Running head: META-ANALYSIS OF PROACTIVITY CONCEPTS

Fully Corrected Version of Construct Clean-Up in Proactivity Research: A Meta-Analysis on the Nomological Net of Work-Related Proactivity Concepts and Their Incremental Validities, published *Applied Psychology: An International Review,* 2013, *62*, 44–96, corrigendum published *Applied Psychology: An International Review,* 2015, 64, Issue 4, 626–636

August 2015

Katharina Tornau

University of Giessen, Germany

Michael Frese

National University of Singapore and Leuphana, University of Lueneburg

Published in *Applied Psychology: An International Review,* 2013, *62*, 44–96.

ALL CHANGES ARE YELLOW (TABLES 2-8 (CORRECTED) WERE ALL MODIFIED),

Katharina Tornau is now at inmediaONE] GmbH, Guetersloh, Germany. E-mail: katharina.tornau@gmail.com.

Correspondence concerning this article should be addressed to Michael Frese, NUS Business School, Mochtar Riady Building, 15 Kent Ridge Drive, Singapore 119245, Office Tel.:+65-6516 1500; e-mail: Michfrese@gmail.com. For help with the correction we thank Nicholas Chen and Dr. Holger Steinmetz.

Abstract

The overall goal of the meta-analytic review of the most frequently studied proactivity concepts – personal initiative, proactive personality, taking charge, and voice – was cleaning up the number and overlap of proactivity constructs and examine their construct validity. We provide a unifying framework for proactivity theory and a nomological net. We studied 163 independent samples (*N* = 36,079). The meta-analysis finds high correlations between proactive personality and personal initiative/personality. Further, there are strong relationships between voice, taking charge, and personal initiative/behavior. For construct clean-up, we suggest that the two proactive personality constructs can be taken as functionally equivalent and that this is also true to some extent for the three proactive behavior constructs – the latter signify proactive behavior. All proactive concepts show clear correlations with performance (from .16 to .40 depending upon construct and objectivity level of performance). However, the proactive personality concepts are also highly correlated with the Big Five personality factors and show very low to no incremental validity for work performance. This is contradictory to prior meta-analyses on proactive personality and is discussed in detail. In contrast, proactive behavior scales (personal initiative/behavior, taking charge, and voice) predicted job performance well above and beyond personality.

Construct Clean-Up in Proactivity Research: A Meta-Analysis on the Nomological Net of Work-Related Proactivity Concepts and Incremental Validity

Today's work place is characterized by a shift away from traditional work structures towards modern production and service procedures which heavily rely on team-based, temporary and project work; employees need to be self-reliant and use initiative to effectively perform in these environments (Ilgen & Pulakos, 1999). Therefore, scholars have become increasingly interested in active performance concepts. As a result, various proactivity concepts have been identified in the past two decades: They all refer to "anticipatory actions that employees take to impact themselves and/or their environments" (Grant & Ashford, 2008, p. 4). Specific proactivity concepts that have been well-established in the literature are proactive personality (Bateman & Crant, 1993), personal initiative (Frese & Fay, 2001), voice (Van Dyne & LePine, 1998), or taking charge (Morrison & Phelps, 1999).

Recent reviews on proactivity highlight not only the increasing research interest on proactivity but also a disconnect between different research streams and different proactivity concepts (Bindl & Parker, 2010; Grant & Ashford, 2008; Parker & Collins, 2010). The field is rife with a proliferation of similar concepts. While scholars focused on exploring the antecedents and consequences of specific forms of proactivity, there is little knowledge about how different forms of proactivity relate to each other. Moreover, there is little integrative theoretical work on the various proactivity concepts and their nomological network (antecedents and outcomes of proactivity), leading to calls for a higher degree of integration between these concepts (Crant, 2000; Grant & Ashford, 2008). This has the unfortunate effect that different literatures are duplicating research; there is also a tendency for reviews to rely only on a small part of the research (e.g., Fuller & Marler, 2009) which might lead to one-sided and limited conclusions. We contribute to this literature by critically examining the theoretical status of the four proactivity concepts proactive personality, personal initiative, voice, and taking charge. We construct a unifying perspective to proactivity research which helps us to answer whether these constructs measure the same concept or different

ones. We also examine whether these concepts are personality variables or measures of proactive behavior (and which ones are more of the former than the latter). A concomitant goal is to examine the unique contribution of proactivity concepts to performance controlling for personality factors. The latter is important for the research and practical choice of which construct to use for predicting performance.[1]The unifying framework also allows appraising the construct validity of these constructs by further developing and empirically examining a nomological net. Additionally, scholars have called for studying the relationships of different methodological approaches (questionnaire and interview versions, as well as rating source) (Griffin, Neal, & Parker, 2007; Parker & Collins, 2010). In general, we hope to contribute to a construct clean-up in this area.

The Concept of Proactivity

"Proactivity has three key attributes: It is self-starting, change oriented, and future focused" (Parker, Bindl & Strauss, 2010, p. 828). The most important proactivity concepts are proactive personality (Bateman & Crant, 1993), personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese, Kring, Soose, & Zempel, 1996), taking charge (Morrison & Phelps, 1999), and voice (Van Dyne & LePine, 1998). Table 1 provides the definitions and frequent operationalizations of these concepts. The common core of proactivity concepts include: first, action orientation – being active and self-starting activities instead of passively reacting to situations; second, change orientation – influencing and changing situations or procedures instead of waiting for changes to occur; the change is intended to be constructive to improve the organization and to be meaningful; and third, future focus – proactvity refers to future opportunities and anticipated problems. All the proactivity concepts of Table 1 conform to the key attributes of proactivity; they also have received the widest research attention and they produced a strong enough corpus of empirical studies to make it feasible to include them into a meta-analysis. Morever, these concepts are general and, therefore, likely to occur in a wide array of organizational contexts (Crant, 2000). Other forms of proactivity – such as newcomers' feedback seeking (Ashford, 1986), issue selling (Dutton & Ashford, 1993), or proactive career management behaviors (Ashford & Black, 1996; Morrison, 2002) – are rather context-specific

and restricted to certain domains. Other proactivity concepts have been suggested, such as individual innovation (Parker & Collins, 2010) or role breadth self-efficacy (Parker, 2000; Crant, 2000). While they are related to proactivity, they are not the same as proactivity: Innovation is an outcome of proactivity (Binnewies, Ohly & Sonnentag, 2007) and role breadth self-efficacy is a malleable state and antecedent of proactive behavior (Ohly & Fritz, 2007).

Relationships among Proactivity Concepts

Table 1 also reveals differences among the proactivity concepts: First, unlike taking charge and voice, proactive personality and personal initiative emphasize persistence in the face of difficulties (Crant, 2000; Frese & Fay, 2001). Thus, by emphasizing the implementation of changes, the concepts personal initiative and proactive personality tend to include but also go beyond the major focus of taking charge on improving work and the major focus of voice on the communication of improvements. Second, personal initiative/personality and proactive personality are conceptualized as broad concepts which encompass a variety of general behaviors (e.g., “I actively attack problems”; Frese et al., 1997); in contrast, personal initiative/behavior, taking charge, and voice refer to more specific behaviors (e.g., “I often try to bring about improved procedures for the work unit or department”; Morrison & Phelps, 1999). The proactive personality approach is in line with Bateman and Crant’s (1993) dispositional approach towards proactivity; they defined proactive personality as a “relatively stable tendency to effect environmental change” (p. 103); in contrast, taking charge and voice focus on specific proactive behaviors which are usually captured by peer- or supervisor-ratings (Morrison & Phelps, 1999; Van Dyne & LePine, 1998). Frese and colleagues (Frese et al., 1997; Frese et al., 1996) introduced two concepts of personal initiative (that are sharply distinguished here and in the following), one refers to a behavioral syndrome (proactive behavior based on a situational and behavioral interview) and another one refers to a broader more personality-like concept (with a questionnaire measure). From now on, we call the former personal initiative/behavior and the latter personal initiative/personality.

Thus, there are overlaps and differences between the proactivity concepts displayed in Table 1. Moreover, there are potentially high overlaps so that these constructs may actually mean the same thing in spite of being called differently. Therefore, our first general question is how and in which way the various constructs of proactivity are interrelated (Research Question 1, Table 2).

In our attempt to clean up the constructs, we think that it is important to be clear on the difference between proactivity constructs related to personality and those related to behavior. Here, there is some confusion in the literature, for example, on proactive behaviors and proactive personality. Personality traits are generalized and stable "endogenous dispositions that follow intrinsic paths of development essentially independent of environmental influences." (McCrae et al., 2000, p. 173). Thus, these constructs are typically self-reported and are to some extent genetically determined.[2] In contrast, behavior is conceptualized to be a resultant of the interaction of personality and environment and it is observable by other people. Unfortunately, there is confusion in the proactivity literature on whether a construct is on personality or on behavior: For example, Porath and Bateman (2006) conceptualized proactive behavior to be a mediator between goal orientation and performance; however, they did not use a measure of proactive behavior per se but measured proactive behavior with the proactive personality scale. In contrast, most theoretical models have conceptualized proactive personality to be a personality antecedent of proactive behavior (Crant, 2000; Frese & Fay, 2001; Parker, Bindl, & Strauss 2010). The concept of personal initiative presents a confusing picture as well: The same self-reported scale of personal initiative has been used as a proxy for proactive behavior (e.g., Salonova & Schaufeli, 2008) and for proactive personality (e.g., Frese, Teng, & Wijnen, 1999). Frese et al. (1997) and Frese and Fay (2001) argued that they developed different measures for two different concepts of proactivity – the questionnaire measure is conceptualized as a personality measure. Personal initiative/personality is based on self-report information that goes beyond behavior observable by others. There is a second conceptualization of personal initiative operationalized with an interview measure; it specifically was supposed to measure personal initiative/behavior.

These considerations suggest two theoretical clusters of proactivity concepts: one personality cluster containing proactive personality and personal initiative/personality and one behavior cluster containing the observable behavioral concepts of taking charge, voice, and personal initiative/behavior. We expect higher meta-analytic correlations within the personality cluster than between the constructs of the personality cluster and those from the behavior cluster.

Unfortunately, method factors and theoretical content are often confounded in proactivity research, because some constructs such as voice and taking charge are observable and, therefore, usually measured by peer or supervisor ratings; in contrast, proactive personality is only measured by self-report and the personal initiative tradition has constructed a self-report personality type measure, an interview-based measure of behavior, and peer/supervisor-reported measures (Frese et al., 1997). Most researchers in work and organizational psychology tend to think of the sources of measurement as pure method factors. Indeed, correlations stemming from the same source tend to be more highly correlated with each other than methods from different sources (Harris & Schaubroeck, 1988). However, in the context of this article, we are also interested in the content issue.

Any correlation can be decomposed into its components. We would like to use a theoretical variance decomposition approach: We propose that methods are not purely method factors but different measurement methods may also signal different constructs. For example, there may be a different construct measured if an item is filled out by the person him- or herself or by an observer (peer, supervisor). This question is of particular importance in the area of proactivity because different theorists of proactivity often explicitly endorsed certain methods. Taking charge was measured by Morrison and Phelps (1999) primarily with the help of supervisor-ratings. Van Dyne and LePine (1998) recommended the use of peer-ratings for voice because peers are more aware of voice than supervisors and their ratings should be little affected by social desirability. Frese et al. (1997) recommended the use of the interview methods and Crant (2000) suggested that a self-reported survey is best suited for personality constructs such as proactive personality.

In the following we want to argue that empirical variance falls into two parts – one that is dependent upon content, another one that is related to method. We utilize the difference between inner and outer person by Hogan and Shelton (1998) as a starting point. When a person is the subject and answers questions in a survey, the person answers on the basis of the perception of his or her behavior (outer person); but in addition, the subject also knows something about his or her inner thoughts and feelings (inner person) and can, therefore, determine whether the behavior is really part of the person or not; in other words, this kind of answer is more related to personality. In contrast, if the same item is filled out by a supervisor referring to a target person, the knowledge base stems from observing the behavior of the target individual (outer person); in this case, there is little additional knowledge of the inner person. Thus, in the case of the subject the information leading to answering a question relies on the inner *and* outer person; this also includes knowledge of situational constraints and situational impact of the subject's behavior (Funder, 1980). In contrast, the observer's information base is largely restricted to observing the behavior of the target person in those situations that the target person and the observer share. Peers or supervisors, therefore, base their judgments primarily on the behavior (outer person knowledge) when filling out proactivity ratings. Thus, the same item may refer to different constructs. The observer fills out the item based on observed behavior; the subject fills out the item on the basis of his or her personality.

It follows that the construct of self-reported initiative can be interpreted to be a personality construct while others' report of personal initiative can be interpreted to be a part of a behavioral construct (we also assume with Fay and Frese (2001) that the interview-based personal initiative reflects behavior). The two personality constructs refer both to proactive personality and should, therefore, be highly related to each other, while the personality constructs should show lower relationships to the behavioral constructs of proactivity (Hypothesis 1, this also relates to the other hypotheses in Table 2).

Errors of judgment occur for both, the pure observer as well as the subject him- or herself. However, these are different errors. The errors of the observer are often related to the fundamental

attributional error (Funder, 1980) of discounting situational determinants of behavior which leads to a halo effect (Nisbett & Wilson, 1977). The errors of the subjects are related among others to defensiveness and to the wish to look good (Hogan & Shelton, 1998); these errors contribute to some common method variance that appear for self-ratings. Frese et al. (1997) have suggested that the interview method for measuring personal initiative is on behavior. While the interview is based on the target person's reports (and, thus, has a broad behavior information base), it circumvents person's defensiveness by probing answers; moreover, although it is behaviorally based, it reduces the fundamental attributional error because the interviewers and coders are trained to reduce such errors and because behavioral indicators are used. Thus, there are three sources for high interrelationships of proactivity constructs judged by others (there were only enough studies for supervisor ratings for this analysis): (a) the same type of errors and a halo effect that shows up as common method variance on the part of the observer; (b) the content because most of the information is based on observable behavior; (c) and the content that is true common co-variance between these constructs. Thus, the supervisor ratings will be highly related. In contrast, because there is a better, and more differentiated, information base for the self-reported constructs, the relationships amongst the self-reported proactivity concepts are lower even though self-defense and looking good mechanisms may again contribute to somewhat higher relationships (Hypothesis 2).

A Generic Model of Proactivity and the Nomological Net

In the following, we develop a generic integrative framework for proactivity. Common to the models of proactivity by Crant (2000), Frese and Fay (2001), Grant and Ashford (2010), and Parker, Bindl, and Strauss (2010) is a differentiation into distal and proximal antecedents of proactive behavior and outcomes. Distal antecedents are personality, job characteristics, and knowledge and ability; proximal antecedents are psychological states such as motivational and goal processes, job attitudes (Grant & Ashford, 2010; Parker et al., 2010), and orientations (Frese & Fay, 2001; Parker et al., 2006). Potential outcome variables are performance and innovation. Some of these models also include a reverse causation process, as proactive behavior impacts on the antecedents, for example,

on the job characteristics (Grant, Fried, Parker, & Frese, 2010). Unfortunately, most studies are cross-sectional; we, therefore, cannot examine causality in our meta-analysis. We, thus, transform the model into a nomological net of cross-sectional relationships of constructs without any causal assumptions. In the following we discuss this nomological net.

