited.

A third limitation can be found in the fact that competencies, as well as perceived sales and perceived managerial effectiveness were measured using single-item measures. Although critics have discouraged the use of single-items measures, they have proven valuable in representing a wide range of different constructs, such as job satisfaction (e.g., Nagy, 2002; Wanous, Reichers, & Hudy, 1997) and personality (Woods & Hampson, 2005). Future research should point out whether results found in the present study can be replicated using multiple-item measures.

Fourth, we used measures of perceived sales and managerial effectiveness. It is argued that these measures are potentially contaminated by selective recall or halo effects (e.g., Judge et al., 2002). However, measures of perceived effectiveness are often used to measure sales as well as managerial effectiveness (e.g., Barrick et al., 2002; Conte & Gintoft, 2005; De Hoogh et al., 2005). In addition to the present study, it would be interesting for future research to study the added value of competencies beyond the traditional predictors of sales and managerial effectiveness using measures of perceived as well as objective sales and managerial effectiveness.

A fifth limitation may be that the employer who rated sales and managerial effectiveness was not always the applicant's supervisor. As we pointed out in our method section, about 33 percent of the applicants were rated by another person within the organization. It is highly likely that in most cases the person who rated the applicant's sales and managerial effectiveness was a HR-manager. In most organizations both supervisor and HR-manager are responsible for performance appraisal. They are thus expected to be capable of rating employee effectiveness. However, since supervisors are confronted more often with

employee behavior and performance, we believe it would be interesting to focus solely on supervisor effectiveness ratings in a future study.

Finally, measurements were conducted at multiple time-points and this may have introduced a conservative bias in our study were the results regarding the relationships between different predictors and sales and managerial effectiveness are concerned. Most previous research uses cross-sectional design to investigate the link between predictors and effectiveness (e.g., Bartram, 2005; Judge et al., 2002; Vinchur et al., 1998). In our study the measurements did not only involve different raters (assessors, psychologists, and employers) and methods (self-ratings, assessment center exercise, and other-ratings), but measures were also done nine months apart. Again this is likely to result in conservative rather than inflated estimates of the relationships.

Despite the aforementioned limitations and the fact that measurements were conducted at multiple time-points, it is notable that competencies were able to account for a significant amount of additional variance in sales and managerial effectiveness. Future research should test the robustness of our findings and should aim at ruling out potential alternative explanations.

Conclusions

To conclude, concerns about the value of the competency concept expressed by critics (e.g., Barrett & Depinet, 1991) and the limited body of research concerning the added value of competencies together with the increased use of the competency concept in practice inspired us to conduct the present study. In line with our expectations, competencies were found to contribute uniquely to the prediction of perceived sales and managerial effectiveness beyond cognitive ability, personality, and assessment center exercise performance. Given the fact that assessment procedures in which competency ratings are included are found to predict perceived sales and managerial effectiveness better than assessment procedures in which competency ratings were not included, we advocate for the inclusion of competency ratings in all assessment procedures aimed at selecting candidates for sales and managerial jobs. All in all, the results of the present study add to a better understanding of the contribution of the competency concept, beyond cognitive ability, personality, and assessment center exercise performance, to the prediction of sales and managerial effectiveness.

CHAPTER 5

Commitment, Control, and the Use of Competency Management⁵

To examine the relationships between the commitment and control approaches and the use of competency management, and to investigate whether attitude, subjective norm and perceived behavioral control mediate these relationships, we conducted two studies. In Study 1, using a survey, employees indicated whether their organization adopted a commitment or a control approach towards the implementation of competency management. Moreover, they rated their own attitude, subjective norm, perceived behavioral control, and behavior (the use of competency management). In Study 2 a scenario experiment was conducted in which we manipulated the commitment and control approaches towards competency management in order to establish causal relations. Results consistently showed that attitude and perceived behavioral control mediate the relationship between the commitment approach and the use of competency management. Thus, a positive employee attitude and a feeling of behavioral control are of considerable importance when increasing the use of competency management is an organization's primary goal.

Competency management is often applied in organizations to guide human resource practices such as selection, assessment, development, and performance appraisal (Holmes, 1995). Competency management can be described as an integrated set of human resource activities aimed at optimizing the development and the use of employee competencies in order to increase individual effectiveness, and, subsequently, to increase organizational effectiveness (e.g., Athey & Orth, 1999; Paulsson, Ivergård, & Hunt, 2005). It differs from the more traditional job analysis in that competency management focuses more on 'how' work is accomplished instead of on 'what' is accomplished (e.g., Kurz & Bartram, 2002; Schippmann, et al., 2000).

When competency management is successfully implemented it can bring about a lot of advantages for an organization (e.g., Becker & Huselid, 1999). Competency management can,

⁵ The corresponding reference is: Heinsman, H., De Hoogh, A.H.B., Koopman, P.L., & Van Muijen, J.J. (in press).

for example, provide clear behavioral guidelines and performance standards which, in turn, can be used to improve communication between employer and employee (Heinsman, Koopman, & Van Muijen, 2005). Consequently employee performance might increase and this may lead to increased organizational effectiveness. However, implementing competency management using an incorrect approach may lead to negative attitudes towards competency management, which may, consecutively, result in resistance and limited use of competency management.

The present study examines two approaches to the implementation of competency management; commitment and control. Commitment and control represent two distinct approaches to shaping employee attitude and behavior at work. Although researchers have shown a growing interest in the effects of human resource practices on employee attitude and behavior (e.g., Edgar & Geare, 2005; Guest, 1999), no study we know of has examined the effects of the commitment and control approaches on employee attitude towards and on the use of competency management. The aim of the present study is to fill part of this gap. Using several components of Ajzen's (1985, 1991) Theory of Planned Behavior (TPB), we examine the effects of both approaches on attitude and behavior towards competency management.

Competency Management: Commitment and Control approach

Although the modern competency movement dates from the late 1960s and early 1970s, the interest in competencies and competency management in the Netherlands has emerged after the publication of Prahalad and Hamel (1990) on 'core competencies' of organizations. These days the Dutch economy slowly changed into a knowledge economy and employee development became increasingly important. The tight labor market made retaining and committing employees essential and competency management appeared to be a useful tool for general managers in accomplishing this. Strengths and weaknesses were assessed using competency management and employees were given the opportunity to develop strengths and weaknesses by means of, for example, training and coaching.

As a result of the economic downfall, from 2000 to 2005 competency management was increasingly used for selection purposes and for performance appraisal (Heinsman, De Hoogh, Koopman, & Van Muijen, 2006b). Strengths and weaknesses were assessed to function as criteria for performance appraisal. The aim was to reduce labor costs, and to improve performance standards in order to react adequately to the growing competition and to increase organizational effectiveness. Thus, managers used competency management primarily to organize or control the workforce.

When closely studying these changes in market conditions two approaches to human resource management in general or to competency management in particular can be

identified: the commitment and the control approach (Walton, 1985). The commitment approach is characterized by winning hearts and minds (Guest, 1997) and is aimed at increasing employee loyalty by means of training, education, communication, knowledge sharing, and coaching (Boselie, Paauwe, & Den Hartog, 2004). Jobs are broadly defined, hierarchy is minimized, and control and coordination depend on shared goals rather than on formal positions. Autonomy, involvement, and trust are keywords (Bijlsma & Koopman, 2003; Koopman, 1991). Behavior is primarily self-regulated (Wood, 1996) and employees are merely intrinsically motivated.

Within the control approach, as opposed to the commitment approach, the employee is managed on a much more instrumental basis (Truss, Gratton, Hope-Hailey, McGovern, & Stiles, 1997). The control approach is characterized by the wish to establish order, to exercise control, and to reduce labor costs (Walton, 1985). There is no doubt the steering wheel is in the hands of management and, consequently, important decisions are made top-down (Koopman, 1991). Employees are merely motivated by extrinsic rewards, which are dependent on measurable output criteria.

Although the commitment and control approaches have been an important topic in human resource literature for quite some time, researchers have been focusing primarily on the relations between human resource management and performance (e.g., Boselie et al., 2004; Huselid, 1995; Truss et al., 1997). Previous theoretical as well as empirical studies have shown that the commitment approach has a more positive effect on outcomes such as organizational performance and turnover than the control approach (e.g., Arthur, 1994; Boselie et al., 2004).

Recently, the interest in the effects of human resource management on employee attitude and behavior is growing. Storey (1989), for example, emphasized the need to study the impact of employment practices on the recipients more systematically and Arthur (1994) concluded that there is an increasing need to demonstrate the effects of both approaches on employee attitude and behavior. In his review on human resource management and performance, Guest (1997) argued for the inclusion of more subjective evaluations when studying the effects of human resource management on performance. In 1999, based on the results of an annual survey on employment relations, Guest showed that HR practices were mostly indirectly related to outcome variables such as motivation. Employee perceptions and attitudes were found to mediate the relationship between human resource practices and performance-related behavior. Unfortunately, Guest does not provide insight in the effects of the commitment and control approaches on employee attitude and behavior.

With this study, we respond to the calls of Arthur (1994), Guest (1997), and Storey (1989), and we built upon the empirical research conducted by Guest (1999) by examining the

effects of the commitment and control approaches on employee attitude and behavior towards competency management. In studying the effects of the commitment and the control approaches on the use of competency management we use several components of the TPB (Ajzen, 1985, 1991), which is described below.

Theory of Planned Behavior

The TPB (Ajzen, 1985, 1991) is the successor of the theory of reasoned action (Fishbein & Ajzen, 1975). A central factor in the TPB is the individual's intention to perform a given behavior. As Ajzen (1991) states, "the stronger the intention to engage in a behavior, the more likely should be its performance" (p. 181). According to the TPB an individual's intention to perform a given behavior is formed by three determinants: attitude, subjective norm, and perceived behavioral control. The relative importance of the determinants varies across situations (Ajzen & Fishbein, 1980).

Attitude to certain behavior refers to the individual's global positive or negative evaluation of performing that behavior. Subjective norm refers to the individual's perceptions of general social pressure to perform a certain kind of behavior. The final determinant is called perceived behavioral control. Perceived behavioral control refers to the perceived ease or difficulty of performing certain behavior. The more behavioral control is perceived in performing target behavior, the more likely it is that this behavior is actually performed. Applied to predicting the use of competency management, the TPB holds that the extent to which an individual has a positive or negative evaluation of competency management (attitude), the perception of social pressure to use competency management (subjective norm), and the individual's confidence in his/her ability to use competency management (perceived behavioral control) will predict the intention to use and the actual use of competency management.

Commitment, Control, and the Theory of Planned Behavior

As stated, researchers have been focusing primarily on the relation between the commitment and control approach and several outcome variables, such as performance and turnover (e.g., Arthur, 1994). Previous theoretical as well as empirical research has pointed out that the commitment approach has more positive effects on outcomes than the control approach (Arthur, 1994; Boselie, Paauwe, & Jansen, 2001; Gelade & Ivery, 2003). In his study on the effects of commitment and control approaches on manufacturing performance in 30 steel mills, Arthur (1994), for example, found that the mills that operated with commitment systems had higher productivity, lower scrap rates, and lower employee turnover than those with control systems. In line with this, we expect the commitment approach to have a more

positive effect on the TPB variables attitude, subjective norm, perceived behavioral control, and behavior (the use of competency management). We therefore hypothesize:

Hypothesis 1: Both the commitment and the control approach are positively related to attitude, subjective norm, perceived behavioral control, and behavior. However, compared to the control approach, the commitment approach to competency management is more positively related to (a) attitude, (b) subjective norm, and (c) perceived behavioral control (d) behavior (the use of competency management).

The TPB has proven valuable in predicting a wide range of behaviors, for example excessive driving (e.g., Elliot, Armitage, & Baughan, 2003), condom use (e.g., Hynie, MacDonald, & Marques, 2006), and blood donation (Giles & Cairns, 1995). Although the TPB has also been applied to predict work-related behavior (e.g., McFarland & Ryan, 2006; Van Hooft, Born, Taris, Van der Flier, & Blonk, 2004), no study we know of has used the theory to predict the use of competency management. Therefore, in the present study we focus on the relationships between the commitment and the control approach and the use of competency management (behavior). Furthermore, we examine the effects of attitude, subjective norm, and perceived behavioral control on these relationships. Based on the principles of the TPB and on Guest (1999), who believes that variables such as attitude will mediate the relationship between the commitment and control approaches and behavior, we hypothesize:

Hypothesis 2: (a) Attitude, (b) subjective norm, and (c) perceived behavioral control mediate the relation between the commitment approach and behavior (the use of competency management).

Hypothesis 3: (a) Attitude, (b) subjective norm, and (c) perceived behavioral control mediate the relation between the control approach and behavior (the use of competency management).

To test our hypotheses we conducted a survey study and a scenario experiment. In Study 1 we examined the influence of the commitment and control approaches on employees' use of competency management using a survey. In Study 2 a scenario experiment was conducted which enabled us to draw conclusions concerning causality. Study 2 had the advantage of sampling participants from a wide range of organizations, and -in contrast to scenario studies in general- was thus based on non-student employees. The participants were expected to be better able to visualize the situation described in the scenario experiment than

student employees, and this way we aimed at bridging part of the gap between a more controlled scenario experiment and a real organizational setting.

Consistent with the idea of triangulation (e.g., Denzin, 1970; Jick, 1979), by comparing the results of a cross-sectional survey and a scenario experiment and by using different types of participants we tried to maximize the validity, strength, and interpretative potential of the present research. Both the survey and the scenario study have strengths and weaknesses, and the strengths of one method can compensate for the weaknesses of the other (Dipboye, 1990).

STUDY 1

Method

Participants and Procedure

Data for this study were collected using a survey distributed by master students through their own network. In total 85 employees, working in a wide range of industries, participated and returned the survey to the master students. Eighty-one participants (46.9% male, mean age = 37.57 years, $SD = 10.55$) completely filled out the survey. Level of education of the participants varied between lower vocational training (1.2%) and master's degree (14.8%), with higher vocational training being the largest category (50.1%).

Measures

All responses were assessed in 5-point Likert scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scales for attitude, subjective norm, perceived behavioral control, and behavior were based on Ajzen's (1985, 1991) TPB (for a similar approach see e.g., Van der Zee, Bakker, & Bakker, 2002; Van Hooft et al., 2004).

Commitment Approach. The commitment approach to competency management was measured with four items: "Employees were stimulated and inspired to use and accept competency management", "During the design and implementation of competency management the emphasis was on creating employee motivation and employee involvement", "During the design and implementation of competency management situations were created in which individual learning was stimulated", and "The aim was to make competency management appealing to each and every employee within the organization". The items were based on a questionnaire developed by De Caluwé and Vermaak (1999). The alpha coefficient for this scale was .80.

Control Approach. The control approach to competency management was measured with four items: "The design and implementation of competency management was strictly monitored by general management or the board", "During the design and implementation of competency

management the emphasis was on controlling and directing”, “The process of design and implementation was monitored based on criteria formulated in advance”, and “Supervisors urged each and every employee to get acquainted with competency management”. The items were based on a questionnaire developed by De Caluwé and Vermaak (1999). The alpha coefficient for this scale was .60.

Attitude. Participants’ attitude toward competency management was measured with three items: “I consider the use of competency management an opportunity for this organization”, “I am willing to use competency management”, and “I am aware that that using competency management is constructive”. The alpha coefficient for this scale was .85.

Subjective Norm. Subjective norm was measured with three items: “My colleagues are of the opinion that everyone should accept competency management”, “My colleagues’ opinion towards competency management is so strong that deviating from it seems impossible”, and “My colleagues would criticize me when I would not be receptive to the use of competency management”. The alpha coefficient for this scale was .63.

Perceived Behavioral Control. Perceived behavioral control was measured with five items: “I am able to influence the way competency management is applied to my performance appraisal”, “I have got sufficient knowledge of competency management in order to use it to assess my own strengths and weaknesses”, I am able to integrate competency management in my work”, “I can easily adjust competency management to my own demands”, and “ I am able to influence the way competency management is used to assess my strengths and weaknesses”. The alpha coefficient for this scale was .78.

Behavior. The actual use of competency management, or behavior, was measured with three items: “I have accepted the use of competency management”, “I have accepted performance appraisal based on competency management”, and “I have accepted competency-related pay”. The alpha coefficient for this scale was .69.

Results

We performed principal components analyses using OBLIMIN rotation of the items of the independent and dependent variables. Since both independent and dependent variables were theoretically related (e.g., Ajzen, 1985, 1991; Arthur, 1994; Walton, 1985), OBLIMIN rotation was chosen for all analyses (e.g., Field, 2005). The analysis of the items of the independent variables yielded a two-factor solution, accounting for almost 57% of the variance, with all items loading above $|.54|$ on the intended scale, and with all cross loadings below $|.38|$. A principal components analysis of the items of the dependent variables yielded four factors with eigenvalue >1 , accounting for more than 66% of the variance. All items, except one, loaded above $|.55|$ on the intended scale and all cross loadings were below $|.30|$.

One of the items of the scale for behavior had a primary loading of $|.58|$ on the factor containing items measuring attitude. However, the secondary loading, $|.47|$, was on the intended factor. Based on the content of this item, we decided to maintain the *a priori* categorization. Table 1 presents the means, the standard deviations, and the correlations among the variables under study.

In testing Hypotheses 1(a), (b), and (c), expecting attitude, subjective norm, perceived behavioral control, and behavior to be more strongly positively related to the commitment than to the control approach, we computed correlation coefficients and we conducted regression analyses (Table 1, 2, and 3). First, as expected, both the commitment and the control approach were positively related to the variables. Yet, there was one exception. The correlation between attitude and the control approach was, though not significant, negative in nature, $r = -.13$, $p = .24$.

Table 1

Means, standard deviations, intercorrelations, and reliabilities for Study1

| Variable | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------|----------|-----------|-------|-------|-------|-------|-------|-------|
| 1. Attitude | 3.60 | 0.72 | (.85) | | | | | |
| 2. Subjective norm | 2.66 | 0.58 | .13 | (.63) | | | | |
| 3. Perceived beh. control | 3.21 | 0.59 | .41** | .12 | (.78) | | | |
| 4. Behavior | 3.45 | 0.66 | .41** | .10 | .40** | (.69) | | |
| 5. Commitment appr. | 3.15 | 0.74 | .20† | .17 | .53** | .36** | (.80) | |
| 6. Control appr. | 3.44 | 0.60 | -.13 | .07 | .18 | .19† | .35** | (.60) |

Note. Scale reliabilities (Cronbach's α 's) are in parentheses along the diagonal. $N = 81$.

Second, a test for the significance of the difference between the correlations (Steiger, 1980) was used to examine whether the commitment approach was more strongly positively related to all other variables than the control approach. Perceived behavioral control was found to be more strongly related to the commitment than to the control approach, $z = 3.04$, $p = .00$. No such results were found for attitude and subjective norm. The difference between the both approaches regarding their relationship with behavior was marginally significant, $z = 1.39$, $p = .08$. The beta's of the relationship between the commitment and the control approach and attitude, subjective norm, perceived behavioral control, and behavior display the same pattern as the correlation coefficients (see Table 2). In line with Hypothesis 1(c), we may thus conclude that perceived behavioral control is more positively related to the commitment than to the control approach. Since no significant differences were found for both approaches with respect to their relationships with attitude, subjective norm, and behavior, our results did not support Hypotheses 1(a), (b), and (d).

Furthermore, we studied the mediating effects of attitude, subjective norm, and perceived behavioral control on the relationship between commitment and control approaches and behavior using the procedure proposed by Shrout and Bolger (2002), which is based on the procedure described by Baron and Kenny (1986). According to Shrout and Bolger, a variable functions as a mediator when the following conditions hold: (1) the independent variable (commitment/control approach) significantly affects the mediator (attitude, subjective norm, and perceived behavioral control), (2) the independent variable affects the dependent variable (behavior), (3) the effect of the independent variable on the dependent variable is decreased in the presence of the mediator, and (4) the effect of the mediator on the dependent variable is significant. To test for mediating effects hierarchical regression analysis was performed. The results of the analyses are discussed for each of the independent variables separately and are shown in Table 2 and 3.

Table 2

Results of regression analyses for commitment and control explaining attitude, subjective norm, and perceived behavioral control for Study 1

| Variable | Attitude | Subjective norm | Perceived behavioral control |
|---------------------|--------------|-----------------|------------------------------|
| Commitment approach | .28* | .16 | .53** |
| Control approach | -.23† | .02 | -.01 |
| R^2 | .09 | .03 | .28 |
| Adjusted R^2 | .06 | .00 | .26 |
| $F(df_1, df_2)$ | 3.64 (2,78)* | 1.13 (2,78) | 15.26 (2,78)** |

Note. Standardized regression coefficients are shown.

† $p < .10$. * $p < .05$. ** $p < .01$. All tests are two-tailed

The results showed that both attitude and perceived behavioral control were significantly related to the commitment approach, $\beta = .28$, $p = .02$ and $\beta = .53$, $p = .00$ respectively (Table 2). Subjective norm was not significantly related to the commitment approach, $\beta = .16$, $p = .18$. Hence, the first condition as proposed by Shrout and Bolger (2002) was met only for attitude and perceived behavioral control and not for subjective norm. Based on the procedure proposed by Shout and Bolger and in contrast to attitude and perceived behavioral control, subjective norm could not be considered a mediator of the relationship between the commitment approach and behavior. In line with the second condition proposed by Shrout and Bolger, the commitment approach was significantly related to behavior, $\beta = .33$, $p = .00$, and adding attitude as a mediator into the regression equation caused the beta of the relationship between commitment and behavior to decrease, $\beta = .23$, $p = .04$ (Table 3).

Table 3

Results of the mediation analyses explaining the use of competency management (behavior) for Study 1

| Variable | Behavior | | | | | |
|---|---------------|----------------|---------------|--------------|---------------|---------------|
| | Step 1 | Step 2 | Step 1 | Step 2 | Step 1 | Step 2 |
| Commitment approach | .33** | .23* | .33** | .33** | .33** | .17 |
| Control approach | .07 | .16 | .07 | .07 | .07 | .08 |
| <i>Mediator: Attitude</i> | | .38** | | | | |
| <i>Mediator: Subjective norm</i> | | | | .04 | | |
| <i>Mediator: Perceived behavioral control</i> | | | | | | .30* |
| R^2 | .13 | .27 | .13 | .13 | .13 | .20 |
| $F_{R^2}(df_1, df_2)$ | 5.94 (2,78)** | 9.34 (3,77)** | 5.94 (2,78)** | 3.97 (3,77)* | 5.94 (2,78)** | 6.29 (3,77)** |
| ΔR^2 | | .14 | | .00 | | .06 |
| $F_{\Delta R^2}(df_1, df_2)$ | | 14.13 (1,77)** | | 0.15 (1,77) | | 6.18 (1,77)* |

Note. Standardized regression coefficients are shown.

* $p < .05$. ** $p < .01$. All tests are two-tailed.

Thus, the third condition proposed by Shrout and Bolger was fulfilled as well. A Sobel-test (Sobel, 1982) showed that the mediation effect of attitude was significant, $z = 2.03$, $p = .04$. Moreover, attitude was significantly related to behavior, $\beta = .38$, $p = .00$. Adding perceived behavioral control into the regression equation as a mediator caused a decrease in the beta of the relationship between commitment and behavior as well, $\beta = .17$, $p = .18$ (Table 3). The beta corresponding to the relationship between perceived behavioral control and the use of competency management was significant, $\beta = .30$, $p = .02$. In sum, the third and fourth condition for mediation as proposed by Shrout and Bolger (2002) were met for perceived behavioral control. The results of a Sobel-test (Sobel, 1982) confirmed significance of the mediation effect found, $z = 2.25$, $p = .02$.