Distal relationships

Big Five personality and proactivity. Personality factors, such as the Big Five, particularly, conscientiousness and extraversion, are positively related to personality measures of proactivity (Crant, Seibert & Kraimer, 1999). Conscientiousness means being ready to act, planful, responsible, and persistent. People high in extraversion tend to be active. Action orientation and persistence imply to take control of a situation, to plan actions for improvement of procedures, and to persist in the face of obstacles. Moreover, high achievement motive (conscientiousness) implies that people increase their aspiration level which makes proactivity possible. As an active approach, self-discipline, and achievement are central to extraversion and conscientiousness, we expect conscientiousness and extraversion to be related to proactivity (Fay & Frese, 2001; LePine & Van Dyne, 2001) (Hypothesis 3, cf. Table 2).

Different perspectives with regard to neuroticism, agreeableness, and openness to experience exist. According to Bateman and Crant (1993), neuroticism, agreeableness and openness to experience should be unrelated to proactive personality, whereas LePine and Van Dyne (2001) suggested negative relationships of voice with neuroticism and agreeableness and a positive relationship with openness to experience. People high in neuroticism are more likely to feel insecure and helpless which prevents them from speaking up and expressing their opinions. As agreeable people value cooperation and compliance, they appear to support the status quo rather than to challenge it. Openness to experience describes people's curiosity and positive attitudes toward new experiences and perspectives suggesting high proactivity (LePine & Van Dyne, 2001). However, openness also encompasses tolerance which suggests, according to Bateman and Crant (1993), passivity and, therefore, no relationship to proactivity. We test these differential hypotheses by

asking the open Research Question 2 (Table 2): What are the (differential) relationships of neuroticism, agreeableness and openness to experience with the proactivity concepts?

The Big Five factor conceptualization maintains that all important parts of personality are integrated into the five factor model (McCrae et al., 2000). Therefore, any newly developed personality scale should have a clear relationship with some or all of the five factors. Proactive personality is expected to be highly correlated with the Big Five: these multiple relationships are higher for the personality constructs than for proactive behavior as behavior is determined by many other factors outside personality, such as the environment (Hypothesis 4).

Job characteristics of job control and social support. Job control (or job autonomy) allows to change things at work and, therefore, increases action and change orientation (Frese, Garst, & Fay, 2007; Parker, Williams, & Turner, 2006; McAllister, Kamdar, Morrison, & Turban, 2008). Job control also increases feelings of responsibility and proactive motivation which in turn leads to higher proactivity (Hackman & Oldham, 1976; Parker & Turner, 2002). Moreover, proactivity should also influence job characteristics: Since proactivity leads to taking higher responsibility, this affects the job characteristics; similarly supervisors tend to provide more responsibility, and therefore, more job control to proactive employee (Berg, Wrzesniewski, & Dutton, 2010; Crant 2000; Frese et al., 2007; Oldham & Hackman, 2010) (Hypothesis 5).

A similar relationship should also exist for social support and proactivity (Crant, 2000; Parker et al., 2006). Social support involves affective support, confirmation of an individual's behavior and group standing, and direct help (LaRocco, House, & French, 1980). Receiving support from peers or supervisors functions as a signal that an individual and his actions are accepted and valued (Baer & Oldham, 2006) facilitating action orientation. Additionally, direct help is encouraging and provides resources. If people feel supported, they will show higher proactivity – again, we do not expect only one direction of causality. However, as Frese and Fay (2001) pointed out, due to the challenging nature of proactivity, coworkers and supervisors may not always value proactivity. This is particularly the case when changes in procedures and routines are perceived as

strenuous or threatening; this could reduce the relationship. But, in light of the activating nature of support, we expect a small positive relationship between support and proactivity (Hypothesis 6).

Education, general mental ability, job experience, and tenure. There are positive relationships of education, general mental ability, job experience, and tenure with all forms of proactivity (Hypothesis 7). Proactivity often requires people to think of new issues or to think about complex issues. Education and general mental ability help to develop proactivity by providing individuals with general knowledge and skills (e.g., problem-solving skills); job experience and tenure provide employees with specific knowledge of the job and the organization. High abilities and skills help individuals to identify ineffective procedures and to develop improvements. High ability and education also increase confidence to speak up and to suggest unconventional ideas (LePine & Van Dyne, 1998) and to anticipate future organizational needs or problems well.

Proximal relationships

Self-efficacy, role breadth self-efficacy, locus of control, and responsibility for change. The constructs of self-efficacy, role breadth self-efficacy, and locus of control refer to outcome and competence expectancies and are good examples of antecedents and direct consequences of proactivity. Specifically, self-efficacy describes people's expectancies they are able to perform actions effectively (Bandura, 1997). As people with high self-efficacy have a stronger sense of control and responsibility and do not give up easily when problems arise, self-efficacy is related to proactivity (Morrison & Phelps, 1999; Speier & Frese, 1997; Withey & Cooper, 1989). A more specific form of self-efficacy, role breadth self-efficacy, addresses the confidence to perform a range of proactive activities, such as long-term problem solving and improving work procedures (Parker, 1998). Thus, researchers proposed role breadth self-efficacy to be related to an employee's actual proactive behavior (Ohly & Fritz, 2007; Parker & Collins, 2010). This is not the only causal direction – proactive behavior also leads to higher self-efficacy because proactive behavior produces mastery experiences which increase self-efficacy (Bandura, 1997, Speier & Frese, 1997). With regard to locus of control, Bateman and Crant (1993) expected little conceptual overlap as they

conceptualized proactive personality as an instrumental and locus of control as a cognitive trait. In contrast, we think that individuals with an internal locus of control believe they can influence events with their own actions and achieve desired outcomes. Since this is activating, and leads to dealing with future events, we expect a positive relationship of internal locus of control with proactivity. Thus, there are positive relationships of self-efficacy, role breadth self-efficacy, and locus of control with all forms of proactivity (Hypothesis 8). Responsibility for change or felt obligation to bring about constructive change is argued to be an antecedent and consequence of proactivity (Morrison & Phelps, 1999). Feeling responsible is related to searching for opportunities for improvement (Fuller et al., 2006) (Hypothesis 9).

Affective commitment and job satisfaction. Given the large overlap between affective organizational commitment and job satisfaction (ρ around .60; Cooper-Hakim & Viswesvaran, 2005; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002), researchers generally assumed similar positive relationships of commitment and satisfaction with proactivity. Researchers also proposed a positive relationship with commitment because commitment activates individuals and leads to greater effort (Den Hartog & Belschak, 2007). In contrast, Parker et al. (2006) argued that simply working harder can also be a sign of passive behavior, thus suggesting no relationship between affective commitment and proactivity. Frese et al. (1997) even expected a negative relationship with job satisfaction as dissatisfaction with a current situation should motivate individuals to take action to improve their situation and reach a desired state. This is also consistent with the initial conceptualization of voice as a constructive behavioral response to dissatisfaction (in comparison to exit, loyalty, and neglect, Hirschman, 1970; Rusbult, Farrell, Rogers, & Mainous, 1988). One should differentiate between general satisfaction (which enhances commitment to the organization and its long-term goals) and specific dissatisfaction; only the latter constitutes a situation leading to proactivity. Most studies measure general job satisfaction and, therefore, we assume a positive relationship between proactivity and job satisfaction (Hypothesis 10). Additionally, both commitment and job satisfaction can also be conceptualized as outcomes of proactivity. Proactive

work feels good when the results are achieved and the job may also improve as a result of the activity of the employee.

Performance relationships

We examine innovation and two measures of general performance; in general, there should be positive relationships with proactivity (Hypothesis 11). Innovation refers to the generation and implementation of creative ideas (West, 2002). Proactive behavior is relevant throughout the whole innovation process (Frese & Fay, 2001). Since proactive behavior is characterized by self-started actions which are meant to improve a situation, the generation of ideas or improvements (i.e., creativity) should be enhanced. Innovation only takes place when ideas are implemented. As the implementation requires changes (Miron, Erez, & Naveh, 2004), being proactive helps to deal with these changes and to overcome barriers on the way to the goal (Ohly, Sonnentag, & Pluntke, 2006).

Proactivity is assumed to promote individual and organizational performance for a number of reasons. Proactivity is constructive and functional (Morrison & Phelps, 1999). As proactivity involves an active approach towards individual and organizational problems and the development of a longer time perspective about work, proactivity not only corrects problematic procedures (Frese & Fay, 2001), but it also improves situations that allow an increase of performance (Crant, 1995). Van Dyne and LePine (1998) argued that because of the challenging nature of voice, a negative relationship between voice and job performance might be possible, as well. In contrast, Frese and Fay (2001) argued that drawbacks because of proactivity would only be short-term; in the long term, proactivity enhances performance. Research found proactivity to be positively related to performance indicators, including sales (Crant, 1995), entrepreneurial performance (Rauch & Frese, 2007; Utsch & Rauch, 2000), and task performance ratings (Thompson, 2005; Van Dyne & LePine, 1998). Given that proactive behavior is a more proximal predictor of performance than proactive personality, the hypothesis follows that there is a higher relationship of proactive behavior with performance and innovation than of proactive personality with performance and innovation (Hypothesis 12). Another hypothesis follows from the combination of Hypothesis 4 and Hypothesis

12: The relationships of proactive personality with performance and innovation are lower after holding the Big Five personality factors constant (Hypothesis 13; cf. Table 2).

Descriptive relationships

Age and gender. We report relationships for descriptive purposes because they are discussed in the field (e.g., Warr & Fay, 2001; LePine & Van Dyne, 1998).

Method

Identification of Primary Studies and Rules for Inclusion

We took great pains to be inclusive of all published studies and as many unpublished studies as possible. We utilized electronic and manual searches of databases, conference programs and bibliographies (PsycINFO (1806-2008), ERIC (1966-2008), Web of Science (1980-2008), and Google Scholar) using the following keywords: *personal initiative, conscientious initiative, individual initiative, proactive personality, taking charge, voice, advocacy participation, change-oriented organizational citizenship behavior, proactive behavior, and proactivity*. We also searched for prominent authors who had introduced the four concepts (e.g., Frese, Crant, Morrison, Van Dyne). To identify unpublished studies, we contacted first authors of published papers and other colleagues who were known to conduct proactivity-related research.

We included only those constructs that had been studied in association with at least two different proactivity concepts in at least five independent samples. The criterion of 5 samples is a conservative practice in meta-analytic research (Riketta, 2008) – for subgroups we used the cut-off criterion of at least 3 independent samples. As there were only 21 longitudinal studies, we included only cross-sectional effect sizes. Additionally criteria were: we only included individual workplace proactivity; thus, proactivity regarding health behavior, proactivity at the organizational level (e.g., Baer & Frese, 2003) and daily or weekly states of personal initiative (Binnewies, Sonnentag, & Mojza, 2009; Sonnentag, 2003) were excluded because they refer to a different time scale and there were not enough of such studies to do a moderator analysis on the time scale. (As far as these studies

also assessed a general tendency for proactivity, we included them) Another 86 articles were excluded because a) they were theoretical, b) the studies' "proactivity" concept did not correspond to our theoretical conceptualization (e.g., studies on "voice" in procedural justice research, e.g., Brockner et al., 1998), c) the measure of proactivity was combined with other concepts so that the unique effect of proactivity could not be obtained (e.g., loyal boosterism, interpersonal helping; Moorman & Blakely, 1995). We further excluded studies on individual initiative in the sense of Bolino and Turnley (2005) as their operationalization of initiative reflected more passive OCBs in terms of coming to work early or staying late rather than (pro-) actively challenging the status quo. For the same reason, OCBs in general were not included (P. M. Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Van Scotter & Motowidlo, 1996; Williams & Anderson, 1991). Several scholars have argued for the theoretical orthogonality of proactivity and OCBs (e.g., Frese & Fay, 2001; Grant & Ashford, 2008; Parker & Collins, 2010); we, therefore, concluded that these two clusters of work behaviors should not be mixed under one rubric. Previous meta-analyses on OCBs have similarly differentiated between OCBs and proactivity as these studies do not include proactivity concepts (Hoffman, Blair, Meriac, & Woehr, 2007; LePine, Erez, & Johnson, 2002; N. P. Podsakoff, Whiting, Podsakoff, & Blume, 2009; P. M. Podsakoff, MacKenzie, Paine, & Bachrach, 2000). In all, this led to 148 primary studies with 163 independent samples (N = 36,079): 68 studies (78 samples with N = 14,860) were available for personal initiative; 55 (57 samples with N = 13,931) for proactive personality; 18 (21 samples with N = 4,985) for taking charge; and 33 (37 samples with N = 10,048) for voice.

Data Classification

We thoroughly inspected the operationalization of the proactivity variables in the primary studies. We included four concepts from different research streams of voice: a) voice as introduced by Van Dyne and LePine (1998); b) voice as part of the exit, voice, loyalty, neglect – framework (EVLN) (Farrell, 1983; Hirschman, 1970); c) Van Dyne et al.'s (1994) advocacy participation; and d) Moorman and Blakely's (1995) individual initiative as their operationalization is based on Van

Dyne et al. (1994). We examined differences in measures, for example personal initiative as questionnaire-based variable (personal initiative/personality), interview-based variables (personal initiative/behavior), and supervisor-, and peer-ratings (personal initiative/behavior) (Fay & Frese, 2001; Frese et al., 1997). To increase the number of effect sizes, we combined those personality correlates for which research indicates a theoretical and empirical overlap (cf. Dudley, Orvis, Lebiecki, & Cortina, 2006; Hough & Ones, 2001): a) Conscientiousness and need for achievement; b) extraversion and positive affectivity; and c) neuroticism and negative affectivity.

With regard to job performance, we differentiated between indicators of objective performance (e.g., sales, salary, venture performance, business growth) and rated performance (supervisor-ratings of job performance). Other proxies of performance, such as job-search behavior or study grades, were not included.

Meta-Analytic Procedure

We employed the random-effect procedures by Hunter and Schmidt (2004), computing the sample size-weighted mean effect size (r_w), correcting for unreliability in both the predictor and criterion variables (r_{wc}) (in the few cases of missing reliability information, we imputed the average reliabilities), observed variance of effect sizes (s_{rw}^2), variance expected from sampling error (s_e^2), and residual variance (i.e., the variance remaining after sampling error variance has been removed; s_{res}^2). Additionally, we computed 95% confidence intervals (CIs) around the estimated weighted mean correlation. To assure independence of effect sizes we averaged correlations when primary studies provided more than one effect size for the same relationship (e.g., when the proactivity concepts were captured by more than one source). For moderator analyses, we used non-averaged effect sizes in the subgroups (some subgroup analyses are, therefore, based on a somewhat higher number of samples). We visually inspected each relationship in the meta-analysis for potential outliers, identifying eight primary studies with exceptionally large sample sizes. As Cortina (2003) advises to only omit studies if overwhelming empirical or methodological justifications exist, we

decided not to discard these studies from our analyses (empirically, correlations with and without outliers showed only marginal differences).

Moderator analyses. To assess the homogeneity among effect sizes, we calculated the percentage of variance attributable to sampling error (Hunter and Schmidt's, 2004, 75% rule) and 90% credibility intervals (we deleted these data from the Tables to save journal space, but the full Tables can be received from the authors). Mean effect sizes differences were tested by non-overlap of 95% CIs and calculating pairwise *z*-tests.