In sum, Hypothesis 2(a), expecting attitude to mediate the relationship between the commitment approach and the use of competency management, was supported by our data (see Figure 1). More specifically, the fact that competency management is more frequently used by employees when implemented with a commitment approach may be a result of more positive attitudes towards competency management. Hypothesis 2(b) was not supported by our results. Subjective norm was not significantly related to the commitment approach and could thus not be considered a mediator of the relationship between the commitment approach and behavior. In contrast to Hypothesis 2(b), Hypothesis 2(c) was supported by (see Figure 1). Within the commitment approach the use of competency management is partly due to the fact that within this approach employees experience more perceived behavioral control. In contrast, the results showed that perceived behavioral control did not mediate the relationship between the control approach and behavior.

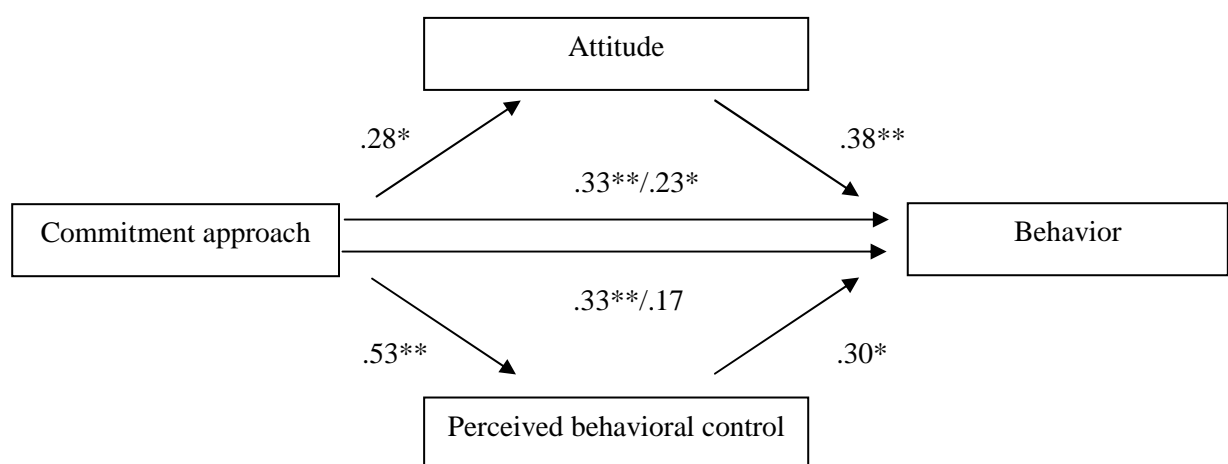


Figure 1. The mediating effects of attitude and perceived behavioral control in Study 1

We continued our analysis for the control approach. In order to test Hypothesis 3, we examined whether attitude, subjective norm, and perceived behavioral control mediated the relationship between the control approach and behavior. As is shown in Table 2, attitude, subjective norm, and perceived behavioral control were not significantly related to the control approach. Thus, the first condition as proposed by Shrout and Bolger (2000) was not met. Moreover, the control approach was not found to be significantly related to behavior, $\beta = .07$, $p = .52$ (Table 3). The second condition as proposed by Shrout and Bolger was not supported. In conclusion, attitude, subjective norm, and perceived behavioral control were not found to mediate the relationship between the control approach and behavior. In other words the relationship between the control approach and the use of competency management was not influenced by attitude, subjective norm, or perceived behavioral control. Hypotheses 3(a), (b), and (c) were not supported by our data.

STUDY 2

Study 1 showed that when competency management was implemented with a commitment approach participants reported more perceived behavioral control than when competency management was implemented with a control approach. Both attitude and perceived behavioral control were found to mediate the relationship between commitment and behavior. The fact that competency management was used more frequently by employees when implemented with a commitment approach instead of with a control approach was found to rely on a positive attitude as well as on perceived behavioral control. None of the TPB variables was found to mediate the relationship between the control approach and the use of competency management.

Although the results of Study 1 seem to be valuable for the use of competency management in practice, no conclusions about the direction of the relationships found could be drawn. Hence, in Study 2 a scenario experiment was conducted in order to establish clear causality of the relationships found in the field study while maintaining a relatively high degree of reality.

Method

Participants and Procedure

We asked 500 individuals who were involved in a one-day assessment centre for selection or developmental purposes to participate in our scenario experiment. Four hundred and twelve participants (261 male, mean age = 36.42 years, $SD = 8.68$) voluntarily completed the scenario experiment resulting in a response rate of 82.4%. Level of education of the participants varied between lower vocational training (0.7%) and master's degree (53.2%). A

total of 131 participants currently held a management position, and 279 were employees (information on position was missing for 2 participants). Participants were working in a wide range of industries. The study was set up according to a one-factor design with two levels (commitment vs. control). Participants were randomly assigned to one of the two levels, further called conditions.

For the purpose of this study an experimental manipulation was developed. Based on the results of the field study, in which additional analyses showed no significant interaction effects between the commitment and control approaches, and on discussion sessions with several experts in the competency management area, we decided to develop a scenario experiment in which a situation concerning high commitment could be contrasted with a situation concerning high control. Situations in which both commitment and control were simultaneously high, respectively low, were regarded as situations lacking realism. For example, in a situation without any form of commitment or control, working with competency management would never be an issue simply because in such a situation no one would initiate the implementation of competency management.

To measure participant's reactions towards competency management implemented with a commitment or a control approach each participant was confronted with one of the two conditions. A short introduction preceded the conditions. In this introduction participants were asked to visualize that they were working in a financial organization with a very good reputation and a broad clientele. Participants read that to maintain this reputation and clientele the board had announced to implement competency management in order to identify the strengths and weaknesses of each employee by assessing their competencies. A short description of competency management was given. Participants read that implementing competency management would have consequences for themselves and their colleagues. After all, in the future their competencies and their performance would be assessed. Participants were asked to visualize the situation they read about and to answer the questions that followed the description accordingly.

In the *commitment condition* participants were informed that the decision to implement competency management was made after consulting different groups within the organization and that the participant him/herself had also been given the opportunity to participate in decision making. In the end it was deemed important that each and every employee would benefit from implementing competency management. Competency management was not only implemented to monitor employee performance. Competency management would also contribute to individual development, training, and career planning.

In the *control condition* participants were told that the decision to implement competency management was solely made by the board. No one was given the opportunity to

participate. In the end it was deemed important that the board would benefit optimally from implementing competency management. Competency management was primarily implemented to monitor employee performance. Competency management would rarely contribute to individual development, training, and career planning.

Measures

All responses were assessed on 5-point Likert scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scales for attitude, subjective norm, perceived behavioral control, and behavior were based on Ajzen's (1985, 1991) TPB (for a similar approach see e.g., Van der Zee et al., 2002; Van Hooft et al., 2004). Compared to Study 1 dependent measures of subjective norm and perceived behavioral control were adapted in order to make them more applicable to the fictitious situations described in the scenario experiment. Also, due to the fictitious situations described we measured intention instead of actual behavior regarding competency management.

Manipulations. The *commitment manipulation* was measured with two items ($\alpha = .88$): "Competency management is made attractive for everyone" and "During the implementation of competency management it was possible to suggest changes or adaptations". The *control manipulation* was measured with two items ($\alpha = .64$): "During the implementation of competency management the emphasis was on controlling and directing" and "The implementation of competency management was closely monitored by general management or by the board".

Attitude. Attitude was measured using three items: "I consider the use of competency management an opportunity for this organization", "I am willing to use competency management", and "I am aware that that using competency management is constructive". The alpha coefficient for this scale was .91.

Subjective Norm. Subjective norm was measured with two items: "My manager is of the opinion that competency management should be accepted by everyone" and "My manager expects everyone to get acquainted with competency management". The alpha coefficient for this scale was .59.

Perceived Behavioral Control. Perceived behavioral control was measured with four items: "In this situation, I can easily adapt competency management to my own demands", "In this situation, I expect to be able to influence the way competency management is used to assess my strengths and weaknesses", "In this situation, I will be able to influence the way competency management is applied to my performance appraisal", and "In this situation, I will be capable to influence the way in which competency management and compensation are linked". The alpha coefficient for this scale was .83.

Intention. The participants' intention to use competency management was measured with four items: "I will accept competency management when I am confronted with it", "I will use competency management to assess my own competencies", "I will accept performance appraisal that is based on competency management", and "I will accept competency-related pay". The alpha coefficient for this scale was .75.

Results

Manipulation Checks

We first performed a principal components analysis using OBLIMIN rotation including the items meant for the manipulation check. This analysis yielded a two-factor solution, accounting for almost 83% of the variance, with all items loading above $|\cdot69|$ on the intended scale and all cross loadings below $|\cdot28|$. A second principal components analysis of the items of the dependent variables yielded four factors with eigenvalue >1 , accounting for almost 70% of the variance. All items loaded above $|\cdot58|$ on the intended scale and all cross loadings below $|\cdot31|$.

Results of a t-test showed that in the commitment condition participants rated the situation as more commitment oriented ($M = 3.84$, $SD = 0.58$) than control oriented ($M = 1.76$, $SD = 0.84$), $t(342.15) = 29.10$, $p = .00$, $\eta^2 = .71$, $CI(\text{diff}) = \text{between } 1.95 \text{ and } 2.23$. In the control condition, participants rated the situation as more control oriented ($M = 3.87$, $SD = 0.70$) than commitment oriented ($M = 3.10$, $SD = 0.76$), $t(409.94) = -10.71$, $p = .00$, $\eta^2 = .22$, $CI(\text{diff}) = \text{between } -0.91 \text{ and } -0.63$. We may thus conclude that our manipulation was successful.

Intention to Use Competency Management

To test our first hypothesis, expecting attitude, subjective norm, perceived behavioral control, and intention to be more positive in the commitment than in the control condition, we conducted t-tests. Results showed that in the commitment condition participants reported a more positive attitude ($M = 3.84$, $SD = 0.59$) than in the control condition ($M = 2.64$, $SD = 0.95$), $t(320.36) = 15.16$, $p = .00$, $\eta^2 = .42$, $CI(\text{diff}) = \text{between } 1.04 \text{ and } 1.35$. In the commitment condition participants also reported more perceived behavioral control ($M = 3.35$, $SD = 0.61$) than in the control condition ($M = 2.50$, $SD = 0.76$), $t(372.73) = 12.30$, $p = .00$, $\eta^2 = .29$, $CI(\text{diff}) = \text{between } 0.71 \text{ and } 0.98$. No differences were found for subjective norm. Furthermore, participants in the commitment condition were more inclined to use competency management ($M = 3.69$, $SD = 0.50$) than participants in the control condition ($M = 3.41$, $SD = 0.68$), $t(358.35) = 4.59$, $p = .00$, $\eta^2 = .06$, $CI(\text{diff}) = \text{between } 0.16 \text{ and } 0.39$. Hypothesis 1(a), (c), and (d) were thus supported by our data.

A t-test and ANOVA's were used to examine the possible mediating effects of attitude, subjective norm, and perceived behavioral control on the relationship between approach and the intention to use competency management. According to the procedure proposed by Shrout and Bolger (2002), a variable functions as a mediator when the four conditions as described in Study 1 hold. A t-test showed that both approaches had a different effect on the intention to use competency management. As the results of Hypothesis 1(d) pointed out, the intention to use competency management was higher in the commitment condition than in the control condition. The results of the ANOVA showed that the former main effect of approach disappeared when adding attitude as a mediator, $F(1,409) = 0.60$, $p = .44$, $\eta^2 = .00$, $CI(diff) = \text{between } -0.19 \text{ and } 0.08$. A Sobel-test (Sobel, 1982) confirmed the significance of this mediation, $z = 6.93$, $p = .00$. Moreover, the effect of attitude on the intention was significant, $F(1,409) = 60.59$, $p = .00$, $\eta^2 = .13$, $CI(diff) = \text{between } 0.20 \text{ and } 0.34$.

No relationship was found between approach and subjective norm. Therefore, the first condition as proposed by Shrout and Bolger (2002) was not met for subjective norm and we had to conclude that subjective norm did not mediate the relationship between approach and the intention to use competency management. Contrary to subjective norm, perceived behavioral control was found to mediate the relationship between approach and the intention to use competency management. The results of the ANOVA showed that the main effect of approach on the intention to use competency management disappeared when adding perceived behavioral control as a mediator, $F(1,409) = 0.04$, $p = .84$, $\eta^2 = .00$, $CI(diff) = \text{between } -.014 \text{ and } 0.11$. Again a Sobel-test (Sobel, 1982) confirmed the significance of the mediation found, $z = 7.05$, $p = .00$. Moreover, the effect of perceived behavioral control on the intention was significant, $F(1,409) = 74.16$, $p = .00$, $\eta^2 = .15$, $CI(diff) = \text{between } 0.26 \text{ and } 0.42$, thereby fulfilling the fourth condition for mediation.

In sum, the results of the scenario experiment are in line with the results presented in the survey study. The mediating effects of attitude and perceived behavioral control are thus replicated in a more controlled setting. We may conclude that the positive effect of the commitment approach on the use of competency management by employees is almost completely due to a positive attitude and an increased perceived behavioral control. The role of subjective norm in predicting the use of competency management is, regardless of the approach chosen, negligible.

General Discussion

The purpose of these studies was to investigate the influence of commitment and control approaches on the use of competency management. The hypotheses, based on the integration

of research on the commitment and control approaches to human resource management (e.g., Gelade & Ivery, 2003; Guest, 1999) with the principles of the TPB (Ajzen, 1985, 1991), were put to test in two studies that yielded consistent results.

The commitment approach leads to a positive employee attitude towards competency management and to more perceived behavioral control than the control approach. These positive effects were replicated in the scenario study, which enabled us to draw conclusions concerning the direction of the relationship. Compared to the control approach, the commitment approach, by “winning hearts and minds” (Guest, 1999, p.6), by eliciting organizational citizenship behaviors (Organ, 1988), and extra-role and unrewarded behaviors (Katz, 1964), has led to a more positive attitude towards competency management. Furthermore, using an approach in which participation, trust, and involvement are central aspects will increase the feeling of behavioral control by employees. Perceived behavioral control refers to being able to perform a certain kind of behavior, as well as to “mastering” a certain kind of behavior and it is thought to be compatible with Bandura’s (1982) concept of perceived self-efficacy (Ajzen, 1991). It therefore seems likely that the commitment approach, in which involvement and participation are central aspects, made employees feel confident in their ability to use competency management. Compared to a control approach, in which decisions are primarily made top-down, a commitment approach gives employees the feeling that they have got sufficient knowledge and skills to properly use competency management within their work.

Contrary to our expectations, only in Study 2 the commitment approach had a more positive direct effect on the (intention to) use competency management. The results of Study 1 do, however, point in the direction of the expected effect, since the difference between both approaches with regard to their relationship with behavior was marginally significant. In comparing these results we need to keep in mind that we measured the actual use of competency management in Study 1 and the intention to use competency management in Study 2. All in all, it seems that involving employees during the implementation of competency management might increase the use of competency management by these employees.

Attitude and perceived behavioral control were furthermore found to mediate the relationship between the commitment approach and the use of competency management. We may therefore conclude that a positive stance towards competency management as well as a feeling of behavioral control, both caused by the commitment approach, increases the use of this human resource tool by employees. This finding is in line with our expectations that were based on the ideas of, for example, Arthur (1994) and Guest (1999). Competency management is often used to assess employees, for example for the purpose of performance

appraisal. As such, competency management can be regarded as a threat, since it not only reveals ones strengths but ones weaknesses as well. This may cause resistance and uncertainty. Involving employees during the implementation might take away this resistance and uncertainty, thereby positively influencing employee attitude and their perception of behavioral control, and eventually even increasing the use of competency management.

Limitations and Future Research

Although the present study has resulted in important findings regarding the use of competency management within organizations, the current study has some limitations that should be addressed. First, the relatively low reliability coefficients for the control approach and subjective norm warrant attention. Remarks made by participants after filling out the survey made clear that employees experienced some difficulties answering the questions regarding the control approach. This might have had something to do with the hierarchical distance between employees on the one hand and management/the board on the other.

We expect that the smaller the hierarchical distance between participants and management/the board the more transparent the process of implementation and decision making. Subsequently, the more transparent the process, the easier it is expected to be to answer questions regarding control and decision making.

This line of thought is supported by our data. The alpha coefficient found in the scenario experiment, in which it was clearly outlined whether the implementation of competency management was carried out under a commitment or a control approach, was higher than the one reported in Study 1. Further research should focus on an adjustment of the current measure for the control approach or even on alternative measures, such as interviews, to make the content more accessible to employees from different hierarchical levels within an organization.

With regard to the low alpha coefficient for subjective norm we could argue that subjective norm is the weakest component in the TPB (e.g., Armitage & Conner, 2001) resulting in lower alpha coefficients. There might, however, be alternative explanations. One reason for the low alpha coefficients for subjective norm may be found in the fact that we only used two or three items to construe the scales for subjective norm in each of the studies. Using a small number of items as opposed to using multiple-item scales may have had a negative impact on the scale's reliability (e.g., Nunnally, 1978). Another reason may be found in the concept's operationalization and conceptualization. Ajzen and Fishbein (1980) operationalized subjective norm as the global perception of social pressure to comply (or not to comply) with the wishes of others and it is this operationalization that we adopted in the studies. Ajzen and Fishbein's operationalization implies a rather direct or explicit form of

social pressure. Social pressure is, however, rarely exerted this direct or explicit and, therefore, many researchers have argued for a different operationalization of subjective norm (e.g., Terry & Hogg, 1996). Others even suggest that there may be different types of norms, like personal, descriptive and injunctive (Cialdini, Kallgren, & Reno, 1991) or moral norms (e.g., Beck & Ajzen, 1991). It is clear that there is considerable debate about the concept of subjective norm. We therefore advocate for further research on the operationalization and conceptualization of the concept before drawing conclusions on the reliability and the influence of subjective norm on the use of competency management.

A second limitation is related to the cross-sectional design of Study 1. In line with Schippmann et al. (2000), we expected that a large percentage of the participants in Study 1 would already be working with competency management. Due to the fact that measuring intentions in retrospect is impossible we decided to measure behavior instead. This has resulted in a cross-sectional design. Although it seems safe to assume that one's intention is an important predictor of one's behavior (e.g., Van der Zee et al., 2002; Van Hooft et al., 2004, for a meta-analytic review see Armitage & Connor, 2001), we recognize that solely measuring intentions in a scenario experiment (as we did in Study 2) does not provide us with sufficient evidence to confirm the link between intentions and behavior with respect to the use of competency management. Therefore, we argue for future longitudinal research on both the intention to use and the actual use of competency management.

A third limitation can be found in the sampling method used in Study 1. We made use of students' networks to gather data and this may have increased the possibility of sample bias. However, a close look at the sample characteristics did not reveal an overrepresentation of specific groups or industries. Therefore, we believe that the effect of the sampling method used is limited. However, future research using another sampling method should test the robustness of our findings.

A fourth limitation lies in the fact that we did not include a sample consisting of (line) managers in our studies. Including (line) managers would have created further insight in the effects of commitment and control approaches throughout the entire organization. Moreover, comparisons between employees and (line) managers could have been made with respect to, for example, their attitude towards and their use of competency management.

Our measures of commitment and control are based on a questionnaire of De Caluwé and Vermaak (1999). There are however several other researchers who have focused on the concepts of commitment and control (e.g., Arthur, 1994; Beer, Spector, Lawrence, Mills, & Walton, 1984). These researchers have proposed several dimensions along which commitment and control approaches could be compared. These dimensions include, for example, decentralization, participation, and general training. Although our measures do not

fully cover the dimensions proposed by, for example, Arthur (1994) and Beer et al. (1984), the items used in our measures do represent most of these dimensions. It would be interesting to examine the relationships between the measures used in the present study and the dimensions as proposed by Arthur and Beer et al. in future studies.

Future research should also focus on concepts such as trust, fairness, and procedural justice and their relationship with both the commitment and the control approach. The commitment approach might for example be more strongly related to fairness and procedural justice than the control approach. Furthermore, previous research has shown that the extent to which employees feel fairly treated by their organizations influences an organization member's attitude and behavior (e.g., Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler, 1999). Given their influence on attitude and behavior, it is conceivable that concepts such as fairness might influence the relationships between the commitment and control approach and the use of competency management. Including concepts such as trust and fairness might contribute to knowledge concerning the use of competency management. We therefore argue for future research simultaneously focusing on commitment, control, the TPB variables, the use of competency management, and the additional variables mentioned above.

Practical Implications

Despite the limitations the results of the studies yield some important practical implications. First, the mediating effect of attitude implies that creating a positive attitude, for example by implementing competency management using a commitment approach, may substantially increase the use of competency management. Changing one's attitude towards competency management requires persuading employees of the benefits of competency management. This might be accomplished by distributing information and attending workshops. However, we need to keep in mind that there is more to attitude change than simply offering information and attending workshops, since changing one's attitude is a rather complex process. Attitude researchers underline this complexity by recognizing that attitudes are sometimes susceptible and sometimes resistant to change (e.g., Fishbein & Ajzen, 1975; Zajonc, 1980). The process of attitude change seems to be influenced by moderators of different kind such as argument quality, recipient knowledge, and consensus information (e.g., Petty & Cacioppo, 1986) and by context (e.g., Schwarz, 1998). Thus, although we believe that for example distributing information and attending workshops might be a first step in changing employee attitude towards competency management, future research should focus on the conditions under which attitudes towards competency management are changed most effectively.

Second, the mediating effect of perceived behavioral control implies that feelings of mastery over competency management and its applications increases the use of competency

management. This implication is in accordance with research on change related topics that states that individuals are more likely to accept change whenever they have some determination (e.g., Deci, Connell, & Ryan, 1992), or whenever they experience autonomy (e.g., Hackman & Oldham, 1976) or perceived ownership (e.g., Clegg & Walsh, 2004; Wall, Cordery, & Clegg, 2002). Enhancing feelings of mastery and control during the implementation of competency management might thus increase the use of competency management, at least by employees. To increase perceived behavioral control and, thus to increase feelings of mastery over competency management, training and workshops on competency management might be a useful tool (e.g., Gist, 1989; Salas & Cannon-Bowers, 2001).

Taken together, attitude and perceived behavioral control are important factors to consider whenever increasing the use of competency management is one of the organization's goals. Future research should focus on the effects of both the commitment and the control approach on the use of competency management by managers and on the role of intentions. All in all, we believe that the findings of the present studies can be very useful in designing interventions aimed at encouraging and increasing the use of competency management in organizations.

CHAPTER 6

Summary and General Discussion

The current dissertation presented four empirical studies that aimed at answering the question that was raised in the introductory chapter of this dissertation: Are competencies a farce, a fad, or a useful concept that should continuously be used in the future? We examined the nature of the competency concept, its relevance, and its use in daily practice. In separate studies we focused on the relationships between competencies and constructs such as personality and cognitive ability, and on relationships between competencies and effectiveness. Furthermore, we studied the predictive value of the different competencies beyond other constructs including cognitive ability and personality, and we focused on the use of competencies in daily practice. The results of the studies were discussed in the separate chapters. Here, the main conclusions are combined and summarized. Furthermore, strengths and weaknesses of the studies are discussed.

Competencies and Individual Characteristics

As pointed out in the introductory chapter as well as in Chapter 1, little was known about the nature of the competency concept. In other words, it was unclear which individual characteristics are related to competencies. A closer look at the many different definitions revealed that there was ambiguity surrounding the nature of the competency concept. That is, different definitions include different individual characteristics to describe competencies (e.g., Kurz & Bartram, 2002; Spencer & Spencer, 1993). In Chapters 2 and 4 we were able to reveal part of the nature of the competency concept by examining the relationships between competencies and competency dimensions and cognitive ability, personality, and behavioral aspects.