Incremental validity of proactivity. To test Hypotheses 4 and 13, we used (hierarchical) regression analyses with meta-correlation matrices serving as input; for example, for examining the incremental validity of the proactivity concepts on objective and rated performance over and above the Big Five personality traits. Recently, meta-analyses including ours were criticized for using alpha-corrected correlations in meta-analytically based regression analyses and multiple correlations (LeBreton, Scherer, James, 2014)[2a]. We, therefore, base now all calculations reported in the Tables 5 and 8 on N-weighted correlations (r_w) that were not reliability corrected. We now lifted the appropriate correlations (r_w) from van der Linden, te Nijenhuis, and Bakker (2010) (instead of from Judge, Jackson, Shaw, Scott, and Rich, 2007 that only reported reliability corrected meta-analytic correlations); we took the appropriate N-weighted correlations from Barrick et al. (2001). All other correlations were from our meta-analysis. Consistent with Judge et al. (2007), we used the average sample size of the performance correlations derived for the regression analyses.[3]

Results

In the following presentation we utilized Cohen's (1988) conventions of .10, .25, and .40 when interpreting effect sizes as small, medium, and large, respectively.

Relationships among Proactivity Concepts (Research Question 1)

We have two (somewhat opposing) tasks to do in the following. We first need to present a traditional picture that lumps together the various proactivity concepts and answer the research

question of how they are related (Research Question 1, Table 2). An answer is provided by the meta-analytic correlations amongst personal initiative, proactive personality, taking charge, and voice averaged across different measurements in Table 3. It reveals that all proactivity concepts correlated significantly at around .50 with the exception of proactive personality correlating significantly lower with taking charge (r_{wc} = .41) and with voice (r_{wc} = .34) (cf. Table 3). All correlations were heterogeneous – this is not surprising, because we have developed good theoretical reasons for differences depending upon behavior and personality measures. Hypotheses 1 and 2 are tested by examining the subcomponents of the proactivity constructs displayed in the meta-analytic multitrait-multimethod matrix in Table 4 (because these analyses are based on a small number of primary studies they should be interpreted with caution; $k > 3$).[4] There are so-called convergent validity coefficients of the proactivity measures – significant, albeit small to moderate monotrait-heteromethod correlations were found (Campbell & Fiske, 1959). However, the heterotrait-monomethod correlations were strong and in fact, larger than the convergent correlations. This speaks against the discriminant validity of the proactivity concepts. Thus, we should examine the question whether different constructs underlie different methods for measuring proactivity.

Consistent with Hypothesis 1, the correlations among the personality measures (personal initiative/personality and proactive personality) were higher than correlations between the personality measures and behavioral measures of personal initiative/behavior, taking charge and voice (Tables 2 and 4). Moreover, in keeping with Hypothesis 2, supervisor-rated proactivity concepts (personal initiative, taking charge, voice) (average r_{wc} = .84) showed higher intercorrelations than self-rated proactivity concepts (average r_{wc} =.64; Table 4). This speaks for a large halo effect in supervisor ratings.

Nomological Net for Proactivity Concepts (Hypotheses 3 – 10)

Big Five Personality. Tables 5, 6, and 7 examined Hypotheses 3 and 4, and Research Question 2 (Tables 6 and 7 report both r_{wc} and r_w; in the text we only report r_{wc}). Effect sizes in Table 7 were partly homo-and partly heterogeneous: All of personal initiative/personality were

heterogeneous; all proactive personality relationships were heterogeneous except with agreeableness; most Big Five correlated homogenously with personal initiative/behavior (exception conscientiousness) and with taking charge (exception extraversion) and with voice (exceptions conscientiousness and extraversion, as well as agreeableness with voice/self) (data receivable from authors). All positive correlations of conscientiousness and extraversion with the proactivity concepts were sizeable (except for taking charge). Conscientiousness and extraversion were particularly highly correlated with personal initiative/personality and proactive personality. Moreover, there were also positive relationships between openness to experience and the proactivity concepts (voice showing slightly weaker relationships). Neuroticism correlated negatively with all proactivity concepts although these correlations were very small (Table 6). Agreeableness showed a strong negative relationship only with proactive personality ($\beta = -.22$, Table 5). The relationships between the Big Five and the proactive concepts displayed in Table 6 tended to be homogeneous across the studies (exceptions: relationships of conscientiousness with personal initiative, proactive personality, taking charge, and voice; extraversion with proactive personality, and voice; relationships between openness to experience and personal initiative, and proactive personality, between neuroticism and personal initiative, and proactive personality, between agreeableness and personal initiative, and between agreeableness and voice).

Table 5 also revealed large multiple correlation coefficients between personality and personal initiative/personality and proactive personality (multiple R =.57 and .55 respectively; Table 5). Hypothesis 4 was confirmed as the average correlations of the Big Five with the personality scales of proactivity were higher than those of the Big Five with the other scales.

Table 6 provides the traditional view on overall proactivity constructs and the nomological net; it only provides general results because it runs counter to the theoretical differentiations we made between personality variables and proactive behavior variables. Unfortunately, in a few cases, we are forced to rely on these data because there were not enough studies available for theoretically

important sub-analyses. However, Table 7 provides the correlations on those differentiations that were supported by a high enough number of studies.

Job characteristics. Tables 6 and 7 present the correlations of the nomological net with the proactivity concepts. As predicted by Hypotheses 5 and 6, we found positive and significant relationships of the job characteristics job control and social support with all proactivity concepts. These relationships tended to be general and homogeneous. The only clearly heterogeneous relationships were between the proactivity variables and job control (exceptions here were the homogeneous relationships between taking charge variables and job control). Thus, the proactivity - job characteristics (job control and social support) relationships generalize across studies (there were not enough studies for social support to report them in Table 7).

Education, general mental ability, job experience, and tenure. Table 6 shows small positive relationships, supporting Hypothesis 7. Results indicated a small positive relationship between tenure and voice and a small positive relationship between general mental ability and personal initiative (this was mainly due to the somewhat larger relationship with personal initiative/behavior). Personal initiative, proactive personality, and taking charge were unrelated to tenure. Most relationships were heterogeneous (exceptions: education and taking charge, education and voice; job experience and taking charge) (Table 6).

Orientations and job attitudes: self-efficacy, role breadth self-efficacy, locus of control, and responsibility for change. As suggested by Hypothesis 8, self-efficacy, role breadth self-efficacy, and locus of control were related to all proactivity concepts (Tables 6 and 7). Similarly, Hypothesis 9 was supported as responsibility for change was highly related to the three proactivity concepts for which we had enough data (although the relationship was smaller for personal initiative). There were only enough primary studies relating locus of control to personal initiative and proactive personality. As expected, results revealed positive correlations of internal locus of control with personal initiative and proactive personality. By and large, these correlations tended to be heterogeneous.

Consistent with Hypothesis 10, commitment and job satisfaction were found to be positively related to proactivity (Tables 6 and 7). Commitment correlated more strongly with overall personal initiative and proactive personality than with taking charge and voice. Small positive correlations emerged between job satisfaction and personal initiative, taking charge, and voice. The relationship between job satisfaction and proactive personality was significantly stronger than the relationships of job satisfaction with personal initiative and taking charge (Table 6).

Innovation and Performance (Hypotheses 11 – 13)

There are sizeable relationships of the proactivity variables with performance (for personal initiative/behavior, personal initiative/personality, proactive personality, and voice). Both performance measures – objective performance (e.g., company data, business success, salary) and supervisor-rated performance – were positively related to all indicators of proactivity, providing support for Hypothesis 11. Specifically, objective performance showed significant correlations with personal initiative/behavior and significantly smaller ones with personal initiative/personality and proactive personality. Rated performance had somewhat higher positive correlations with overall proactivity concepts (Table 6). All of the relationships between proactivity and performance were heterogeneous (except innovation and proactive personality). When differentiating between different forms of proactivity (Table 7), the correlations were still all significant; however, there were now statistically significant differences between the non-supervisor and supervisor-rated forms of proactivity .20, .16, .26, and .14 for self-rated personal initiative/personality, proactive personality, taking charge, and voice, respectively vs.58, .51, .57 for self-rated personal initiative/personality, proactive personality, taking charge, and voice).

Hypothesis 12 refers to the two indicators of proactive personality and their relationships to performance. Indeed, the relationships of the indicators of personal initiative/behavior with objective performance (r_{wc} = .30 for personal initiative/behavior) and with innovation (r_{wc} = .42 for personal initiative/behavior) were higher than those of the indicators of proactive personality with objective performance (r_{wc} = .09 for personal initiative/personality and r_{wc} = .13 for proactive personality) and

innovation (r_{wc} = .29 for personal initiative/personality and r_{wc} = .26 for proactive personality) (Table 7).

Incremental validity of proactivity personality concepts (Hypothesis 13). Hypothesis 13 refers to the incremental validity of the proactivity concepts predicting objective and rated performance over and above the Big Five personality traits (cf. Table 2). The results (Table 8) indicate a very small increase of explained variance of objective performance above and beyond personality for personal initiative/personality and for proactive personality (We could not perform this analysis for taking charge and voice because there were too few studies.) For supervisor-rated performance, the increase of explained variance above the personality Big Five concepts was also close to zero when adding proactive personality or personal initiative/personality into the equation (ΔR^2 = .001 and ΔR^2 = .002, respectively). This was also true of all other self-reported forms of proactivity (taking charge and voice) – in each case the incremental validity was essentially zero ($\Delta R^2 < .01$). In contrast, personal initiative/behavior, taking charge, and voice explained substantial additional variance in rated performance with supervisor-rated personal initiative/behavior showing the highest increase in explained variance (ΔR^2 = .208). However, in the latter cases, the substantial explained variance over and above personality is based at least partly on common method variance because both the proactivity scale as well as performance had been rated by the supervisors in most cases.

Demographic variables. Demographic variables and proactivity concepts showed very small correlations; personal initiative and proactive personality were small but significantly and positively related to general mental ability (Tables 6 and 7).

Common method variance issues. While we developed content hypotheses on the various rating sources for the proactivity constructs, we should also note the importance of common method variance. Self-rated personal initiative/personality had stronger relationships than other-rated or interview-based personal initiative/behavior with other self-rated measures such as conscientiousness, self-efficacy, and internal locus of control. Thus, common method variance

exists. Supporting this view, supervisor-rated personal initiative correlated more strongly than self-rated personal initiative with supervisor rated performance. In contrast, interview-based personal initiative related more strongly than self- or other-rated personal initiative to education and objective performance.

Many other relationships (between personal initiative and gender, general mental ability, tenure, job control, openness to experience, neuroticism, agreeableness, commitment, and innovation) appeared to be unaffected by the measurement type of personal initiative.

Discussion

We summarized evidence from 20 years of research on four types of proactivity: personal initiative, proactive personality, taking charge, and voice with the goal to be able to clean up constructs. The analyses are based on over 160 samples. All of the hypotheses have been confirmed; for reasons of journal space we do not repeat all hypotheses and all results (see Table 2). In the following, we shall briefly discuss the hypotheses and what follows for future research and for the interpretation of past research on proactivity – this also includes our suggestions for construct clean-up. Further, we shall discuss two other meta-analyses and their differences to the current one. And finally, we discuss limitations, research implications, and practical conclusions.

Research Question 1 and Hypotheses 1 and 2: The Interrelationships of Proactivity Concepts

Research Question 1 refers to the interrelationships of the proactivity concepts: The answer is that this depends. When the traditional view is taken and we only refer to the four overall proactivity concepts (Table 3), there are large overlaps between them. However, we would like to suggest that the traditional view needs to be changed in two ways: First, we need to differentiate between personality measures of proactivity and behavioral measures of proactivity. Second, we need to acknowledge but also go beyond the purely methodological interpretation of different observers of proactivity behavior. On the first point, Hypotheses 1 is confirmed as there is clearly a differentiation between the more behaviorally oriented concepts (voice, taking charge, personal initiative/behavior) on the one hand and the personality measures (personal initiative/personality and

proactive personality) on the other hand; this was suggested by Frese and Fay (2001) and Parker and Collins (2010). For example, in the area of self-reported constructs – the correlation between the two personality constructs, personal initiative/personality and proactive personality, is high (.83), as is the correlation between voice and taking charge (.85) and both of these are significantly higher than all the other correlations in the self-report heterotrait and monomethod triangle of Table 4. The confirmation of Hypothesis 1 implies that future research can safely assume that articles based on self-reports of proactive behavior (personal initiative/behavior, voice, and taking charge) lead to similar results.

On the second point, we need to differentiate our discussion: On the one hand, there are common method correlations along the lines of observers. Self-reports (self-observations) are highly correlated. Supervisor ratings are even more highly intercorrelated than self-ratings (confirming Hypothesis 2). Thus, there are common method effects, particularly in the area of supervisor ratings (Table 4). In this way our results confirm previous assumptions (Parker & Collins, 2010; Van Dyne & LePine, 1998) that while individuals are able to differentiate between types of proactivity, supervisors appear to provide an overall proactivity rating. In the latter case, supervisor-ratings of only one type of proactivity appear to be sufficient. However, we also think that the relationships of proactivity concepts help us to go beyond method issues. (a) Although one might expect higher correlations than displayed in Table 4, the magnitude of the self-supervisor correlations (between .24 and .35) is in line with previous meta-analyses on the convergence of rating sources (Harris & Schaubroeck, 1988; van Hooft, van der Flier, & Minne, 2006; Warr & Bourne, 2000). (b) As we proposed in the introduction (leading to Hypotheses 1 to 4), we think there are important reasons to assume that the content of the constructs is different when the constructs are self-reported than when they are reported by the supervisor. The performance appraisal literature confirms that individuals and supervisors (as well as peers) have unique perspectives and very different information that leads to different answers to proactivity constructs (Feldman, 1981; Harris & Schaubroeck, 1988; Scullen, Mount, & Goff, 2000). Thus, people reporting about themselves and supervisors provide different,

yet equally accurate and valid information (Becker & Vance, 1993; Conway, Lombardo, & Sanders, 2001; Vance, MacCallum, Coovert, & Hedge, 1988): The self-reports are nearer to personality judgments while the supervisor reports are more strongly based on behavior (Hypothesis 4). It follows that both self-reports as well as coworker- or supervisor-ratings of proactivity should be utilized in proactivity studies. A concomitant conclusion: Peer-ratings have been neglected in proactivity research even though peers are probably quite knowledgeable about proactivity (although they show a higher degree of a halo effect than job incumbents themselves they may base their judgments on a larger sample of behaviors than supervisors; Van Dyne and LePine, 1998). Thus, there are method as well as content factors that influence the results of our multitrait-multimethod results reported in Table 4.