In Chapter 2, we examined competencies through the eyes of psychologists. The study was conducted in an assessment setting and the data were gathered during a one-day selection procedure. We wondered whether psychologists would rely on cognitive ability, personality, or assessment center exercise performance when rating applicants' competencies in the three

competency domains Thinking, Feeling, and Power. The results showed that, as expected, cognitive ability contributes to competency ratings in all three dimensions. The cognitive ability measures appear to be the main predictors of the competency dimension Thinking. This is in line with previous research which also showed a strong relationship between cognitive ability and competencies such as analyzing and interpreting (e.g., Bartram, 2005).

The results of the study described in Chapter 2 furthermore indicated that personality aspects make a notable contribution to assessing the competency dimensions Feeling and Power. That is, the Big Five factors extraversion and agreeableness play an important role in assessing the competency dimension Feeling, and the Big Five factors neuroticism, extraversion, and agreeableness were found to be important in assessing the dimension Power. Apparently, psychologists rate applicants as competent in the feeling area if the applicants possess characteristics such as trust, altruism, warmth, and assertiveness. According to the psychologists, to be competent in the power area an applicant needs to be somewhat dominant, energetic, and not inclined to trust each and everyone.

In line with previous research (e.g., Gaugler, Rosenthal, Thornton, & Bentson, 1987; Schmidt & Hunter, 1998), assessment center exercises were found to be related to the competency dimensions as well. More specifically, assessment center exercise performance was found to be an important predictor of competency ratings in the Feeling and Power domains. In fact, ratings on the competency dimension Feeling were primarily based on assessment center exercises. In sum, based on the results described in Chapter 2, we may thus conclude that competencies in the Thinking domain are mainly assessed based on cognitive ability, whereas competencies in the Feeling and Power domain are mainly assessed based on personality and assessment center exercise performance.

In Chapter 4, competencies were again assessed by psychologists during a one-day selection procedure. Although it was not the main aim of this study, we were able to examine the relationships between competencies and other individual characteristics measured during the one-day selection procedure. Contrary to Chapter 2, in the study described in Chapter 4 we included six separate competencies instead of three overall competency dimensions. In contrast to our findings described in Chapter 2, the relationships between competencies and individual characteristics reported in Chapter 4 were somewhat smaller. The fact that in Chapter 4 separate competencies instead of competency dimensions were used may have influenced the strength of the relationships found. Although it is argued that broad measures have advantages over narrow measures (e.g., more explanatory power and greater reliability; Ones & Viswesvaran, 1996), narrow measures can capture important criterion variance components that are obscured with general measures (Tett, Guterman, Bleier, & Murphy, 2000). Thus, in our opinion future research should continuously focus on competency

dimensions as well as on separate, more specific, competencies in order to contribute to the knowledge on competencies and their relationships with other constructs.

Even though the relationships reported on in Chapter 4 were somewhat smaller than those found in Chapter 2, again competencies associated with the Thinking domain (analytical ability and judgment) were found to be strongly related to cognitive ability and competencies associated with the Feeling (sociability and compassion) and Power (perseverance and action orientation) domain were found to be strongly related to assessment center exercise performance and personality. Taken together, the results presented in Chapters 2 and 4 partially replicate and extend the results of previous theoretical and empirical studies on competencies and their underlying individual characteristics. In line with, for example Bartram (2005) and Baron, Bartram, and Kurz (2003), the results indicate that competencies are related to cognitive ability, personality, and assessment center exercise performance.

Yet, despite the fact that the results of Chapters 2 and 4 pointed out that cognitive ability, personality, and assessment center exercise performance could be regarded as characteristics underlying competencies, in Chapter 2 the percentage of variance explained by all predictors together was moderate. This indicates that there might be other individual characteristics that play a role in assessing competencies. For example, previous studies have shown that motives, values, and interests also determine what people do (e.g., McClelland, 1985; Winter, John, Stewart, Klohn, & Duncan, 1998). It is thus arguable that motives, values, and interests have incremental value in predicting competencies or competency domains. We argue for future research to examine the role additional predictors might play in assessing competencies.

The Predictive and Added Value of Competencies

In practice, competencies are often used to distinguish effective from ineffective performance (e.g., Borman & Brush, 1993). As Kurz and Bartram (2002) stated, “A competency is not the behavior or performance itself but the repertoire of capabilities, activities, processes, and responses available that enable a range of work demands to be met more effectively by some people than by others” (p.230). Although a direct link between competencies and effectiveness is assumed (e.g., Stogdill, 1948; Posner & Kouzes, 1988), up until now relatively little research has been done to empirically verify exactly which competencies are related to effectiveness.

The studies described in Chapter 3 and 4 examined the relationship between competencies and perceived effectiveness. In Chapter 3, a 360-degree feedback inventory was used in order to measure managerial competencies and managerial effectiveness rated by supervisors, peers, and subordinates. The results showed that, as expected, supervisors, peers,

and subordinates rely on different competencies when rating managerial effectiveness of the same manager. The competency ‘analytical ability’ was perceived as essential for effectiveness by all rater sources. In the eyes of supervisors, peers, and subordinates an effective manager is one that analyzes problems and distinguishes different elements.

Although the results described in Chapter 3 pointed out that all rater sources value the competency ‘analytical ability’, a rather disperse pattern was found for the other competencies. Besides analytical ability both supervisors and subordinates value compassion. Peers consider sociability and perseverance to be characteristics of an effective manager. We argue that these differences might be explained by differences in situational demands and rater’s organizational perspectives.

First, as stated in the trait activation theory (e.g., Lievens, Chasteen, Day, & Christiansen, 2006) and in the competency demand hypothesis (e.g., Shoda, Mischel, & Wright, 1993), situational demands influence an individual’s behavior. The trait activation theory emphasizes situation trait relevance and situation strength. Situation trait relevance refers to the type of information to which people respond in expressing a trait, whereas situation strength refers to the persuasiveness to behave in such a way that individual differences in behavioral dispositions disappear (Tett & Guterman, 2000). Thus, as Tett and Guterman stated, “the behavioral expression of a trait requires arousal of that trait by trait-relevant situational cues” (p. 398). The concept of situation strength is also incorporated in the competency demand hypothesis in which it is stated that individual differences are small whenever situations have demanding behavioral requirements in terms of competencies (e.g., Mischel & Shoda, 1995; Shoda et al., 1993). Extending the trait activation theory and the competency demand hypothesis to the present research on the relationship between competencies and effectiveness suggests that managers respond to different types of information when interacting with supervisors, peers, and subordinates, which, as a consequence, activates different competencies.

Second, and in line with our first argument, differences between supervisors, peers, and subordinates may reflect legitimate differences in perceptions of the manager’s various roles (e.g., Borman, 1974; Toegel & Conger, 2003; Van Hooft, Van der Flier, & Minne, 2006). Several researchers have argued that the rater’s perspective might have an effect on the performance ratings independent of effects such as halo and leniency error (e.g., Pulakos, Schmitt, & Chan, 1996; Scullen, Mount, & Goff, 2000). In his article on the validity of 360-degree ratings Borman (1997) suggested that there are three reasons why it is conceivable that the rater’s organizational perspective might influence performance ratings. First, he suggested that raters at different organizational levels use different dimensions, or that they define dimensions differently when rating performance. Second, he proposed that raters from

different levels use similar dimensions in assessing performance, but that these dimensions are weighted differently. A third reason suggested by Borman (1997) is that raters from different organizational levels tend to disagree in their ratings due to the use of different samplings of ratee behavior when rating performance. Scullen et al. (2000) showed that perspective related effects are especially present in supervisor and subordinate ratings. To further examine these possible explanations, we argue for future research on the effects of situational demands, rater's organizational perspectives, and possible biases on the relationship between competencies and effectiveness.

All in all, competencies appear to explain a rather large part of the variance in perceived managerial effectiveness. We need to keep in mind, however, that although the study is based on a 360-degree inventory incorporating different raters, the results on the predictive value of competencies are based on cross-sectional and common-source data. Keeping in mind the disadvantages of the use of common-source data (e.g., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), in Chapter 4, using multi-source and multi-method data collected at multiple time-points, we extended our research on the relationship between competencies and perceived effectiveness. We were able to study competencies in an assessment context and to measure perceived effectiveness in a work-related context nine months after the assessment of competencies took place.

The study on the uniqueness of competencies in predicting perceived sales and managerial effectiveness, described in Chapter 4, showed somewhat different results with respect to the relationships between competencies and perceived effectiveness than the study described in Chapter 3. Perceived sales effectiveness was found to correlate significantly with the competencies 'sociability', 'perseverance', and 'action orientation'. Perceived managerial effectiveness was found to correlate significantly with 'analytical ability', 'judgment', 'sociability', and 'perseverance', and marginally significant with 'action orientation'. However, hierarchical regression analyses showed that none of the separate competencies explains a significant proportion of the variance in sales effectiveness. The competencies 'judgment' and 'perseverance' were found to contribute marginally to the prediction of managerial effectiveness. Furthermore, in contrast to the results described in Chapter 3, the results described in Chapter 4 show that competency 'analytical ability' is not a significant predictor of perceived managerial effectiveness.

A possible explanation for the differences in results reported in Chapters 3 and 4 might be found in the fact that in the study described in Chapter 3 we used common-source data, while in Chapter 4 the results were based on multi-source data. In the study described in Chapter 4, competency ratings were provided by psychologists based on the results of a one-day assessment procedure and ratings of perceived sales and managerial effectiveness were

provided by employers nine months after the assessment took place. Thus, in the study described in Chapter 3, both competency and perceived effectiveness ratings were provided by the same source. This may have inflated the relationships found (e.g., Podsakoff et al., 2003).

In Chapter 4 we were furthermore able to examine the added value of competencies beyond cognitive ability, personality, and assessment center exercise performance. While large meta-analyses have shown that cognitive ability, personality, and assessment center exercises are the main predictors of job performance (e.g., Barrick & Mount, 1991; Schmidt & Hunter, 1998), other studies focused on the added value of the competency concept (e.g., Goffin, Rothstein, & Johnston, 1996; Lievens, Harris, Van Keer, & Bisqueret, 2003). However, none of these studies has examined the added value of competencies beyond cognitive ability, personality, and assessment center exercise performance in an assessment context. As such our study contributes to the existing literature. Based on previous research, we expected competencies to explain an additional part of the variance in effectiveness above and beyond the traditional predictors (e.g., Bartram, 2005; Goffin et al., 1996).

The results of the study described in Chapter 4 showed that competencies indeed explained a unique portion of the variance in perceived sales and managerial effectiveness beyond the other predictors, such as cognitive ability, personality, and assessment center exercise performance. In other words, competencies did add to the prediction of perceived sales and managerial effectiveness. In line with previous studies (e.g., Goffin et al., 1996; Lievens et al., 2003), competencies could thus be considered unique predictors of sales and managerial effectiveness. Taken together the competencies explain about 5% of additional variance in perceived sales and managerial effectiveness. Although this percentage is in itself rather low, it represents a significant contribution to the prediction of perceived sales and managerial effectiveness. Moreover, our findings are in line with previous research on the contribution of competencies to the prediction of effectiveness in which similar percentages were reported (e.g. Goldstein, Yusko, & Nicolopoulos, 2001; Offermann, Bailey, Vasilopoulos, Seal, & Sass, 2004).

Remarkably, cognitive ability was not found to be a significant predictor of perceived sales or managerial effectiveness. Neither verbal nor abstract reasoning plays a role in predicting sales effectiveness. Furthermore, contrary to our expectations, the results show that only extraversion is related to perceived sales effectiveness. Contrary to our expectations that were based on previous research (e.g., Vinchur, Schippmann, Switzer, & Roth, 1998), no relationships were found between conscientiousness and sales effectiveness. In addition, only neuroticism was found to be negatively related to perceived managerial effectiveness. Neither extraversion nor openness was found to play a role in predicting managerial effectiveness.

A general explanation for the absence of the expected relationships may be found in the fact that employers were asked to rate sales and managerial effectiveness regardless of the type of job. It might thus be that some employers rated sales and / or managerial effectiveness while the job was not a typical sales or managerial job, but, for example, a job with only a small sales or managerial component. Our findings may have been different if the focus of the study had been on specific sales and managerial jobs. We therefore advocate for future studies using more specific samples.