Research Question 2 and Hypotheses 3 and 4: Personality and Proactivity

The differences between the personality measures of proactivity and the behavior measures of proactivity are confirmed in their relationships with the Big Five: (a) There are clear relationships between conscientiousness and extraversion and all proactivity factors (Hypothesis 3).As postulated by Hypothesis 4 these relationships are higher with the personality concepts of proactivity than with the behavior factors of proactivity. There are high multiple correlations of the Big Five with the personality measures of proactivity. These relationships are significantly higher than the relationships with the behavioral proactivity constructs and confirm the differentiation of personality concepts of proactivity (proactive personality and personal initiative/personality) and behavioral factors of proactivity (voice, taking charge, and personal initiative/behavior). (b) These relationships include neuroticism and agreeableness. In contrast to the prediction of Bateman and Crant (1993), that neuroticism, agreeableness and openness to experience would be unrelated to proactive personality, proactive personality is predicted by agreeableness and openness to experience. All Big Five factors show some predictive value for all proactivity concepts both in the correlations (Tables 6 and 7) and in the regression (Table 5) – however, there is a special role for agreeableness. Agreeableness is negatively related to proactivity because too much concern for others may hinder

people to suggest new procedures that break routines and may be stressful for others. However, this result appears after other personality factors are held constant in the regression analysis: The beta coefficients of agreeableness turn negative and significant (Table 5) (the highest negative relationship appeared between proactive personality and agreeableness). After controlling for all other personality factors - the competing effects of conscientiousness, extraversion, and openness to experience are held constant - the tendency to be unconcerned about others predicts proactive personality. *Hypotheses 5 – 10 on the Nomological Net*

Hypotheses 5 to 10 were fully supported and need not to be discussed in detail (cf. Table 2). The results were similar across the nomological net for all proactivity concepts. There was a particularly high correlation between taking charge and responsibility for change (r_{wc} = .67) which needs a comment. This correlation might have been inflated by two studies (Choi, 2007; Parker & Collins, 2010) which reported stronger relationships than other primary studies. Given its large sample size, the study by Choi (2007) could have been identified as a potential outlier study. Exclusion of both studies resulted in significantly lower correlations (r_{wc} = .38), which is similar to the correlations of the other proactivity concepts with responsibility for change. The correlations with job satisfaction were all positive and, thus, contradict the original formulation for voice by Hirschman (1970) and for personal initiative by Frese et al. (1997) who argued for negative relationships. Moreover, the meta-analytic correlations of job satisfaction with the subconstructs of personal initiative were homogeneous (data not shown). All of this implies that it is not useful to search for moderators in this area.

Hypotheses 11 - 13 on Proactivity and Performance

There are clear relationships between the three performance constructs (innovation, objective performance and rated performance) and all proactivity concepts (except in some cases, there were not enough studies to calculate some correlations). This supports Hypothesis 11. The surprisingly large correlation of innovation with voice (r_{wc} = .73,Table 6) is probably due to Scott and Bruce's innovation scale (1994) which overlaps with voice – all three primary studies (i.e., Bayas, 2004;

Boedecker, 2004; Seibert et al., 2001) assessed innovative behavior with this scale that involves communication with others about own creative ideas – a central element of voice. Moreover, as supervisors rated both the innovation and voice of their subordinates in these studies, additional common method variance exists. In contrast, most studies relating innovation to personal initiative and proactive personality utilized different sources for proactivity and innovation.

The major conclusion that can be drawn with regard to Hypothesis 11 is that proactivity is clearly important for performance; this is true not just for supervisor-rated performance indicators but also for objective performance. The latter includes sales and entrepreneurial growth – such a performance measure is invariably influenced not just by individuals, but by many other factors, such as market conditions, competitors, others in the team and firm. Thus, even small correlations count a lot here. This result speaks very much for continued research on proactivity and for the importance of proactivity in practice. However, we suggest concentrating performance research on the behavioral indicators of proactivity, because as suggested by Hypothesis 12, proactive behavior is more highly correlated with performance than proactive personality. This recommendation becomes even more important after examining Hypothesis 13. This hypothesis states that the relationships of proactive personality and personal initiative/personality with performance are reduced when holding the Big Five constant. We did not expect that controlling for the Big Five would reduce the relationship of proactive personality with performance to nearly zero (Table 8). The low relationship between proactive personality and the indicators of performance contradicts the conclusion by Crant (1995) who assumed from this data that proactive personality predicted objective performance beyond the influence of the Big Five; unfortunately, he only controlled for two of the Big Five factors and, therefore, did not control for the sizable relationships between openness to experience and neuroticism with proactive personality. The fact that a meta-analysis is based on several studies (on 7 and 12 studies relating proactive personality with objective and rated performance, respectively), lets us take greater stock in these results. Our result also seems to

contradict the meta-analyses by Fuller and Marler (2009) and by Thomas, Whitman, and Viswesvaran (2010) – the differences to these two meta-analyses will be discussed next.

Comparison to Two Other Meta-Analyses: Thomas et al. (2010) and Fuller & Marler (2009)

In 2010, Thomas et al. (2010) published a meta-analysis on proactivity. Developed independently, our meta-analysis went beyond Thomas et al.'s meta-analysis in several ways: We based our meta-analysis on many more samples[5] (k = 163 vs. k = 103 in Thomas et al.). We differentiated more between different proactivity concepts and different methods to measure performance. The most central hypotheses 1 to 4 and 11 to 13, as well as research questions 1 and 2 could not be fully answered by Thomas et al. because a) the relationships between the proactivity concepts were based on very few studies (between 1 and 4), b) they did not differentiate between personal initiative/personality and personal initiative/behavior, and c) they did not apply a multitrait-multimethod approach. While Thomas et al. related proactivity constructs to performance, their controls were insufficient (see below) and they did not differentiate between objective and subjective performance in the relevant calculation.

As far as the meta-analyses refer to the same concepts and methods, the results are similar, validating the results of both studies. Both Thomas et al. (2010) and our study found similar relationships of satisfaction, organizational commitment, experience, age, and general mental ability with proactivity. As far as there are differences, they are probably due to the fact that our meta-analysis included more studies: For example, there were somewhat smaller positive correlations in our meta-analysis between the proactivity concepts and commitment than in Thomas et al. - this was particularly true of personal initiative because Thomas et al. based their meta-analytic correlation on only two studies, while our meta-analysis was based on eight studies. There were also differences in operationalizing general mental ability because Thomas et al. used grade point average as proxy for general mental ability while we chose not to include grade point average (because grades are performance variables in schools and because they can be the result from both general mental ability *and* personal initiative); Thomas et al. (2010) found higher correlations here than our study.

There are two important areas where Thomas et al.'s (2010) and our meta-analysis come to different conclusions: First, the amount of overlap between the proactivity concepts and the incremental validity of the proactivity concepts. To examine the overlap of proactivity concepts, we chose a multitrait-multimethod matrix approach for the correlations between the proactivity concepts; this was possible because we based our analysis on more studies (k = 24 in comparison to Thomas et al.'s eight samples). Our results show that there are higher monomethod correlations than multimethod correlations amongst the proactivity concepts. This implies that the large overlap that was reported in other studies could be due to common method variance. Our conclusion for research is to base future studies on multiple sources of data. Data sources also have implications for the construct validity as shown in our study (cf. Hypotheses 1, 2, 4, 12, and 13).

Second, we found no incremental validity, while Thomas et al. (2010) reported incremental validity of proactive personality above the Big Five factors in the prediction of performance. We think this is due to the following problems of Thomas et al.'s study: (a) Only the incremental validity of proactive personality was studied; (b) subjective and objective performance variables were not differentiated in that particular analysis (thus, there is an unclear amount of common method variance in their analysis); (c) the study is somewhat unclear as to its procedure but Thomas et al. seem to have controlled only for conscientiousness when relating proactive personality to performance. Thus, their report of incremental validity of proactive personality over and above the Big Five has not been well founded empirically. Our fair and systematic test found no support for the proposition that proactive personality added explained variance when controlling for the Big Five in the prediction of objective performance and rated performance (cf. Table 8). This was also true of the other self-report measures of proactivity. Thus, we take greater stock in our analysis and suggest that future research should assume that there is no or very low incremental validity for proactive personality measures on top of the Big Five.

The second meta-analysis by Fuller and Marler (2009) focused on only one of the proactive concepts – proactive personality. We believe that our meta-analysis extends Fuller and Marler's

study for three reasons: First, as discussed above, we need to provide an empirical answer of how the different literatures in this area can be integrated and differentiated – this is necessary for a unified concept of proactivity which was not the focus of Fuller and Marler. Second, we constructed a nomological net for the four frequently studied proactivity concepts to substantiate the construct validity of proactivity concepts (Cronbach & Meehl, 1955). Third, in addition to meta-analytic correlations, we assessed the incremental validity of proactivity concepts in the prediction of job performance over and above personality factors (not done by Fuller & Marler). Given these reasons, we believe that our study makes a strong integrative contribution to proactivity research over and above the somewhat older meta-analysis by Fuller and Marler (2009).

Limitations and Future Research Directions

Every meta-analysis has some limitations. Often the most important limitation is related to the scope and number of primary studies. While we believe that the burgeoning research area of proactivity cries out for some synthetic thinking and empirical synthesis, some of our more fine-grained analyses on the different proactivity concepts were based on a small number of studies with small sample sizes. Likewise, the nomological net for taking charge and voice turned out to be less comprehensive than the nomological net for personal initiative and proactive personality. These limitations highlight the gaps in the proactivity literature and suggest areas for future research. We urge proactivity researchers to routinely include more than one proactivity concept and different forms of measurements in their studies. Additionally, the field requires additional research of relating proactivity concepts to, for example, leadership, engagement, counterproductive behavior, and other concepts that can potentially overlap with proactivity. We think that there are fascinating relationships between proactivity and leadership – it makes sense, for example, that charismatic or transformational leaders can both produce but also reduce proactivity (e.g., Strauss, Griffin, & Rafferty, 2009). Moreover, we believe that the proactivity concepts should be related to engagement which shows a large overlap to proactivity concepts (cf. Macey & Schneider, 2008; Salanova & Schaufeli, 2008). In addition, counterproductive behavior is often active and influences companies in

various ways –counterproductive behavior can be conceptualized as destructive proactivity (Spector & Fox, 2010). Further, the relationship between constructive and destructive forms of proactivity is an under-researched area.

Although we have included over 160 samples, our meta-analysis was not able to include some other concepts of proactivity, such as active feedback seeking (Ashford, Blatt, & VandeWalle, 2003; Ashford & Cummings, 1983, 1985), issue-selling (Dutton & Ashford, 1993), role innovation (Van Maanen & Schein, 1979; Nicholson, 1984; West, 1987), or job crafting (Wrzesniewski & Dutton, 2001). Clearly, further integration of proactivity concepts will broaden our understanding of communalities and differences among proactivity concepts.

Given the scarcity of longitudinal studies in the area, our meta-analysis does not allow drawing inferences about the directionality of the relationships – we believe that longitudinal studies are needed and that they should look at the underlying mediating processes. Frese et al. (2007), for example, found reciprocal causal relationships of the work characteristics job control and complexity and personal initiative/behavior via the mediation of control orientations, while in Major et al.'s (2006) study, the effect of proactive personality on development activity was mediated by an individual's motivation to learn. Future research should also study further moderator effects to test the limits of proactivity. For example, LePine and Van Dyne (2001) showed that situational (i.e., group size and management style) and individual (i.e., self-esteem and satisfaction with the group) factors interacted in their influence on voice. Grant, Parker, and Collins (2009) found the relationships of taking charge, voice, issue-selling, and anticipatory helping with job performance to be moderated by employees' prosocial values and negative affect. Chan's (2006) study highlighted the moderating role of human capital by showing that proactive personality was positively related to job performance only for highly-skilled employees. In general, the vast majority of the meta-analytic correlations reported in this study were heterogeneous; among others, all correlations with performance were heterogeneous, except proactive personality with innovation (data not shown, but

available from the authors). This implies that moderator analyses are called for and have good chances of success.

Conclusion and Practical Implications

We set out to deal with the following issues to clean up the constructs in the area of proactivity: Is there a proliferation of constructs and can we reduce the number of constructs? How do the different constructs relate to each other? What is the construct validity of the scales used in proactivity research, particularly with regard to performance?

The relationships between the overall proactivity concepts (Table 3) are appreciable and show strong similarities in the construct validity of the constructs across the nomological net. This supports the idea that a common theoretical idea behind the various proactivity concepts and proactivity can be developed. However, two differentiations are important – one that differentiate proactivity from a personality angle (which includes proactive personality and personal initiative/personality) and another one from a behavior angle (which includes voice, taking charge, and personal initiative/behavior). We now talk about these two areas in turn.

The personality area of proactivity consists of proactive personality (Bateman & Crant, 1993) and what used to be called “subjective personal initiative” (Frese et al., 1997) which we suggest to be renamed “personal initiative/personality”. These two measures are highly correlated with each other and they behave similarly with regard to the nomological net. The data suggest these two constructs or scales to be essentially the same. However, proactive personality does not show incremental validity over and above the Big Five. Nevertheless, both scales can be interpreted to be highly useful aggregate measures that are well predictive of relevant dependent variables in our science, for example, longitudinal evidence on prediction of performance (Crant, 1995; Lisbona, Palaci, Salanova, & Frese, 2012; Zempel, 1999). However, their contribution may lie primarily in providing a brief measure for that part of personality that signifies proactivity (based on just 7 to 10 items instead of the large Big Five questionnaire).

There are also high intercorrelations amongst taking charge, voice, and personal initiative/behavior. These correlations are particularly high when supervisor ratings are used. Thus, there is a certain halo effect, but our meta-analysis (Table 4) also suggests that the overlap between these constructs is not just due to common method variance and our theoretical analysis implies that proactive behavior is an important contributor to performance and innovation over and above personality factors. It may be a surprising result of our meta-analysis that we started out with four and ended up with five constructs (differentiating between personal initiative/personality and personal initiative/behavior – which are terms newly introduced here). However, we think that this is also an important contribution. Future research should be keen to understand process issues of proactivity: Since proactive behavior is not completely determined by proactive personality, the question is which other factors influence proactive behavior: We already discussed person-situation interactions (LePine & Van Dyne, 2001) – other processes, such as changing the self (Parker et al., 2010), proactive person-environment fit behavior (Parker & Collins, 2010), differential foci of proactivity (such as organizational, interpersonal, personal foci; Belschak & den Hartog, 2010), feedback seeking (Ashford, 1986) and many other process concepts are relevant here.

Unfortunately, the interview scale of proactivity was not used in enough studies to have clear-cut conclusions. It has been suggested to be a good measure of personal initiative/behavior (Frese et al., 1997) because, a) the interview can probe respondents' answers to test whether the concrete behaviors are indicators to the theoretical concept; b) the raters determine after substantial probing whether the reported behavior constitutes personal initiative and this reduces potential problems of self-report data; and c) the interview assesses behaviors directly, for example with the situational interview on overcoming barriers. However, this meta-analysis is not conclusive with regard to this scale although it shows a clear relationship with objective performance (r_{wc} = .30, Table 7). This suggests higher future use of the interview procedure (maybe as an add-on to a personality questionnaire of proactivity). No doubt, one reason why this measure has not been used often is that it is "expensive" to use as it requires interviews, coding, and training of interview and

coding techniques. Therefore, it is useful that recently a situation judgment test was developed that seems to be different and an add-on to a personality scale (Bledow & Frese, 2009).