In addition, there might be a more specific explanation for the absence of a relationship between cognitive ability and both forms of perceived effectiveness. We propose that the relationship between cognitive ability and effectiveness might, at some point, reach a limit or threshold beyond which the predictive validity of cognitive ability decreases. Previous studies have focused on the existence of such a curvilinear relationship between cognitive ability and criterion measures (e.g., Keil & Cortina, 2001). First, it might be that the cognitive ability of the applicants included in our sample reaches the proposed threshold value since it are all applicants with a rather high level of education. As a result cognitive ability is of less importance and the predictive validity of cognitive ability might decrease. Second, the nine month time-lag between the measure of cognitive ability and effectiveness might also be responsible for the absence of the relationship between cognitive ability and effectiveness. Following Ackerman (1987, 1988) and Keil and Cortina (2001), we argue that the predictive validity of cognitive ability may deteriorate over time. Based on their results, Keil and Cortina (2001) concluded that this deterioration was not dependent upon ability-task characteristic combinations as was suggested by Ackerman (1987; 1988). In sum, for several reasons the existence of a curvilinear relationship might offer an explanation for the absence of the expected relationship between cognitive ability and effectiveness in the study described in Chapter 4. It might also offer an explanation for the ambivalent findings regarding the relationship between cognitive ability and effectiveness reported in the previous studies (e.g., Bertua, Anderson, & Salgado, 2005; Vinchur et al., 1998). It would be interesting to elaborate more on the curvilinear relationship between cognitive ability and effectiveness in future research.

All in all, though critics have expressed their concern about the value of the competency concept in practice (e.g., Barrett & Depinet, 1991; Hollenbeck, McCall, & Silzer, 2006) competencies do seem to be predictors of perceived sales and managerial effectiveness. Furthermore, competencies do have added value in predicting sales and managerial effectiveness beyond traditional predictors, such as cognitive ability and personality. It thus seems worthwhile to continue the use of competencies in human resource practices such as selection and assessment.

The Competency Concept in Practice

We believe that, since competencies are so widely applied and since they seem to contribute to the prediction of effectiveness, it is important to study competency applications in practice. For that reason, in the fourth empirical study, which is somewhat distinctive from the first three empirical studies, we focused on one of the most well known competency applications, namely competency management. As mentioned in the introductory chapter competency management can be described as an integrated set of human resource activities aimed at optimizing the development and the use of employee competencies in order to increase individual effectiveness. Subsequently, an increase in individual effectiveness is expected to contribute to the realization of organizational goals and to organizational effectiveness (e.g., Van Beirendonck, 1998). Competency management can bring about many advantages for the organization (Becker & Huselid, 1999; Heinsman, Koopman, & Van Muijen, 2005). Whether or not an organization can profit from these advantages is dependent upon the way competency management is implemented. The study described in Chapter 5 examined the effects of two implementation approaches, namely commitment and control, on the use of competency management using both a survey and a scenario study.

Both the survey study and the scenario study showed that the commitment approach, in which competency management is implemented bottom-up, has a more positive effect on employee attitude and perceived behavioral control than the control approach, in which competency management is implemented more top-down. A commitment approach, characterized by involvement and participation throughout the organization, thus not only results in a more favorable attitude towards competency management but also increases employees' feelings of behavioral control. Moreover, the results consistently showed that attitude and perceived behavioral control mediate the relationship between the commitment approach and the use of competency management. In other words, due to the fact that a commitment approach increases a positive attitude and feelings of control, the use of competency management by employees is increased.

Contrary to our expectations, competency management was not found to be used more frequently when competency management was implemented with a commitment as opposed to a control approach. Although the scenario study revealed that competency management is used more extensively when competency management is implemented with a commitment approach rather than with a control approach, no significant difference between the both approaches was found in the survey study. Thus, the results did not consistently support the idea that competency management would be more extensively used when involvement and participation, as opposed to control and order, are key elements of the implementation process.

It might be argued that there are concepts other than attitude and perceived behavioral control that influence the relationships between the commitment and control approaches and the use of competency management. Trust, fairness, and justice are, for example, concepts that are known to influence outcomes relevant to organizations, such as performance, organizational citizenship behavior, and organizational commitment (e.g., Dirks & Ferrin, 2002; Tyler, 1999). In addition, previous research has established relationships between commitment and control, and trust, fairness, and justice. To some researchers trust can be considered a substitute to control (e.g., Bijlsma & Van de Bunt, 2003). That is, the higher the degree of trust in a certain relationship, the lower the costs of control mechanisms, such as monitoring (e.g., Cummings & Bromiley, 1996). Others consider trust and control to be parallel concepts and suggest that trust levels moderate the effect of control mechanisms in determining the control level (e.g., Das & Teng, 1998). Similar arguments may hold for fairness and justice. Fairness and justice are known to increase cooperative behavior and to decrease resistance (e.g., Lind & Tyler, 1988; Tyler, 1999). Thus, it might again be argued that the higher the perceived fairness and justice, the lower the need for control mechanisms.

Based on the studies described above, it seems safe to assume that the concepts of trust, fairness, and justice and the concepts of commitment and control are interrelated. Considering the results of previous studies, we argue that implementing competency management with a commitment oriented approach might induce feelings of trust, fairness, and justice, while implementing competency management with a control oriented approach might have the opposite effect. Moreover, previous research has shown that trust, fairness, and justice are highly related to attitudes, intentions, and to behavioral outcomes (e.g., Costa, 2003; Dirks & Ferrin, 2002; Lind & Tyler, 1988). Studying the relationships between commitment and control approaches towards competency management, and concepts such as trust, fairness, and justice in order to simulate the use of competency management thus seems worthwhile.

The fourth empirical chapter was in part based on Ajzen's (1985, 1991) Theory of Planned Behavior, in which intentions are expected to mediate the relationship between attitude, perceived behavioral control, and subjective norm and behavior. Due to the cross-sectional character of both studies we were unable to test the mediating effect of intentions. Since the scenario study was hypothetical in nature we did measure the effects of the commitment and control approaches on the intention to use competency management. It would be interesting for future research to study the relationships between commitment, control, attitude, perceived behavioral control, the intention to use, and the actual use of competency management longitudinally. Furthermore, we argue for future research to focus on the use of competency management by, for example, managers. By integrating the results

of the present study with results of future studies recommendations can be made to increase the use of competency management at various levels throughout the organization.

Strengths and Weaknesses

Each research method has its strengths and limitations. Naturally, the strengths and limitations of the method chosen will confine the conclusions that can be drawn. Thus, we used various methods so that the strengths of one method could compensate for the weaknesses of the other. In the first empirical study, described in Chapter 2, we studied competencies in the context of a one-day assessment procedure. The different assessment center components and the competencies were assessed by different raters and with different method resulting in a multi-source and multi-method approach. In Chapter 3 we recognized that different raters may provide the same manager with different competency and effectiveness ratings. We therefore used a 360-degree feedback method to study the relationship between competencies and effectiveness. Competency and effectiveness ratings of supervisors, peers, and subordinates were compared. Thus, again we adopted a multi-source approach. Yet, due to the relatively small sample size the predictive value of competencies was studied in a common-source manner.

In Chapter 4, competencies and effectiveness were studied using a multi-source and multi-method approach. Furthermore, measurements were conducted at multiple time-points. Competencies were assessed by a psychologist during a one-day assessment procedure while perceived sales and managerial effectiveness were assessed by the employer nine months after the one-day assessment procedure. Consequently, we were able to examine the link between competencies and effectiveness in the long term. Moreover, in addition to the study described in Chapter 3, this study enabled us to examine the predictive and added value of competencies when both competencies and perceived effectiveness were rated by different sources. Chapter 5 provided the advantage of triangulation (e.g., Denzin, 1970; Jick, 1979). By comparing the results of a cross-sectional survey and a scenario experiment and by incorporating different types of participants we optimized the validity, strength, and interpretative potential of the research described in this chapter.

Although multi-source and multi-method approaches are known to result in more robust and generalizable set of findings (e.g., Scandura & Williams, 2000), the studies reported on in this dissertation are not without limitations. The limitations of the individual studies have been discussed in the separate chapters. There are, however, several limitations that were reported in more than one study. These limitations will be discussed in more detail here.

A first comment should be made on the competency concept's clarity. As pointed out by an anonymous reviewer, due to the confusion surrounding the competency concept it seems as if competencies and outcome measures, such as effectiveness, overlap. Furthermore, the competency concept has been applied in many different areas as an alternate for other basic concepts including knowledge, skills, abilities (KSA's), and performance dimensions. As a result there is a lack of conceptual clarity. In order to contribute to the conceptual clarity, we have tried to separate the competency concept from other basic concepts such as cognitive ability, personality, and effectiveness. In the present studies we tried to shed a light on the competency concept by identifying underlying characteristics and we examined its relationship with the outcome measure perceived effectiveness. The studies show that competencies are indeed related to, but do not fully overlap cognitive ability, personality, and assessment center exercise performance. Moreover, competencies contribute to the prediction of perceived effectiveness beyond cognitive ability, personality, and assessment center exercise performance. This indicates that indeed competencies and effectiveness are distinguishable. However, future research should test this conclusion more extensively.

A second comment should be made on the way in which competencies were measured in two of the four empirical chapters. The competency measures in Chapters 3 and 4 were based on single items. Single-item measures have received their share of criticism, especially regarding their psychometric properties. The problems with the psychometric properties are discussed by, for example, Nagy (2002), Robins, Hendin, & Trzesniewski (2001), and Woods and Hampson (2005). It is argued that single-item measures are less reliable than multiple-item measures and that estimates of internal reliability cannot be provided. In addition, single-item measures are thought to have moderate correlations with scale measures. In contrast, advocates of single-item measures have shown that the reliability of these measures is acceptable (e.g., Wanous & Hudy, 2001), that criterion correlations are comparable with those of multiple-item measures (e.g., Woods & Hampson, 2005), and that single-item measures might have incremental validity compared to multiple-item measures (Nagy, 2002). In line with this, single-item measures have proven to be valuable in measuring different concepts, such as job satisfaction (e.g., Wanous, Reichers, & Hudy, 1997), personality (e.g., Paulhus & Bruce, 1992; Woods & Hampson, 2005), job insecurity (e.g., De Witte, 1999), and self-esteem (e.g., Robins et al., 2001). In addition, single-item measures are cost effective, they avoid boredom, and they prevent participant fatigue (e.g., Nagy, 2002). Partaking in empirical studies is often without reward and thus the shorter the study, the lower the threshold to actually participate voluntarily. Considering the above, we are of the opinion that it would be interesting for future studies to incorporate both single and multiple-item measures of competencies.

A third comment should be made on the relatively small sample sizes of the studies described in Chapters 3 and 4. Chapter 3 was based on a total sample of 98 managers of whom competencies and effectiveness were assessed by supervisors, peers, and subordinates. When comparing the ratings of the different sub-samples, pairwise deletion caused a drop of the number of raters per comparison. In Chapter 4, the number of participants was limited, partly due to the fact that measurements were conducted at multiple time-points. We examined the added value of competency ratings in assessing the perceived effectiveness of about 110 participants nine months after they had participated in a one-day selection procedure. In both studies, the small sample sizes may have influenced the power of our analyses and, consequently, this may have influenced the strength of the relationships found (Cohen, 1992). More effects might have been significant had the sample sizes been larger. At the same time, it also means that the effects that we did find need to be replicated across larger samples to test robustness. Nevertheless, as outlined above the multi-source, multi-method, and longitudinal nature of the studies may be considered great advantages.

A fourth comment should be made on the fact that most of the data were collected in collaboration with a single consultancy firm. As a result we used rather specific competency taxonomies containing either 21 separate competencies that could be classified into three competency domains or containing six broad competencies. Although the competency domains and the separate competencies showed substantial overlap with classifications used by for example Bartram (2005), Borman and Brush (1993) and Tett et al. (2000), the use of data collected in collaboration with a single consultancy firm might have influenced the generalizability of our findings. It would be interesting for future studies to use data collected in collaboration with more than one (consultancy) firm and to incorporate other competency taxonomies.