We are aware that two interpretations of our results are possible. One is in terms of construct validity and the other one is in terms of cross-method validity. We have so far emphasized the interpretation of content, but we also contend that there are sizeable cross-methods correlations. The correlations in the area of .25 are most likely the most conservative estimates and are likely higher when the content factors of different raters are taken into account. However, there is no denying that there are also common method effects. These are present in the heterotrait-monomethod triangle for self-ratings, but they are even more pronounced in the heterotrait-monomethod triangle for supervisor-ratings. This underlines the importance of the rating source. Given the high correlations between supervisor-rated proactivity concepts, we conclude that supervisors show a higher degree of halo effect and do not differentiate between different facets of proactivity and may, therefore, be less valid than job incumbents (Spector, 2006). Thus, if researchers want to know differences between different forms of proactivity, they should rely on information provided by the job incumbents or better yet on information based on interviews. However, we have come to the overall conclusion that method effects alone cannot explain the data completely and that therefore, it is useful to interpret the results in terms of content. Obviously, further studies are needed to substantiate such an interpretation. For practical purposes, in work design, in selection, in socialization processes, in organizational design and strategy, the proactive idea that people influence their environment and are not just influenced by the environment is of utmost importance to develop and groom the right talent for modern work places.

References

References marked with an asterisk indicate studies included in the meta-analysis.

*Adams, S. (2005). *Positive emotions at work: An analysis of workplace scenarios.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

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

*Allen, T. D. & O'Brien, K. E. (2006). Formal mentoring programs and organizational attraction. *Human Resource Development Quarterly, 17*, 43-58.

*Allen, T. D., Facteau, J. D., & Facteau, C. L. (2004). Structured interviewing for OCB: Construct validity, faking, and the effects of question type. *Human Performance, 17*, 1-24.

*Amo, B. W. (2006). The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behavior. *International Journal of Innovation and Learning, 3*, 284-298.

*Aryee, S., Srinivas, E., & Tan, H. H. (2005). Rhythms of life: Antecedents and outcomes of work-family balance in employed parents. *Journal of Applied Psychology, 90*, 132-146.

Ashford, S. J. & Black, J. S. (1996). Proactivity during organizational entry: The role of desire for control. *Journal of Applied Psychology, 81*, 199-214.

Ashford, S. J. & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance, 32*, 370-398.

Ashford, S. J. & Cummings, L. L. (1985). Proactive feedback seeking: The instrumental use of the information environment. *Journal of Occupational Psychology, 58*, 67-79.

Ashford, S. J. (1986). Feedback-seeking in individual adaptation: A resource perspective. *Academy of Management Journal, 29*, 465-487.

Ashford, S. J., Blatt, R., & VandeWalle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organizations. *Journal of Management, 29*, 773-799.

*Baba, V. V., Tourigny, L., Xiaoyun, W., & Weimin, L. (2009). Proactive personality and work performance in China: The moderating effects of emotional Exhaustion and perceived safety climate. *Canadian Journal of Administrative Sciences, 26*, 23-37.

Baer, M. & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior, 24*, 45-68.

Baer, M. & Oldham, G. R. (2006). The curvilinear relation between experienced creative time pressure and creativity: Moderating effects of openness to experience and support for creativity. *Journal of Applied Psychology, 91*, 963-970.

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

*Barnett, B. R. & Bradley, L. (2007). The impact of organizational support for career development on career satisfaction. *Career Development International, 12*, 617-636.

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment, 9*, 9-30.

*Bassyiouny, M. (2007). *Modification and evaluation of a personal initiative training for job seekers.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Bateman, T. S. & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior, 14*, 103-118.

*Bayas, N. (2004). *Zielbindung und Zielerreichung in Organisationen: Unabhängige und synergistische Effekte von Führung und Selbstregulation [Goal commitment and goal attainment in organizations: Independent and synergistic effects of leadership and self-regulation].* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Becherer, R. C. & Maurer, J. G. (1999). The proactive personality disposition and entrepreneurial behavior among small company presidents. *Journal of Small Business Management, 37*, 28-36.

Becker, T. E. & Vance, R. J. (1993). Construct validity of three types of organizational citizenship behavior: An illustration of the direct product model with refinements. *Journal of Management, 19*, 663-682.

*Belschak, F. D. & Den Hartog, D. N. (2010). Pro-self, prosocial, and pro-organizational foci of proactive behavior: Differential antecedents and consequences. *Journal of Occupational and Organizational Psychology, 83*, 475-498.

Berg, J. M., Wrzesniewski, A., & Dutton, J. E. (2010). Perceiving and responding to challenges in job crafting at different ranks: When proactivity requires adaptivity. *Journal of Organizational Behavior, 31*, 158-186.

*Bettencourt, L. A. (2004). Change-oriented organizational citizenship behaviors: The direct and moderating influence of goal orientation. *Journal of Retailing, 80*, 165-180.

*Bettencourt, L. A., Gwinner, K., & Meuter, M. L. (2001). A comparison of attitude, personality, and knowledge predictors of service-oriented organizational citizenship behaviors. *Journal of Applied Psychology, 86*, 29-41.

Bindl, U. K. & Parker, S. K. (2010). Proactive work behavior: Forward-thinking and change-oriented action in organizations. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology*. Washington, DC: American Psychological Association.

Binnewies, C., Ohly, S., & Sonnentag, S. (2007). Taking personal initiative and communicating about ideas: What is important for the creative process and for idea creativity? *European Journal of Work and Organizational Psychology, 16*, 432 - 455.

*Binnewies, C., Sonnentag, S., & Mojza, E. (2009). Daily performance at work: Feeling recovered in the morning as a predictor of day-level job performance. *Journal of Organizational Behavior, 30*, 67-93.

*Binnewies, C., Sonnentag, S., & Mojza, E. (2009). Feeling recovered and thinking about the good sides of one's work. A longitudinal study on the benefits of non-work experiences for job performance. *Journal of Occupational Health Psychology, 14*, 243-256.

*Binnewies, C., Sonnentag, S., & Mojza, E. (2010). Recovery during the weekend and fluctuations in the weekly job performance: A week-level study examining intra-individual relationships. *Journal of Occupational and Organizational Psychology, 83*, 419-441.

*Blakely, G. L., Andrews, M. C., & Fuller, J. (2003). Are chameleons good citizens? A longitudinal study of the relationship between self-monitoring and organizational citizenship behavior. *Journal of Business and Psychology, 18*, 131-144.

*Bledow, R. (2005). *Development and validation of a situational judgment test on personal initiative.* Diploma thesis, University of Giessen, Giessen, Germany.

Bledow, R., & Frese, M. (2009). A situational judgment test of personal initiative and its relationship to performance. *Personnel Psychology, 62*, 229–258.

*Boeckel, A. (1997). *Multimodale Validierung des Konstrukts Eigeninitiative an einer studentischen Stichprobe [Multimodal validation of personal initiative in a student sample].* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Boedecker, N. (2004). *Motivations- und Selbstregulationsfaktoren in Zusammenhang mit individuellem Kreativitäts- und Innovationsverhalten in Unternehmen [The relationships of motivational and self-regulatory factors with individual creative and innovative behavior in organizations].* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Bohn, V. (2009). *Age and work engagement: An investigation of the function of work characteristics.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Bolino, M. C. & Turnley, W. H. (2005). The personal costs of citizenship behavior: The relationship between individual initiative and role overload, job stress, and work-family conflict. *Journal of Applied Psychology, 90*, 740-748.

*Briscoe, J. P., Hall, D. T., & Frautschy DeMuth, R. L. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior, 69*, 30-47.

Brockner, J., Heuer, L., Siegel, P. A., Wiesenfeld, B., Martin, C., Grover, S., et al. (1998). The moderating effect of self-esteem in reaction to voice: Converging evidence from five studies. *Journal of Personality and Social Psychology, 75*, 394-407.

*Brown, D. J., Cober, R. T., Kane, K., Levy, P. E., & Shalhoop, J. (2006). Proactive personality and the successful job search: A field investigation with college graduates. *Journal of Applied Psychology, 91*, 717-726.

*Burris, E. R., Detert, J. R., & Chiaburu, D. S. (2008). Quitting before leaving: The mediating effects of psychological attachment and detachment on voice. *Journal of Applied Psychology, 93*, 912-922.

*Byrne, Z. S., Dik, B. J., & Chiaburu, D. S. (2008). Alternatives to traditional mentoring in fostering career success. *Journal of Vocational Behavior, 72*, 429-442.

Campbell, D. T. & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin, 56*, 81-105.

*Chan, D. (2004). Individual differences in tolerance for contradiction. *Human Performance, 17*, 297-324.

*Chan, D. (2006). Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *Journal of Applied Psychology, 91*, 475-481.

*Chiaburu, D. S. & Baker, V. L. (2006). Extra-role behaviors challenging the status-quo: Validity and antecedents of taking charge behaviors. *Journal of Managerial Psychology, 21*, 620-637.

*Chiaburu, D. S., Baker, V. L., & Pitariu, A. H. (2006). Beyond being proactive: What (else) matters for career self-management behaviors? *Career Development International, 11*, 619-632.

*Chiaburu, D. S., Marinova, S. V., & Lim, A. S. (2007). Helping and proactive extra-role behaviors: The influence of motives, goal orientation, and social context. *Personality and Individual Differences, 43*, 2282-2293.

*Choi, J. N. (2007). Change-oriented organizational citizenship behavior: Effects of work environment characteristics and intervening psychological processes. *Journal of Organizational Behavior, 28*, 467-484.

*Claes, R. & De Witte, H. (2002). Determinants of graduates preparatory job search behavior: A competitive test of proactive personality and expectancy-value theory. *Psychologica Belgica, 42*, 251-266.

*Coch, J. (2003). *Ein aktivitätsbezogenes Stressmanagementprogramm: Eine Trainingsevaluation [An activity-related stress-management program: Evaluation of a training]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: Erlbaum.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward and integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85*, 678-707.

*Conlon, E., Devaraj, S., & Matta, K. F. (2001). The relationship between initial quality perceptions and maintenance behavior: The case of the automotive industry. *Management Science, 47*, 1191-1202.

Conway, J. M., Lombardo, K. C., & Sanders, K. C. (2001). A meta-analysis of incremental validity and nomological networks for subordinate and peer ratings. *Human Performance, 14*, 267-303.

*Cools, E. & van den Broeck, H. (2006). *Searching the Heffalump: Using traits and cognitive styles to predict entrepreneurial orientation.* Unpublished manuscript.

Cooper-Hakim, A. & Viswesvaran, C. (2005). The construct of work commitment: Testing an integrative framework. *Psychological Bulletin, 131*, 241-259.

Cortina, J. M. (2003). Apples and oranges (and pears, oh my!): The search for moderators in meta-analysis. *Organizational Research Methods, 6*, 415-439.

*Crant, J. M. & Bateman, T. S. (2000). Charismatic leadership viewed from above: The impact of proactive personality. *Journal of Organizational Behavior, 21*, 63-75.

*Crant, J. M. (1995). The proactive personality scale and objective job performance among real estate agents. *Journal of Applied Psychology, 80*, 532-537.

*Crant, J. M. (1996). The proactive personality scale as a predictor of entrepreneurial intentions. *Journal of Small Business Management, 34*, 42-49.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management, 26*, 435-462.

*Crant, J. M. (2003). *Dispositional antecedents of voice behavior in a naturally-occurring setting.* Paper presented at the Annual Meeting of the Academy of Management, Seattle.

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

*Cunningham, C. J. & De La Rosa, G. M. (2008). The interactive effects of proactive personality and work-family interference on well-being. *Journal of Occupational Health Psychology, 13*, 271-282.

*De Dreu, C. K. W. & Nauta, A. (2009). Self-interest and other-orientation in organizational behavior: Implications for job performance, prosocial behavior, and personal initiative. *Journal of Applied Psychology, 94*, 913-926.

*Deckop, J. R., Cirka, C. C., & Andersson, L. M. (2003). Doing unto others: The reciprocity of helping behavior in organizations. *Journal of Business Ethics, 47*, 101-113.

*Deluga, R. J. (1998). American presidential proactivity, charismatic leadership, and rated performance *Leadership Quarterly, 9*, 265-291.

*Den Hartog, D. N. & Belschak, F. D. (2007). Personal initiative, commitment, and affect at work. *Journal of Occupational and Organizational Psychology, 80*, 601-622.

*Detert, J. R. & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal, 50*, 869-884.

Dudley, N. M., Orvis, K. A., Lebiecki, J. E., & Cortina, J. M. (2006). A meta-analytic investigation of conscientiousness in the prediction of job performance: Examining the intercorrelations and the incremental validity of narrow traits. *Journal of Applied Psychology, 91*, 40-57.

Dutton, J. E. & Ashford, S. J. (1993). Selling issues to top management. *Academy of Management Review, 18*, 397-428.

*Eby, L. T., Butts, M., & Lockwood, A. (2003). Predictors of success in the era of the boundaryless career. *Journal of Organizational Behavior, 24*, 689-708.

*Erdogan, B. & Bauer, T. N. (2005). Enhancing career benefits of employee proactive personality: The role of fit with jobs and organizations. *Personnel Psychology, 58*, 859-891.

Farrell, D. (1983). Exit, voice, loyalty, and neglect as responses to job dissatisfaction: A multi-dimensional scaling study. *Academy of Management Journal, 26*, 596-607.

*Fay, D. & Frese, M. (2001). The concept of personal initiative: An overview of validity studies. *Human Performance, 14*, 97-124.

*Fay, D. & Sonnentag, S. (2002). Rethinking the effects of stressors: A longitudinal study on personal initiative. *Journal of Occupational Health Psychology, 7*, 221-234.

*Fay, D. (1998). *Personal initiative: Construct validation of a new concept of performance at work.* Universiteit van Amsterdam, Amsterdam, NL.

*Fay, D., Luehrmann, H., & Kohl, C. (2004). Proactive climate in a post-reorganization setting: When staff compensate managers' weakness. *European Journal of Work & Organizational Psychology, 13*, 241-267.

Feldman, J.M. (1981). Beyond attribution theory. Cognitive processes in performance appraisal. *Journal of Applied Psychology, 66*, 127-148.

*Finkelstein, L. M., Kulas, J. T., & Dages, K. D. (2003). Age differences in proactive newcomer socialization strategies in two populations. *Journal of Business and Psychology, 17*, 473-502.

*Fischer, S. (2008). *Enhancing entrepreneurial success in developing countries: The effect of training in personal initiative in small businesses in Uganda.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Frese, M. & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior, 23*, 133-187.

*Frese, M. & Morrison, E. W. (2004). *LBS study: Individual and group personal initiative and taking charge: Relationships to personality and group performance*. London, UK: London Business School.

*Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology, 70*, 139-161.

*Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative (PI) in a four-wave longitudinal structural equation model. *Journal of Applied Psychology, 92*, 1084-1102.

*Frese, M., Krauss, S. I., Keith, N., Escher, S., Grabarkiewicz, R., Tonje Luneng, S., et al. (2007). Business owners' action planning and its relationship to business success in three African countries. *Journal of Applied Psychology, 92*, 1481-1498.

Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal, 39*, 37-63.

*Frese, M., Teng, E., & Wijnen, C. J. D. (1999). Helping to improve suggestion systems: Predictors of making suggestions in companies. *Journal of Organizational Behavior, 20*, 1139-1155.

*Fritz, C. & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology, 10*, 187-199.

*Fritz, C. & Sonnentag, S. (2009). Antecedents of day-level proactive behavior: A look at job stressors and positive affect during the workday. *Journal of Management, 35*, 94-111.

Fuller, J. B. & Marler, L. E. (2009). Change driven by nature: A meta-analytic review of the proactive personality literature. *Journal of Vocational Behavior, 329-345*.

*Fuller, J. B., Barnett, T., Hester, K., Relyea, C., & Frey, L. (2007). An exploratory examination of voice behavior from an impression management perspective. *Journal of Managerial Issues, 19*, 134-151.

*Fuller, J. B., Marler, L. E., & Hester, K. (2006). Promoting felt responsibility for constructive change and proactive behavior: Exploring aspects of an elaborated model of work design. *Journal of Organizational Behavior, 27*, 1089-1120.

Funder, D. C. (1980). On seeing ourselves as others see us: Self-other agreement and discrepancy in personality ratings. *Journal of Personality, 48*, 473-493.

*Garman, G. (2002). *Comparison of selected aspects of personal initiative before and after an initiative training.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Glaub, M. E. & Frese, M. (2005). *Training personal initiative to business owners in South Africa*. Unpublished manuscript.

*Granados, A. (2001). *Fehlertraining in der Analyse: Die Wirkung von Heuristiken auf Motivation, Aufmerksamkeit und Leistung [Analyzing error training: the effects of heuristics on motivation, attention, and performance]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Granados, A. (2005). *Trainings-Transfer: Eine Langzeitstudie der zugrunde liegenden Prozesse [Training transfer: A longitudinal study on the processes]*. Unpublished doctoral dissertation, University of Giessen, Giessen, Germany.

Grant, A. M. & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior, 28*, 3-34.

Grant, A. M., Fried, Y., Parker, S. K., & Frese, M. (2010). Putting job design in context: Introduction to the special issue. *Journal of Organizational Behavior, 31*, 145-157.

*Grant, A. M. & Wrzesniewski, A. (2010). I won't let you down... or will I? Core self-evaluations, other-orientation, anticipated guilt and gratitude, and job performance. *Journal of Applied Psychology, 95*, 108-121.

*Grant, A. M., Parker, S. K., & Collins, C. G. (2009). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology, 62*, 31-55.

*Griffin, B. & Hesketh, B. (2005). Are conscientious workers adaptable? *Australian Journal of Management, 30*, 245-260.

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal, 50*, 327-347.

*Groos, P. (2005). *Transformationale Führung und Eigeninitiative [Transformational leadership and personal initiative]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Gudmundsdottir, D. (2002). *Transformational leadership and climate for initiative.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Gunkel, J. (2005). *Redefinition von Arbeitsaufgaben: Das Konzept Job Crafting und dessen Zusammenhang mit psychischer Beanspruchung, Arbeitsleistung und Arbeitszufriedenheit [Redefinition of work tasks: Job crafting and its relationship with cognitive demands, job performance and job satisfaction]*. Unpublished diploma thesis, Technical University of Braunschweig, Braunschweig, Germany.

*Hack, N. (2005). *Die Arbeitsplatzsuche von Hochschulabsolventen [The job-search of university graduates]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

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

*Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit effectiveness. *Journal of Vocational Behavior, 73*, 78-91.

Harris, M. M. & Schaubroeck, J. (1988). A meta-analysis of self-supervisor, self-peer, and peer-supervisor ratings. *Personnel Psychology, 41*, 43-62.

*Harvey, S., Blouin, C., & Stout, D. (2006). Proactive personality as a moderator of outcomes for young workers experiencing conflict at work. *Personality and Individual Differences, 40*, 1063-1074.

*Hass, L. (2003). *Ein psychologisches Training bei Kleinunternehmern: Eine Evaluationsstudie [A psychological training of small business entrepreneurs: An evaluation]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Hirschman, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*. Cambridge, MA: Harvard University Press.

Hoffman, B. J., Blair, C. A., Meriac, J. P., & Woehr, D. J. (2007). Expanding the criterion domain? A quantitative review of the OCB Literature. *Journal of Applied Psychology, 92*, 555-566.

*Hornung, S. & Rousseau, D. M. (2007). Active on the job - proactive in change: How autonomy at work contributes to employee support for organizational change. *Journal of Applied Behavioral Science, 43*, 401-426.

*Hornung, S., Rousseau, D. M., & Glaser, J. (2008). Creating flexible work arrangements through idiosyncratic deals. *Journal of Applied Psychology, 93*, 655-664.

Hogan, R., & Shelton, D. (1998). A socioanalytic perspective on job performance. *Human Performance, 11*, 129-144.

Hough, L. M. & Ones, D. S. (2001). The structure, measurement, validity, and use of personality variables in industrial, work, and organizational psychology. In N. R. Anderson, D. S. Ones, H. K. Sinangil & C. Viswesvaran (Eds.), *International handbook of work and organizational psychology* (pp. 233-377). Thousand Oaks, CA: Sage.

Hunter, J. E. & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Ilgen, D. R. & Pulakos, E. D. (1999). Introduction: Employee performance in today's organizations. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of performance* (pp. 1-18). San Francisco, CA: Consulting Psychologists Press.

*Janssen, O., de Vries, T., & Cozijnsen, A. J. (1998). Voicing by adapting and innovating employees: An empirical study on how personality and environment interact to affect voice behavior. *Human Relations, 51*, 945-967.

*Jaramillo, F., Locander, W. B., Spector, P. E., & Harris, E. G. (2007). Getting the job done: Moderating role of initiative on the relationship between intrinsic motivation and adaptive selling. *Journal of Personal Selling & Sales Management, XXVII*, 59-74.

Judge, T. A. & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology, 87*, 797-807.

Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., & Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology, 92*, 107-127.

*Kickul, J. & Walters, J. (2002). Recognizing new opportunities and innovations: The role of strategic orientations and proactivity in Internet firms. *International Journal of Entrepreneurial Behavior and Research, 8*, 292-308.

*Kirby, E. G. & Kirby, S. L. (2006). Improving task performance: The relationship between morningness and proactive thinking. *Journal of Applied Social Psychology, 36*, 2715-2729.

*Kirby, E. G., Kirby, S. L., & Lewis, M. A. (2002). A study of the effectiveness of training proactive thinking. *Journal of Applied Social Psychology, 32*, 1538-1549.

*Koop, S., De Reu, T., & Frese, M. (2000). Sociodemographic factors, entrepreneurial orientation, personal initiative, and environmental problems in Uganda. In M. Frese (Ed.), *Success and*

failure of microbusiness owners in Africa: A psychological approach (pp. 55-76). Westport, CT: Quorum.

*Korunka, C., Frank, H., Lueger, M., & Mugler, J. (2003). The entrepreneurial personality in the context of resources, environment, and the startup process: A configurational approach. *Entrepreneurship Theory and Practice, 28*, 23-42.

*Krause, K. (2002). *Personal initiative in the work place - a behavior oriented questionnaire.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Krauss, S. I., Frese, M., Friedrich, C., & Unger, J. M. (2005). Entrepreneurial orientation: A psychological model of success among southern African business owners. *European Journal of Work and Organizational Psychology, 14*, 315-344.

*Kuenzl, M. (2004). *Job Crafting bei Reinigungskräften – Positive Strategien an einem unterschätzten Arbeitsplatz [Job crafting of university cleaners - positive strategies at an underestimated workplace].* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Kupcha, V. (2008). *Unternehmertum in Russland: Ein psychologischer Ansatz [Entrepreneurship in Russia: A psychological approach].* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Lambert, T. A., Eby, L. T., & Reeves, M. P. (2006). Predictors of networking intensity and network quality among white-collar job seekers. *Journal of Career Development, 32*, 351-365.

*Lang-von Wins, T. & Triebel, C. (2005). Die Kompetenzenbilanz — ein Verfahren zur Förderung eigenverantwortlichen Handelns? *Gruppendynamik und Organisationsberatung, 36*, 175-190.

LaRocco, J. M., House, J. S., & French, J. R. P. j. (1980). Social support, occupational stress, and health. *Journal of Health and Social Behavior, 21*, 202-218.

LeBreton, J. M., Scherer, T., & James, L. R. (2014). Corrections for criterion reliability in validity generalization: A false prophet in a land of suspended judgment. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 7*, 478-500.

LePine, J. A. & Van Dyne, L. (1998). Predicting voice behavior in work groups. *Journal of Applied Psychology, 83*, 853-868.

*LePine, J. A. & Van Dyne, L. (2001). Voice and cooperative behavior as contrasting forms of contextual performance: Evidence of differential relationships with Big Five personality characteristics and cognitive ability. *Journal of Applied Psychology, 86*, 326-336.

LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology, 87*, 52-65.

Li, W. D., Song, Z., Arvey, R. D., & Zhang, Z. (2012). Why does proactive personality breed work success? Testing mediated relationships and genetic and environmental influences. *NUS Business School, submitted for publication*.

*Lisbona, A., Palaci, F. J., Salanova, M., & Frese, M. (2012, April). *The effects of work engagement and self-efficacy on personal initiative and performance*. Unpublished manuscript.

*Lozada-Lehmann, M. E. (2007). *Psychologische Erfolgsfaktoren in Peru: Die Rolle von Strategien, Eigeninitiative, unternehmerischer Orientierung und Kultur [Psychological success factors in Peru: The role of strategies, personal initiative, entrepreneurial orientation, and culture]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Major, D. A., Turner, J. E., & Fletcher, T. D. (2006). Linking proactive personality and the Big Five to motivation to learn and development activity. *Journal of Applied Psychology, 91*, 927-935.

Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 1*, 3-30.

*Marrone, J. A. (2004). *Cutting across team boundaries: Antecedents and implications of individual boundary-spanning behavior within consulting teams.* Unpublished doctoral dissertation, University of Maryland, Maryland.

*McAllister, D. J., Kamdar, D., Morrison, E. W., & Turban, D. B. (2008). Disentangling role perceptions: How perceived role breadth, discretion, instrumentality, and efficacy relate to helping and taking charge. *Journal of Applied Psychology, 92*, 1200-1211.

McCrae, R. R., Costa, P. T. J., Ostendorf, F., Angleitner, A., Hrebícková, M., Avia, M. D., et al. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology, 78*, 173-186.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior, 61*, 20-52.

*Miller, D. & Lee, J. (2001). The people make the process: Commitment to employees, decision making, and performance. *Journal of Management, 27*, 163-189.

*Miron, E., Erez, M., & Naveh, E. (2004). Do personal characteristics and cultural values that promote innovation, quality, and efficiency compete or complement each other? *Journal of Organizational Behavior, 25*, 175-199.

*Moon, H., Kamdar, D., Mayer, D. M., & Takeuchi, R. (2008). Me or we? The role of personality and justice as other-centered antecedents to innovative citizenship behaviors within organizations. *Journal of Applied Psychology, 93*, 84-94.

Moorman, R. H. & Blakely, G. L. (1995). Individualism-collectivism as an individual difference predictor of organizational citizenship behavior. *Journal of Organizational Behavior, 16*, 127-142.

*Moorman, R. H., Blakely, G. L., & Niehoff, B. P. (1998). Does perceived organizational support mediate the relationship between procedural justice and organizational citizenship behavior? *Academy of Management Journal, 41*, 351-357.

*Morrison, E. W. & Phelps, C. C. (1999). Taking charge at work: Extrarole efforts to initiate workplace change. *Academy of Management Journal, 42*, 403-419.

Morrison, E. W. (2002). Newcomers' relationships: The role of social network ties during socialization. *Academy of Management Journal, 45*, 1149-1160.

*Morrison, E. W. (2006). Doing the job well: An investigation of pro-social rule breaking. *Journal of Management, 32*, 5-28.

*Myers, K. K. & McPhee, R. D. (2006). Influences on member assimilation in workgroups in high-reliability organizations: A multilevel analysis. *Human Communication Research, 32*, 440-468.

*Naus, F., van Iterson, A., & Roe, R. (2007). Organizational cynicism: Extending the exit, voice, loyalty, and neglect model of employees' responses to adverse conditions in the workplace. *Human Relations, 60*, 683-718.

Nicholson, N. (1984). A theory of work role transitions. *Administrative Science Quarterly, 29*, 172-191.

Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*(35), 250–256.

*Ohly, S. & Fritz, C. (2007). Challenging the status quo: What motivates proactive behavior? *Journal of Occupational & Organizational Psychology, 80*, 623-629.

*Ohly, S., Sonnentag, S., & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive behaviors. *Journal of Organizational Behavior, 27*, 257-279.

Oldham, G. R., & Hackman, J. R. (2010). Not what it was and not what it will be: The future of job design research. *Journal of Organizational Behavior, 31*, 463-479.

Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, Prepublished May 14, 2010, DOI: 2010.1177/0149206310363732.

* Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*, 633-662.

*Parker, S. K. & Sprigg, C. A. (1999). Minimizing strain and maximizing learning: The role of job demands, job control, and proactive personality. *Journal of Applied Psychology, 84*, 925-939.

Parker, S. K. & Turner, N. (2002). Work design and individual work performance: Research findings and an agenda for future inquiry. In S. Sonnentag (Ed.), *Psychological management of individual performance* (pp. 69-93). Chichester, UK: John Wiley and Sons, Ltd.

Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83*, 835-852.

Parker, S. K. (2000). From passive to proactive motivation: The importance of flexible role orientations and role breadth self-efficacy. *Applied Psychology: An International Review, 49*, 447-469.

*Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology, 91*, 636-652.

*Peiró, J. M., García-Montalvo, J., & Gracia, F. (2002). How do young people cope with job flexibility? Demographic and psychological antecedents of the resistance to accept a job with non-preferred flexibility features. *Applied Psychology: An International Review, 51*, 43-66.

*Pittig, D. (2008). *Learning from management errors of others: Impact of training with error stories on transfer performance and innovativity.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual- and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology, 94*, 122-141.

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly, 1*, 107-142.

Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management, 26*, 513-563.

*Porath, C. L. & Bateman, T. S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology, 91*, 185-192.

*Prabhu, V. P. (2008). *Understanding the effect of proactive personality on job-related outcomes in an organizational change setting.* Unpublished doctoral dissertation, Auburn University, Auburn.

*Raemdonck, I. (2006). *Self-directedness in learning and career progress: A study in lower-qualified employees in Flanders.* Unpublished doctoral dissertation, Universiteit Gent, Gent, The Netherlands.

*Rank, J. (2000). *Motivational and situational predictors of role innovation and personal initiative in organizations.* Unpublished Master's Thesis, University of South Florida, Tampa, FL.

*Rank, J. (2006). *Leadership predictors of proactive organizational behavior: Facilitating personal initiative, voice behavior, and exceptional service performance.* Unpublished Dissertation, University of South Florida, Tampa.

*Raub, S. (2008). Does bureaucracy kill individual initiative? The impact of structure on organizational citizenship behavior in the hospitality industry. *International Journal of Hospitality Management, 27*, 179-186.

Rauch, A. & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work & Organizational Psychology, 16*, 353-385.

*Rief, S. (2002). *Formalization of small business in Africa: A psychological approach.* Unpublished diploma thesis, University of Giessen, Giessen, Germany.

Riketta, M. (2008). The causal relation between job attitudes and performance: A meta-analysis of panel studies. *Journal of Applied Psychology, 93*, 472-481.