Finally, the design of most of the studies described in the empirical chapters did not allow testing for the directionality of causal relationships (with the scenario study described in Chapter 5 as an exception). We would like to note that where causality is implied, it is assumed based on theory and previous work rather than tested here.

Despite these limitations, the results of our four empirical studies have some important practical implications. First, the fact that we established relationships between competencies and cognitive ability, personality, and behavioral aspects, in an assessment setting as well as longitudinally, suggests that the aforementioned components might be regarded as components underlying competencies. In other words, cognitive ability, personality, and behavioral aspects might be considered a competency's building blocks. In line with the definitions of, for example, Boyatzis (1982) and Kurz and Bartram (2002) a competency can thus be described as a conglomeration of different individual factors. This is an important

conclusion for practitioners that are somehow involved in assessing competencies. Knowing what to assess will naturally improve the accuracy and thus the quality of the assessment. Furthermore, the results of the studies showed that each competency or competency domain has a main predictor (e.g., cognitive ability for the competencies in the Thinking domain and personality for the competencies in the Power domain). This knowledge might help practitioners when assessing competencies or competency domains.

A second practical implication can be found in the relationship between competencies and effectiveness. Being aware of the competencies that individuals, employed in different organizational positions, must possess in order to be perceived effective by their supervisors as well as by their peers and subordinates forms an important starting point for selection procedures and processes of performance appraisal. The competencies that are considered to be prerequisites for effectiveness should play a central role during selection and performance appraisal.

A third practical implication that ensues from the empirical research described in this dissertation lies in the use of competency management, one of the most well known competency applications. Organizations that are planning to implement competency management should keep in mind that involving employees will contribute to a positive attitude towards competency management and a sense of perceived behavioral control. In turn, a positive attitude and a sense of perceived behavioral control are responsible for the use of competency management by employees. Organizations that already work with competency management may consider influencing employee attitude and increasing perceived behavioral control, for example by offering additional information on competency management or by initiating workshops on the use of competency management. This might result in an increase in the use of competency management throughout the organization.

Competencies: Farce, Fad, or Future?

As outlined above, competencies are based on cognitive ability, personality, and behavioral aspects. Moreover, competencies are related to effectiveness. Finally, based on the results presented in this dissertation, we may conclude that competencies do contribute to the prediction of effectiveness. Using competencies as a predictor in addition to other constructs including cognitive ability and personality does result in a better prediction of perceived sales and managerial effectiveness. So, based on the outcomes, strengths, and weaknesses discussed above we are able to answer the main question that was formulated in our introductory chapter, namely whether the competency concept can be considered a farce, a fad, or a concept that should be used in the future. Given the fact that competencies are firmly based on individual characteristics and given their contribution to the prediction of effectiveness, we

believe that it is safe to argue that the competency concept could be fruitfully further used in the future. We are of the opinion that the use of the competency concept contributes to human resource practices, such as assessment, selection, performance appraisal, and individual development in several ways.

First, competencies may be considered a common language or a way of communicating within organizations. This is emphasized by the use of competency taxonomies and competency dictionaries. Communicating in terms of competencies has several advantages. By using such taxonomies and dictionaries a common frame of reference is created. In addition, communicating in terms of competencies is less entangling than communicating in terms of, for example, cognitive ability and personality on which competencies are found to be based. Competencies are concepts that are easy to grasp and that appeal to one's imagination, partly due to the use of behavioral anchors. The use of competencies might thus enhance clarity, and ease and stimulate communication between employer and employee.

Second, by using competencies specified in behavioral anchors, practitioners are given detailed insight in behaviors required to reach a certain level of competence. Additionally, the use of competencies and their behavioral anchors simplifies the identification of one's strengths and weaknesses and as a result specified recommendations can be made for personal development. Furthermore, as we have shown, competencies are related to effectiveness. Moreover, they contribute to the prediction of effectiveness. As such competencies provide direct insight in the behaviors required to be effective. As we all know, individual effectiveness might contribute to organizational effectiveness. All in all, competencies seem to stimulate a result oriented as well as a development oriented climate in which individual and organizational goals are linked.

In sum, given the advantages of competencies and competency management outlined above, it is expected that competencies will continue to play an important role in human resource practices in the future. Debates about the usefulness or uselessness of competencies will probably always remain (e.g., Hollenbeck et al., 2006). Yet, we believe that, based on the results of the studies described in the present dissertation and based on the practical relevance of the concept, we may conclude that the competency concept should not be considered a farce. Rather, we would like to refer to competencies as a fad with a future.

SUMMARY IN DUTCH

Het Competentieconcept Nader Bekeken: Aard, Relevantie en Toepassing

De afgelopen jaren heeft het begrip “competenties” in Nederland enorm aan populariteit gewonnen en competenties zijn dan ook gemeengoed geworden in onze samenleving. In veel organisaties, zowel in de profit als non-profit sector, wordt tegenwoordig gewerkt met competenties. Door competenties van medewerkers in kaart te brengen, tracht een organisatie optimaal gebruik te maken van de sterke punten van de medewerkers. Tevens kunnen de zwakkere punten worden ontwikkeld, bijvoorbeeld met behulp van trainingen. Dit “managen van competenties” (competentiemanagement) kan de individuele effectiviteit, en daarmee ook de organisationele effectiviteit, ten goede komen.

Juist de snel groeiende populariteit van het competentiebegrip heeft ook kritische vragen opgeroepen: Wat zijn competenties nu eigenlijk? Dragen competenties wel werkelijk bij aan effectiviteit? Hoe gaat dat “managen van competenties” in de praktijk in zijn werk? Met andere woorden: Zijn competenties nu slechts een modegril of zijn ze dusdanig zinvol dat ze ook in de toekomst ingezet kunnen worden? In dit proefschrift worden competenties op verschillende manieren onder de loep genomen. Het proefschrift beschrijft onderzoek naar de aard van competenties en naar de relatie tussen competenties en effectiviteit. Tevens wordt het gebruik van competenties in de praktijk bestudeerd.

Na een algemene inleiding in Hoofdstuk 1, worden in vier onafhankelijk van elkaar te lezen hoofdstukken de verschillende empirische studies gepresenteerd. In de studies worden aan de hand van verschillende bronnen (psychologen, leidinggevendenden, collega’s en ondergeschikten), methoden van dataverzameling (zelf- & anderbeoordeling, 360-graden feedback en scenariostudie) en meetpunten in de tijd de onderzoeksvariabelen in kaart gebracht. In Hoofdstuk 6 wordt een algemene samenvatting gegeven en worden de resultaten geïntegreerd en bediscussieerd. Hieronder worden de voornaamste resultaten en conclusies, zoals beschreven in de afzonderlijke empirische hoofdstukken, samengevat.

Bouwstenen van Competenties

In de eerste empirische studie, gerapporteerd in Hoofdstuk 2, staan de constructen onderliggend aan competenties centraal. Met behulp van data verzameld gedurende een eendaagse assessment-procedure wordt onderzocht of er een relatie bestaat tussen cognitieve vaardigheden, persoonlijkheid, en presentatie op rollenspelen enerzijds en de competentiedimensies Denken, Voelen en Kacht anderzijds. In totaal zijn de gegevens van 932 kandidaten geanalyseerd.

In lijn met onze verwachtingen blijken psychologen de cognitieve vaardigheden van een kandidaat mee te wegen wanneer ze de kandidaat een score moeten toekennen op de drie competentiedimensies. De mate van cognitieve vaardigheid blijkt dus samen te hangen met de beoordeling van een kandidaat op de competentiedimensies Denken, Voelen en Kracht. De cognitieve vaardigheden van een kandidaat blijken vooral doorslaggevend voor de score van de psycholoog op de competentiedimensie Denken. Cognitieve vaardigheden blijken iets minder belangrijk wanneer de psycholoog een score moet toekennen aan de competentiedimensies Voelen en Kracht. Deze bevindingen komen overeen met bevindingen gerapporteerd in eerder onderzoek naar de relaties tussen competenties en cognitieve vaardigheden (Bartram, 2005). Bartram (2005) rapporteerde eveneens een sterk verband tussen de aan denken gerelateerde competentie analyseren/interpreteren en cognitieve vaardigheden.

Persoonlijkheid blijkt van belang bij het beoordelen van de competentiedimensie Voelen. De factoren extraversie en altruïsme spelen de grootste rol bij het beoordelen van deze competentiedimensie. Daarnaast speelt persoonlijkheid een primaire rol bij het beoordelen van de competentiedimensie Kracht. Om als competent op de dimensie Kracht te worden beoordeeld door de psycholoog moet de kandidaat vooral laag scoren op de persoonlijkheidsfactoren neuroticisme en altruïsme en hoog op extraversie. Uit de data blijkt verder dat de prestatie op de rollenspelen belangrijk is bij het beoordelen van de competentiedimensie Voelen, maar dat de prestatie op de rollenspelen ook wordt meegewogen bij de beoordeling van de competentiedimensie Kracht.

Over het algemeen verklaren cognitieve vaardigheden, persoonlijkheid en prestatie op rollenspelen minder dan de helft van de variantie in de competentiedimensies. Dit impliceert dat er mogelijk andere constructen zijn die beschouwd kunnen worden als bouwstenen van competentiedimensies. In lijn met onder anderen McClelland (1985) en Winter, John, Stewart, Klohn en Duncan (1998) stellen wij daarom dat andere constructen als motivatie en interesse mogelijk eveneens onderliggend kunnen zijn aan competenties. Vervolgonderzoek zou zich kunnen richten op de rol die deze constructen spelen.

Hoewel het niet het primaire doel was van de studie beschreven in Hoofdstuk 4 zijn ook hier de relaties tussen cognitieve vaardigheden, persoonlijkheid, en prestatie op rollenspelen enerzijds en competenties anderzijds bekeken. Net als in Hoofdstuk 2 zijn ook nu de data verzameld gedurende een eendaagse assessment procedure. Het verschil met de studie beschreven in Hoofdstuk 2 is echter dat we hier niet uitgegaan zijn van competentiedimensies, maar van zes brede competenties, te weten analytisch vermogen, oordeelsvorming, medeleven, sociabiliteit, doorzettingsvermogen en actiegerichtheid. Wederom blijken de competenties die geassocieerd worden met het Denken-domein (analytisch vermogen en oordeelsvorming) sterk gerelateerd aan cognitieve vaardigheden. De competenties die geassocieerd worden met het Voelen-domein (sociabiliteit en inlevingsvermogen) en met het Kracht-domein (doorzettingsvermogen en actiegerichtheid) blijken gerelateerd aan persoonlijkheid en aan prestatie op het rollenspel.

De gevonden relaties tussen cognitieve vaardigheden, persoonlijkheid, en prestatie op rollenspelen enerzijds en competenties anderzijds zijn in Hoofdstuk 4 echter minder sterk dan in Hoofdstuk 2. Een mogelijke verklaring kan allereerst gevonden worden in het feit dat we in Hoofdstuk 4 zijn uitgegaan van competenties in plaats van competentiedimensies. Hoewel aangenomen wordt dat meer globale metingen meer variantie verklaren (Ones & Viswesvaran, 1996), kunnen meer specifieke metingen juist een bepaald deel van de variantie verklaren dat onopgemerkt blijft wanneer globale metingen worden gebruikt (Tett, Guterman, Bleier & Murphy, 2000). Vervolgonderzoek zou dan ook gebruik moeten maken van beide typen metingen. Een tweede mogelijke verklaring betreft de grootte van de steekproef. De studie in Hoofdstuk 4 is, in vergelijking met de studie in Hoofdstuk 2, gebaseerd op een relatief kleine steekproef. Het gebruik van een kleine steekproef vergroot de kans op toevalsfluctuaties en dit kan weer van invloed zijn geweest op de sterkte van de gevonden relaties.

Concluderend kan gesteld worden dat competenties, in de ogen van de psycholoog, inderdaad gebaseerd zijn op onder andere cognitieve vaardigheden, persoonlijkheid en prestatie op het rollenspel. In lijn met eerder onderzoek van bijvoorbeeld Boyatzis (1982) en Kurz en Bartram (2002) kan een competentie dus omschreven worden als een conglomeraat van verschillende individuele factoren. Dit is een belangrijke conclusie voor iedereen die betrokken is bij het beoordelen van competenties, want weten waarop gelet moet worden tijdens het beoordelingsproces kan de nauwkeurigheid en de kwaliteit van de beoordeling vergroten.