*Rode, J. C., Arthaud-Day, M. L., Mooney, C. H., Near, J. P., & Baldwin, T. T. (2008). Ability and personality predictors of salary, perceived job success, and perceived career success in the initial career stage. *International Journal of Selection and Assessment, 16*, 292-299.

*Rusbult, C. E., Farrell, D., Rogers, G., & Mainous, A. G., III. (1988). Impact of exchange variables on exit, voice, loyalty, and neglect: An integrative model of responses to declining job satisfaction. *Academy of Management Journal, 31*, 599-627.

*Salanova, M. & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behavior. *International Journal of Human Resource Management, 19*, 116-131.

*Schaper, N. (2005). *Trainingsmaßnahmen für Erwerbslose zur Reintegration in den ersten Arbeitsmarkt - eine Evaluation [Training to reintegrate unemployed into the job market - an evaluation study]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Schildbach, S. (2002). *"Mitarbeiter - Unternehmer in eigener Sache?" Entwicklung eines Trainings zur Steigerung von Eigeninitiative und Bewertung der Transfereffekte ["Employees as independent entrepreneurs?" Development of a training to increase personal initiative and an analysis of the transfer effects]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Schmidt, C. A. (2004). *Eigeninitiative und Taking Charge: Der Einfluss soziokultureller Kontexte auf das Arbeitsverhalten von Mitarbeitern [Personal initiative and taking charge: The influence of socio-cultural contexts on employee work behavior]*. University of Giessen, Giessen, Germany.

Scott, S. G. & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*, 580-607.

Scullen, S. E., Mount, M. K., & Goff, M. (2000). Understanding the latent structure of job performance ratings. *Journal of Applied Psychology, 85*, 956-970.

*Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology, 84*, 416-427.

*Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology, 54*, 845-874.

*Shaw, J. D., Duffy, M. K., & Stark, E. M. (2001). Team reward attitude: Construct development and initial validation. *Journal of Organizational Behavior, 22*, 903-917.

*Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between nonwork and work. *Journal of Applied Psychology, 88*, 518-528.

Spector, P. E. (2006). Method variance in organizational research: Truth or urban legend? *Organizational Research Methods, 9*, 221-232.

Spector, P. E., & Fox, S. (2010). Counterproductive work behavior and organizational citizenship behavior: Are they opposite forms of active behavior? *Applied Psychology: An International Review,, 59*, 21-39.

Speier, C. & Frese, M. (1997). Generalized self-efficacy as a mediator and moderator between control and complexity at work and personal initiative: A longitudinal field study in East Germany. *Human Performance, 10*, 171-192.

*Stamper, C. L. & Van Dyne, L. (2001). Work status and organizational citizenship behavior: A field study of restaurant employees. *Journal of Organizational Behavior, 22*, 517-536.

Strauss, K., Griffin, M. A., & Rafferty, A. E. (2009). Proactivity directed toward the team and organization: The role of leadership, commitment and role-breadth self-efficacy. *British Journal of Management, 20*, 279-291.

*Tangirala, S. & Ramanujam, R. (2008). Exploring nonlinearity in employee voice: The effects of personal control and organizational identification. *Academy of Management Journal, 51*, 1189-1203.

*Taris, T. W. & Wielenga-Meijer, E. G. A. (2009). *Work characteristics, personality, and worker well-being: The effects of personal initiative*. Manuscript submitted for publication.

Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta--analysis of emergent proactive constructs. *Journal Occupational and Organisational Psychology, 83*, 275-300.

*Thompson, J. A. (2005). Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology, 90*, 1011-1017.

*Tornau, K. (2004). *Job Crafting in der Gastronomie: Eine neue Form des Arbeitsverhaltens [Job crafting in the hospitality industry: A new form of work behavior]*. Unpublished diploma thesis, University of Giessen, Giessen, Germany.

*Tornau, K. (in prep). *A close-up of proactivity at work: Exploring antecedents and consequences of personal initiative and related concepts of proactive behavior.* Unpublished Dissertation, University of Giessen, Giessen, Germany.

*Tucker, S., Chmiel, N., Turner, N., Hershcovis, M., & Stride, C. B. (2008). Perceived organizational support for safety and employee safety voice: The mediating role of coworker support for safety. *Journal of Occupational Health Psychology, 13*, 319-330.

*Utsch, A. & Rauch, A. (2000). Innovativeness and initiative as mediators between achievement orientation and venture performance. *European Journal of Work and Organizational Psychology, 9*, 45-62.

*Utsch, A. (2004). *Psychologische Einflussgrößen von Unternehmensgründung und Unternehmenserfolg [Psychological factors of entrepreneurship and entrepreneurial success]*. Unpublished doctoral dissertation, University of Giessen, Giessen, Germany.

van der Linden, D., te Nijenhuis, J., & Bakker, A. B. (2010). The general factor of personality: A meta-analysis of Big Five intercorrelations and a criterion-related validity study. *Journal of Research in Personality, 44*, 315-327.

*Van Dyne, L. & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41*, 108-119.

*Van Dyne, L., Graham, G. W., & Dienesch, R. M. (1994). Organizational citizenship behavior: Construct redefinition, measurement, and validation. *Academy of Management Journal, 37*, 765-802.

*Van Dyne, L., Kamdar, D., & Joireman, J. (2008). In-role perceptions buffer the negative impact of low LMX on helping and enhance the positive impact of high LMX on voice. *Journal of Applied Psychology, 93*, 1195-1207.

van Hooft, E. A. J., van der Flier, H., & Minne, M. R. (2006). Construct validity of multi-source performance ratings: An examination of the relationship of self-, supervisor-, and peer-ratings with cognitive and personality measures. *International Journal of Selection and Assessment, 14*, 67-81.

Van Maanen, J. & Schein, E. H. (1979). Toward a theory of organizational socialization. In B. M. Staw (Ed.), *Research in Organizational Behavior* (Vol. 1, pp. 209-264). Greenwich: JAI Press.

Van Scotter, J. R. & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of Applied Psychology, 81*, 525-531.

*van Veldhoven, M. & Dorenbosch, L. (2008). Age, proactivity and career development. *Career Development International, 13*, 112-131.

Vance, R. J., MacCallum, R. C., Coovert, M. D., & Hedge, J. W. (1988). Construct validity of multiple job performance measures using confirmatory factor analysis. *Journal of Applied Psychology, 73*, 74-80.

Warr, P. & Bourne, A. (2000). Associations between rating content and self-other agreement in multi-source feedback. *European Journal of Work and Organizational Psychology, 9*, 321-334.

Warr, P. & Fay, D. (2001). Age and personal initiative at work. *European Journal of Work and Organizational Psychology, 10*, 343.

West, M. A. (1987). Role innovation in the world of work. *British Journal of Social Psychology, 26*, 305-315.

West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review, 51*, 355-424.

*Whiting, S. W., Podsakoff, P. M., & Pierce, J. R. (2008). Effects of task performance, helping, voice, and organizational loyalty on performance appraisal ratings. *Journal of Applied Psychology, 93*, 125-139.

Williams, L. J. & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of citizenship behavior and in-role behaviors. *Journal of Management, 17*, 601-617.

Withey, M. J. & Cooper, W. H. (1989). Predicting exit, voice, loyalty, and neglect. *Administrative Science Quarterly, 34*, 521-539.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*, 179-201.

Zempel, J. (1999). Selbständigkeit in den neuen Bundesländern: Prädiktoren, Erfolgsfaktoren und Folgen - Ergebnisse einer Längsschnittuntersuchung [Self-employment in the New German States: Predictors, success factors, and consequences - results of a longitudinal study]. In K. Moser, B. Batinic & J. Zempel (Eds.), *Unternehmerisch erfolgreiches Handeln* (pp. 69-91). Goettingen: Verlag für Angewandte Psychologie.

*Zhao, X. (2005). *Active development of social networks and relationships to Chinese small and micro business owners' success.* Unpublished doctoral dissertation, University of Giessen, Giessen, Germany.

Footnotes

[1] There is another meta-analysis on proactivity by Thomas, Whitman, and Viswesvaran (2010). In order to safe journal space we shall talk about the many differences between our meta-analysis (which is based on a larger data set and answering different research questions) and the one by Thomas et al. (2010) only in the discussion section. A second meta-analysis (Fuller & Marler, 2009) is only concerned with proactive personality and cannot, therefore, examine the comparative questions that are in the foreground of this article.

[2] There is evidence for the genetic determination of proactive personality (Li, Song, Arvey, & Zhang, 2012).

[2a] Indeed, when we redid the analyses with the reliability corrected correlations, strange suppressor effects appear because of the high mulitcollinearity of the alpha-corrected multiple correlations (tables can be received from the authors).

[3] *N* was about 144,000 for the Step 1 regression analyses and about 85,000 for the Step 2 regression analyses. Previous meta-analyses used either the average sample size (e.g., Dudley et al., 2006; Judge & Ilies, 2002) or the harmonic mean (e.g., Colquitt, LePine, & Noe, 2000). Consistent with Judge et al. (2007), we additionally performed the regression analyses using the harmonic mean. The sample size is only needed to test the significance of effect sizes but not to estimate the effect sizes. Thus, as expected, the regression coefficients did not change when using the harmonic mean; only significance changed.

[4] Table 4 is based on many unpublished studies because there were only six published studies that simultaneously examined multiple proactivity concepts. To address potential publication biases, we compared relationships of published (k = 30) versus unpublished studies (k = 37) on personal initiative/overall (similarly to Table 7). Subgroup correlations differed for only five out of 14 relationships. Specifically, published papers (vs. unpublished papers) reported a stronger relationship of personal initiative with age, gender and GMA/qualifications, while the reverse effect was true for the relationship between personal initiative and neuroticism and job control. However, these

differences were small (the highest one being for the personal initiative – neuroticism relationship: r_{wc} = .08 for published papers and r_{wc} = -.23 for unpublished papers). Thus, our meta-analytic correlations are likely not distorted by publication bias to a major extent.

[5] There were also articles not included in our meta-analysis that were included in Thomas et al.'s (2010) meta-analysis: Many of these were on social network, which we did not study. Other reasons why we did not include them were issues of relevance (e.g., we excluded proactivity studies based on within person measures), longitudinal instead of cross-sectional correlations, or because these studies did not fit our definition of the proactivity concepts. Another issue related to the number of samples in meta-analysis is how many samples should be minimally included in a reported meta-analytic correlation. As far as we know, this issue has not been solved. However, our cut-off points were minimally 5 samples in major relationships and a minimum number of 3 samples in moderator analyses, while the respective minima used by Thomas et al. (2010) seemed to have been 3 and 1 . Since the major rationale of a meta-analysis is that the weaknesses of individual studies should be compensated by other studies (Hunter & Schmidt, 2004), we believe that a one- or two-sample based correlation is not warranted in a meta-analysis.

Table 1

Proactivity Concepts Included in the Meta-Analysis and their Definitions/Operationalization

Concept	Original Definition	Dominant Operationalization	Sample items
Personal initiative/ personality	"We have … developed a personal initiative personality measure assessed with a questionnaire" (Frese & Fay, 2001, p. 157)	Self-rating	I actively attack problems. Whenever something goes wrong, I search for a solution immediately.
Personal initiative/ behavior	"Personal initiative is work behavior characterized by its self-starting nature, its proactive approach, and by being persistent in overcoming difficulties that arise in the pursuit of a goal" (Frese & Fay, 2001, p. 134).	Interview: Overcoming barriers	Prompts, coding trained and anchors Pretend for a moment, that you work as a blue-collar worker on a machine and your machine breaks down. (Coding how many and how active)
	"Note that we think of Personal initiative as behavior. People exhibit a class of behaviors that we call personal initiative." (p. 139) ("behavioral syndrome") (Frese et al., 1997)	Retrospective initiative	Have you introduced changes in your work during the last year (coding quantitative initiative: how much energy went into the activity? 5 point scale; qualitative initiative: how much did the activity go beyond what is expected from the person in that job? (e.g. addressing new problems, new ideas, new goals, strategies). 5 point scale
		Peer, Supervisor-rating	Same as self-rating
Proactive personality	"The prototypic proactive personality […] is one who is relatively unconstrained by situational forces, and who effects environmental change" (Bateman & Crant, 1993, p. 105).	Self-rating	I am constantly on the lookout for new ways to improve my life. Wherever I have been, I have been a powerful source for constructive change.
Taking charge	"Taking Charge entails voluntary and constructive efforts, by individual employees, to effect organizationally functional change with respect to how work is executed within the contexts of their jobs, work units, or organizations." (Morrison & Phelps, 1999, p. 403).	Peer-/supervisor-ratings	I often try to change how my job is executed in order to be more effective. I often make constructive suggestions for improving how things operate within the organization.
Voice	Voice is defined "as promotive behavior that emphasizes expression of constructive challenge intended to improve rather than merely criticize. Voice is making innovative suggestions for change and recommending modifications to standard procedures even when others disagree" (Van Dyne & LePine, 1998, p. 109). […] "defined as constructive change-oriented communication intended to improve the situation" (LePine & Van Dyne, 2001, p. 326)	Peer-/supervisor-rating	I develop and make recommendations concerning issues that affect the work group. I speak up in the group with ideas for new projects or changes in procedures.