Competenties en Effectiviteit

Zoals gezegd kunnen competenties van medewerkers bijdragen aan individuele en zelfs aan organisationele effectiviteit. Het is echter belangrijk om te onderzoeken hoe sterk deze relatie is en wat de exacte bijdrage is van competenties. In de studies beschreven in Hoofdstuk 3 en Hoofdstuk 4 staan de relaties tussen competenties en waargenomen effectiviteit centraal. In beide studies wordt gebruik gemaakt van zes eerder genoemde brede competenties.

De studie beschreven in Hoofdstuk 3 is gebaseerd op de 360-graden feedback-methode. In totaal zijn 98 managers beoordeeld op competenties en waargenomen effectiviteit als leidinggevende door 435 anderen werkzaam in dezelfde organisatie. De beoordelingen werden gegeven door zowel leidinggevendenden als collega's en ondergeschikten. Uit de resultaten blijkt, zoals verwacht werd, dat leidinggevendenden, collega's en ondergeschikten de diverse competenties in verschillende mate mee laten wegen wanneer zij dezelfde manager op effectiviteit beoordelen. In de ogen van leidinggevendenden blijkt vooral inlevingsvermogen essentieel voor een effectieve manager. Collega's zien een effectieve manager als iemand die sociabel is en over doorzettingsvermogen beschikt. Een manager is effectief in de ogen van ondergeschikten als hij of zij actiegericht is en medeleven toont. Opmerkelijk is dat analytisch vermogen door alle beoordelaars belangrijk gevonden wordt.

De gevonden verschillen tussen de beoordelaars zouden direct het gevolg kunnen zijn van de verschillende rollen die een manager heeft ten opzichte van de verschillende beoordelaars (o.a. Toegel & Conger, 2003). De situationele eisen en het organisationele perspectief van de beoordelaar kunnen eveneens een rol spelen. Volgens de 'trait activation theory' (o.a. Lievens, Chasteen, Day & Christiansen, 2006) en de 'competency demand hypothesis' (o.a. Shoda, Mischel & Wright, 1993) kunnen situationele eisen het gedrag van een individu beïnvloeden. Bepaald gedrag wordt als het ware uitgelokt door bepaalde situationele prikkels. Toegepast op de resultaten van het onderzoek besproken in Hoofdstuk 3 wordt door de trait activation theory en de competency demand hypothesis gesuggereerd dat managers in hun omgang met leidinggevendenden, collega's en ondergeschikten reageren op verschillende informatie waardoor verschillende competenties worden geactiveerd. Ook het organisationele perspectief van de beoordelaar kan een oorzaak zijn van de gevonden verschillen tussen leidinggevendenden, collega's en ondergeschikten (o.a. Borman, 1997; Harris & Schaubroeck, 1988). Beoordelaars afkomstig uit verschillende lagen van de organisatie kunnen competenties anders interpreteren en beoordelen. Toekomstig onderzoek zou zich kunnen richten op de invloed van situationele eisen, van het organisationele perspectief van de beoordelaar en van mogelijke andere biases op de relatie tussen competentie en effectiviteit.

Samengenomen verklaarden de competenties een groot deel van de variantie in waargenomen effectiviteit van leidinggevend. Hierbij dient de kanttekening te worden geplaatst dat de analyses gebaseerd zijn op common-source data, omdat de grootte van de steekproef regressie-analyse op basis van multi-source data niet toeliet. Het gebruik van common-source data kan ertoe leiden dat relaties overschat worden en als zondanig een vertekend beeld geven (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Daarom hebben we in Hoofdstuk 4 wederom de nadruk gelegd op de relaties tussen competenties en effectiviteit. Dit keer is echter gebruik gemaakt van multi-source en multi-method data, verzameld op een tweetal meetmomenten. We hebben in deze studie niet alleen de relaties tussen de zes competenties en leidinggevende en commerciële effectiviteit onderzocht, maar ook de toegevoegde waarde van competenties boven cognitieve vaardigheden, persoonlijkheid en prestatie op het rollenspel in het voorspellen van beide vormen van effectiviteit.

De resultaten van de studie beschreven in Hoofdstuk 4 wijken iets af van de resultaten van de studie besproken in Hoofdstuk 3. Een bescheiden rol in het voorspellen van waargenomen leidinggevende effectiviteit is weggelegd voor de competenties oordeelsvorming en doorzettingsvermogen. Geen van de zes afzonderlijke competenties speelt een grote rol in het voorspellen van waargenomen commerciële effectiviteit. Opmerkelijk is het feit dat de competentie analytisch vermogen dit keer geen rol van betekenis speelt. Dit in tegenstelling tot de bevindingen gerapporteerd in Hoofdstuk 3. De verschillen in bevindingen tussen Hoofdstuk 3 en Hoofdstuk 4 kunnen mogelijk worden verklaard door het gebruik van common-source data in Hoofdstuk 3 en het gebruik van multi-source data in Hoofdstuk 4. In Hoofdstuk 3 werden competentieoordelen en effectiviteitsoordelen gegeven door dezelfde beoordelaars, terwijl in Hoofdstuk 4 competenties werden beoordeeld door een psycholoog en de beide vormen van effectiviteit negen maanden later door de werkgever.

De resultaten beschreven in Hoofdstuk 4 laten verder zien dat competenties een toegevoegde waarde hebben in het voorspellen van zowel waargenomen leidinggevende als waargenomen commerciële effectiviteit boven cognitieve vaardigheden, persoonlijkheid en prestatie op het rollenspel. Dat wil zeggen dat het toevoegen van competentiebeoordelingen aan een selectieprocedure, reeds bestaande uit tests voor cognitieve vaardigheden en persoonlijkheid en rollenspelen, de voorspelling van effectiviteit nog verbetert. Alle zes de competenties samen zijn echter verantwoordelijk voor een klein percentage toegevoegde verklaarde variantie in waargenomen leidinggevende en waargenomen commerciële effectiviteit. Het percentage toegevoegde verklaarde variantie gerapporteerd in Hoofdstuk 4 is echter wel in lijn met de percentages gevonden in eerder onderzoek (o.a. Goldstein, Yusko & Nicopoulos, 2001; Offermann, Bailey, Vasilopoulos, Seal & Sass, 2004).

Critici hebben hun twijfels over het nut van competentiebeoordelingen geuit (o.a. Barrett & Depinet, 1991; Hollenbeck, McCall & Silzer, 2006). Uit de resultaten van de studies beschreven in Hoofdstuk 3 en Hoofdstuk 4 blijkt echter dat competenties niet alleen gerelateerd zijn aan effectiviteit, maar dat ze ook een toegevoegde waarde hebben in het voorspellen van effectiviteit. Samengevat lijkt het dus zinvol om competenties in te zetten in het kader van human resource activiteiten, bijvoorbeeld gedurende de werving en selectie van nieuwe medewerkers.

Competenties in de Praktijk

Aangezien het competentiebegrip zo is ingeburgerd in organisaties en aangezien competenties bijdragen aan de voorspelling van individuele effectiviteit is het onzes inziens belangrijk om het gebruik van competenties in de praktijk nader te bestuderen. Hiertoe hebben we een vierde empirische studie uitgevoerd waarin we de invoering van de meest bekende toepassing van competenties, namelijk competentie management, hebben onderzocht. Competentie management kan worden beschouwd als een combinatie van human resource activiteiten die erop gericht zijn om de ontwikkeling en de inzet van de competenties van medewerkers te optimaliseren om zo de effectiviteit van individu en organisatie te vergroten. Competentiemanagement kan bijvoorbeeld ingezet worden bij de werving en selectie van nieuwe medewerkers, maar ook in loopbaanadvies en coachingsgesprekken.

De invoer van competentie management kan vele voordelen hebben voor een organisatie (Becker & Huselid, 1999; Heinsman, Koopman & Van Muijen, 2005). Het hangt van de manier waarop competentie management ingevoerd wordt af of de organisatie deze voordelen ook daadwerkelijk behaalt. De studie beschreven in Hoofdstuk 5 legt de nadruk op de effecten van twee verschillende benaderingen, namelijk de betrokkenheid- en de beheersingsbenadering, op het gebruik van competentie management door medewerkers. In de betrokkenheidsbenadering wordt competentie management van beneden af ingevoerd en staat het overtuigen en ‘winnen’ van medewerkers, onder andere door participatie, centraal. Verder zijn het realiseren van gedeelde doelen en de intrinsieke motivatie van medewerkers belangrijke kenmerken. In de beheersingsbenadering wordt competentie management van bovenaf ingevoerd en planning en controle staan centraal. Er worden meetbare outputcriteria opgesteld; het accent ligt op de extrinsieke motivatie van medewerkers.

Om de effecten van de beide benaderingen op het gebruik van competentie management door medewerkers in kaart te kunnen brengen, zijn een vragenlijststudie en een scenariostudie uitgevoerd. De scenariostudie wees uit dat competentie management frequenter gebruikt wordt door medewerkers wanneer het geïmplementeerd wordt met een betrokkenheidsbenadering dan wanneer het geïmplementeerd

wordt met een beheersingsbenadering. Deze bevinding werd echter niet ondersteund door de resultaten van de vragenlijststudie. We concluderen dan ook dat, in tegenstelling tot de verwachting, competentie management niet per definitie frequenter gebruikt wordt door medewerkers wanneer betrokkenheid en participatie in plaats van planning en controle kernpunten zijn tijdens het implementatieproces.

Beide studies laten zien dat de betrokkenheidsbenadering, waarbinnen competentie management meer bottom-up wordt ingevoerd, een meer positief effect heeft op de attitude en de waargenomen gedragscontrole van medewerkers ten opzichte van competentie management dan de beheersingsbenadering. Het lijkt er op dat betrokkenheid en participatie tijdens de invoer van competentie management resulteert in een positievere houding van medewerkers ten opzichte van competentie management en tevens in een toename van het gevoel controle te kunnen uitoefenen over competentie management zoals dat geïmplementeerd wordt.

Attitude en waargenomen gedragscontrole blijken verder van invloed te zijn op de relatie tussen de betrokkenheidsbenadering en het uiteindelijke gebruik van competentie management. Met andere woorden, een positieve houding ten opzichte van competentie management en een gevoel van controle over competentie management, beide het gevolg van de betrokkenheidsbenadering, zorgen voor een toename in het gebruik van competentie management door medewerkers.

Tot Besluit

Samengevat suggereren de bevindingen beschreven in dit proefschrift dat competenties gebaseerd zijn op constructen als cognitieve vaardigheden, persoonlijkheid en gedragsaspecten. Verder blijkt dat competenties gerelateerd zijn aan effectiviteit en we mogen, op basis van de resultaten, aannemen dat competenties ook daadwerkelijk bijdragen aan de voorspelling van effectiviteit naast de bijdrage die wordt geleverd door de meer traditionele voorspellers als cognitieve vaardigheden en persoonlijkheid. Bovendien blijkt de belangrijkste toepassing van competenties, competentie management, baat te hebben bij een implementatieproces waarin betrokkenheid en participatie centraal staan. Een dergelijk implementatieproces zorgt voor een meer positieve houding ten opzichte van competentie management en voor een gevoel van controle over de situatie hetgeen bijdraagt aan het uiteindelijke gebruik van competentie management door de medewerkers.

Al met al kunnen we concluderen dat competenties meer zijn dan oude wijn in nieuwe zakken. Hoewel de populariteit van het competentieconcept in de eerste instantie veel weg had van een modegril, is het concept toch waardevol in de praktijk. Discussies over de zin of onzin van competenties zullen waarschijnlijk altijd gevoerd blijven worden. We zijn echter

Summary in Dutch

van mening dat, gegeven de resultaten beschreven in deze dissertatie en de praktische relevantie van het competentieconcept, competenties in de toekomst een rol van betekenis zullen blijven spelen in organisaties

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