Table 2 CORRECTED

Hypotheses and Research Questions and Confirmation of Results

No.	Hypothesis/Research Question	Confirm -ed (+/-)	Test in Table (T)	Operationalization/Comment
RQ1	How and in which way are there interrelationships amongst the proactivity constructs?		T3	Generally, high interrelationships (traditional viewpoint)
H1	The personality measures of proactivity interrelate highly with each other and these relationships are higher than the relationships of the personality measures with proactive behavior.	+	T4	Monomethod triangle self sample-weighted average *r* is higher than sample-weighted average *r* of underlined and heteromethod-heterotrait triangle PP *r* PI-P > PP,PI-P *r* V,PI-B,TC (.64 > .11; *p* < .001) PP *r* PI-P > PP *r* V (.83 > .34; *p* < .001) PP *r* PI-P > PP *r* PI-B (.83 > .24; *p* < .001; PI-B includes interview, peer, supervisor) PP *r* PI-P > PP *r* TC (.83 > .41; *p* < .001) PP *r* PI-P > PI-P *r* V (.83 > .61; *p* < .001) PP *r* PI-P > PI-P *r* PI-B (.83 > .25; *p* < .001) PP *r* PI-P > PI-P *r* TC (.83 > .56; *p* < .001)
H2	The intercorrelations amongst the four proactivity measures are higher for supervisor ratings than for self-ratings.	+	T4	Monotrait-monomethod triangle self is lower than monotrait-monomethod triangles supervisor (sample-weighted average *r*) *r*supervisor (.84) > *r*self-rating (.65) (*p* < .001) PIsupervisor *r* Vsupervisor > PIself *r* Vself (.83 > .61; *p* < .001) PIsupervisor *r* TCsupervisor > PIself *r* TCself (.85 > .56; *p* < .001) TCsupervisor *r* Vsupervisor > TCself *r* Vself (.85 > .76; *p* < .001)

H3	There are positive relationships of conscientiousness and extraversion with all forms of proactivity.	+	T5, 6, 7	See text
RQ2	What are the (differential) relationships of neuroticism, agreeableness and openness to experience with the proactivity concepts?		T5, 6, 7	See text
H4	The personality measures of proactivity correlate more highly with the Big Five personality measures than the indicators of proactive behavior.	+	T 5, 7	PP,PI-P *r* Big Five > V,PI-B,TC *r* Big Five (.34 > .14; p < .001) ; PP,PI-P *r* conscientiousness > V,PI-B,TC *r* conscientiousness (.53 > .22; p < .001); PP,PI-P *r* extraversion > V,PI-B,TC *r* extraversion (.48 > .23; p < .001); PP,PI-P *r* openness > V,PI-B,TC *r* openness (.30 > .12; p < .001); PP,PI-P *r* neuroticism > V,PI-B,TC *r* neuroticism (.23 > .12; p < .05); PP,PI-P *r* agreeableness > V,PI-B,TC *r* agreeableness (.10 not> .02; ns.)
H5	There is a positive relationship between job control and all forms of proactivity.	+	T6, 7	See text
H6	There is a positive relationship between social support and all forms of proactivity.	+	T6, 7	Not enough studies TC
H7	There are positive relationships of education, general mental ability, job experience, and tenure with all forms of proactivity.	+	T6, 7	In some cases not enough studies (TC,V); not all correlations significant
H8	There are positive relationship of self-efficacy, role breadth self-efficacy, and locus of control with all forms of proactivity.	+	T6, 7	In some cases not enough studies (TC,V)

H9	There is a positive relationship of responsibility for change with all forms of proactivity.	+	T6, 7	In some cases not enough studies (PP)
H10	There are positive relationships of affective commitment and job satisfaction with all forms of proactivity.	+	T6, 7	Exception: TC and commitment n.s.
H11	There are positive relationships of performance and innovation with all forms of proactivity.	+	T6, 7	In some cases not enough studies (TC,V)
H12	The relationships of proactive behavior with objective performance and innovation are higher than those of proactive personality with objective performance and innovation.	+	T7	V,PI-B *r* performance/innovation > PP,PI-P *r* performance/innovation; V,PI-B *r* performance > PP,PI-P *r* performance (.32 > .11; $p < .05$); V,PI-B *r* innovation > PP,PI-P *r* innovation(.55 > .34; $p < .001$);
H13	The relationships of proactive personality with performance are reduced when holding all Big Five personality factors constant.	+	T8	See text

Note. *r* = average correlation (r_{wc}); e.g., PP*r*PI-B=proactive personality correlated with personal initiative/behavior (average $r_{wc=}$.64) is compared to PP,PI-P *r* V,PI-B,TC = the average correlation of PP with V, PP with Pi-B, PP with TC, as well as PI-P with V, with Pi-B, and with TC (average $r_{wc=}$.11) (*r-to-z*-transformation); PP=proactive personality, PI-P= personal initiative/personality; PI-B=personal initiative/behavior, V=Voice, TC=taking charge, n.s. = not significant.

Table 3 CORRECTED

Meta-Analytic Interrelationships among the Proactivity Concepts

Examined relationship	k	N	r_w	r_{wc}	s_{rw}^2	s_e^2	s_{res}^2	% variance due to sampling error	95% CI	90% credi-bility interval	sign. diff.[a]
1. Personal initiative/overall – proactive personality	6	836	.53	.64	.05	.00	.04	5.31	.47 ; .81	.29 ; .99	1. – 4. 1. – 5.
2. Personal initiative/overall – taking charge	10	1394	.49	.54	..04	.00	.04	8.89	.42 ; .67	.22 ; .86	1. – 3.
3. Personal initiative/overall – voice	9	1652	.46	.51	.04	.00	.04	7.71	.38 ; .64	.20 ; .82	3. – 4.
4. Proactive personality – taking charge	5	1039	.35	.41	.01	.00	.01	33.04	.32 ; .50	.27 ; .54	4. – 2. 4. – 6.
5. Proactive personality – voice	5	1018	.28	.34	.01	.00	.01	33.31	.24 ; .43	.19 ; .48	5. – 2. 5. – 6.
6. Taking charge – voice	9	1955	.52	.61	.07	.00	.07	2.69	.44 ; .78	.19 ; 1.00	

Note. k = number of effect sizes included in the analysis; N = total sample size across studies; r_w = sample size-weighted mean effect size; r_{wc} = sample seize-weighted and reliability corrected mean effect size; s_{rw}^2 = variance in effect sizes; s_e^2 = sampling error variance; s_{res}^2 = residual variance; CI = confidence interval (constructed around the sample size-weighted mean effect size); [a] sign. difference = significant differences between r_w at $p < .05$, based on test for significance of differences in effect sizes.

Table 4 CORRECTED

Meta-Analytic Multitrait-Multimethod Matrix of the Proactivity Concepts

			1	2	3	4	5	6	7	8	9	10	11
Interview													
1.	Personal initiative	Int	(–)										
Self-rating													
2.	Personal initiative	self	.20[d]	(–)									
3.	Taking charge	self	–[b]	.56[h]	(–)								
4.	Voice	self	–[a]	.61[e]	.76[f]	(–)							
5.	Proactive personality	self	.39[d]	.83[f]	.52[e]	.47[d]	(–)						
Supervisor-rating													
6.	Personal initiative	sup	–[a]	.28[f]	–[c]	–[c]	–[b]	(–)					
7.	Taking charge	sup	–[a]	.16[d]	.24[d]	.26[d]	–[c]	.85[e]	(–)				
8.	Voice	sup	–[a]	.21[f]	.24[d]	.35[e]	–[c]	.83[f]	.85[g]	(–)			
Peer-rating													
9.	Personal initiative	peer	–[b]	.26[d]	–[c]	–[a]	–[b]	–[a]	–[a]	–[a]	(–)		
10.	Taking charge	peer	–[b]	–[c]	–[c]	–[a]	–[b]	–[c]	–[b]	–[a]	–[c]	(–)	
11.	Voice	peer	–[b]	–[b]	–[b]	–[b]	–[b]	–[b]	–[a]	–[b]	–[b]	–[b]	(–)

Note. Table entries are sample seize-weighted and reliability corrected mean effect sizes (r_{wc}). Validity diagonals are underlined, heterotrait-monomethod triangles are enclosed by a solid line, heterotrait-heteromethod triangles are enclosed by a broken line. Based on the confidence interval for each relationship, all meta-analytic effect sizes are significantly different from zero. Dashes indicate that values could not be calculated ($k < 3$).

[a]$k = 0$. [b]$k = 1$. [c]$k = 2$. [d]$k = 3$. [e]$k = 4$. [f]$k = 5$. [g]$k = 6$. [h]$k = 8$.

Table 5 CORRECTED

Multiple Regression Analyses of Big Five Personality Traits on Proactivity Concepts (Beta Coefficients)

Variable	Personal initiative/ overall[a]	Personal initiative/ personality	Personal initiative/ behavior[b]	Proactive personality	Taking charge[c]	Taking charge Self	Taking charge Supervisor	Voice[c]	Voice Self	Voice Supervisor
Conscientiousness	.34	.41	.23	.35	.07	.21	.06	.17	.18	.12
Extraversion	.24	.34	.18	.24	.13	.13	.15	.18	.17	.22
Openness to experience	.07	.04	-.04	.17	.07	.14	-.04	.03	.06	-.12
Neuroticism	.06	.07	.02	-.10	-.07	-.02	-.10	-.04	-.04	-.05
Agreeableness	-.04	-.05	-.07	-.22	-.05	-.06	-.11	-.09	-.01	-.04
Multiple *R*	.45	.57	.28	.55	.22	.32	.20	.28	.30	.26
R^2	.20	.32	.08	.30	.05	.10	.04	.08	.09	.07

Note. Table displays standardized regression coefficients (β) – all coefficients based on n-weighted correlations – intercorrelations of Big Five are taken from meta-analysis by van der Linden et al (2010). Because sample sizes are very large, statistical significance of beta weights is less relevant. For interview-based personal initiative, peer-rated taking charge, and peer-rated voice, values could not be calculated ($k < 3$).

[a]Averaged across measurement techniques and data sources (thus, includes interview-based personal initiative, self-ratings as well as supervisor-ratings of personal initiative). [b]Includes supervisor-ratings and interview data of personal initiative. [c]Averaged across data sources (i.e., self-, peer-, and supervisor-ratings).

Table 6 CORRECTED

Meta-Analytic Relationships of Overall Proactivity Concepts with Nomological Net (Across Data Sources)

Variable	Personal initiative/overall	Proactive personality	Taking charge	Voice
Demographic correlates:				
Age	.12/.13*[a6]	.03/.04[b5]	.02/.02[b3]	.06/.06*[ab3]
Gender (1 = female, 2 = male)	.04/.05*[a6]	.00/.00[a5]	.02/.02[a3]	.03/.03*[a4]
Personality Big Five:				
Conscientiousness	.37/.48*[a5]	.39/.49*[a3]	.11/.13*[b2]	.19/.23*[b2]
Extraversion	.31/.40*[a3]	.36/.44*[a3]	.17/.20*[b1]	.22/.26*[b2]
Openness to experience	.18/.24*[ab2]	.28/.35*[a3]	.12/.16*[b1]	.10/.13*[b1]
Neuroticism	-.11/-.14*[a3]	-.24/-.29*[b2]	-.12/-.14*[a1]	-.12/-.14*[a2]
Agreeableness	.10/.12*[a2]	-.02/-.03[b2]	.02/.02[ab1]	.00/.01[ab1]
Job characteristics:				
Job control	.30/.38*[a4]	.19/.25*[ac2]	.31/.36*[a1]	.18/.22*[bc2]
Social support	.11/.14*[a2]	.20/.22*[b1]	–	.16/.19*[ab1]
Human capital:				
Education	.08/.09*[a5]	.09/.10[a3]	.02/.02[a1]	.11/.11*[a2]
General mental ability	.15/.19*[a2]	.06/.08*[a2]	–	–
Tenure	.01/.01[a4]	.01/.01[a3]	.02/.02[a3]	.12/.13*[b5]
Job experience	.11/.13*[a2]	.14/.15*[a2]	.10/.11*[a1]	–

Variable	Personal initiative/overall	Proactive personality	Taking charge	Voice
Orientations and Job Attitudes:				
Self-efficacy	.28/.34*[a6]	.48/.65*[b2]	.26/.30*[ac2]	.13/.15*[c1]
Role breadth self-efficacy	.47/.54*[a1]	.42/.49*[a1]	.46/.55*[a1]	.40/.49*[a1]
Internal locus of control	.20/.26*[a2]	.13/.18*[a1]	–	–
Responsibility for change	.31/.39*[a1]	–	.49/.67*[b2]	.37/.47*[ab1]
Commitment	.22./.26*[a2]	.21/.24*[a2]	.11/.13[ac1]	.09/.11*[c2]
Job satisfaction	.16/.19*[a3]	.25/.32*[b3]	.10/.11*[ac1]	.19/.23*[abc3]
Performance variables:				
Innovation	.24/.32*[a3]	.22/.26*[a1]	–	.65/.73*[b1]
Objective performance	.17/.20*[a4]	.12/.13*[a2]	–	–
Rated performance	.31/.38*[a4]	.23/.24*[a3]	.27/.32*[a2]	.29/.33*[a3]
Supervisor-rated performance	.23/.26*[ab2]	.15/.16*[a1]	.33/.40*[b1]	.30/.33*[ab3]

Note. Table entries are sample size-weighted before the slash and reliability corrected mean effect sizes after the slash (r_w/r_{wc}). Identical superscript letters indicate that effect sizes do not differ from each other (based on the test for significance of differences in effect sizes); e.g., conscientiousness is significantly more highly correlated with proactive behavior than with voice, while there are no differences between its correlations for personal initiative/personality and for proactive personality. Dashes indicate that values could not be calculated ($k < 3$).

[1]$k = 3 – 5$. [2]$k = 6 – 9$. [3]$k = 10 – 15$. [4]$k = 16 – 20$. [5]$k = 21 – 25$. [6]$k > 25$.

*$p < .05$ (based on 95 % confidence interval).

Table 7 CORRECTED

Meta-Analytic Relationships of Personal Initiative/Personality, Proactive Behavior, Personal Initiative/Behavior, Taking Charge, and Voice with Nomological Net (Differentiated on Data Sources)

	Personal initiative			Proactive Personality	Taking charge			Voice		
Variable	Behavior (Interview)	Personality (Self)	Behavior (Interview/ peer/supervisor)		Self	Peer	Supervisor	Self	Peer	Supervisor
Demographic variables:										
Age	-.02/-.03[a1]	.07/.08*[b6]	-.04/-.04[a3]	.03/.04[5]	.03/.03[a2]	-.02/-.03[a1]	-.02/-.02[a2]	.07/.07[a2]	-	.02/.02[a2]
Gender (1 = female, 2 = male)	.03/.03[a2]	.05/.05*[a5]	-.01/-.01[a4]	.00/.00[5]	.04/.04[a]	.05/.05[a]	-.06/-.06[b]	.03/.03*[a]	.03/.03*[a]	.03/.03*[a]
Personality Big Five:										
Conscientiousness	.24/.32*[a2]	.45/.56*[b4]	.23/.30*[a3]	.39/.49*[3]	.24/.28*[a1]	-.07/-.07*[b1]	.08/.09*[c1]	.19/.23[a]*	.19/.23[a]*	.19/.23[a]*
Extraversion	-	.41/.51*[a1]	.19/.23*[b1]	.36/.44*[3]	.21/.25*[a1]	-	.15/.18*[a1]	.23/.27*[a1]	-	.21/.25*[a1]
Openness to experience	-	.19/.25*[a2]	.05/.06[a1]	.28/.35*[3]	.12/.16[a]*	. 12/.16[a] [a]*	. 12/.16[a] [a]*	.10/.13[a]*	.10/.13[a]*	.10/.13[a] *
Neuroticism	-	-.14/-.17*[a3]	-.08/-.09*[a2]	-.24/-.29*[2]	-.12/-.14*	-.12/-.14[a]*	-.12/-.14*	-.12/-.14[a]*	-.12/-.14[a]*	-.12/-.14[a]*
Agreeableness	-	.13/.17*[a1]	.02/.02[a1]	-.02/-.03[2]	.02/.02[a]	.02/.02[a]	.02/.02[a]	.09/.12[a1]	-	.03/.04[a1]
Job characteristics:										
Job control	-	.30/.38*[a4]	.27/.34*[a2]	.19/.25*[2]	.31/.36[a]*	.31/.36[a]*	.31/.36[a]*	.24/.31*[a1]	-	.18/.22*[a2]
Social support	-	.13/.16*[2]	-	.20/.22*[1]	-	-	-	-	-	-
Human capital:										
Education	.23/.26*[a1]	.07/.08*[b4]	.10/.12*[b3]	.09/.10[3]	.02/.02[a]	.02/.02[a]	.02/.02[a]	.11/.11*[a]	.11/.11*[a]	.11/.11*[a]
General mental ability	.21/.29*[a1]	.12/.14*[a2]	.18/.26*[a1]	.06/.08*[2]	-	-	-	-	-	-
Tenure	-	.01/.01[a4]	.02/.02[a2]	.01/.01[3]	.05/.05[a2]	.02/.02[a1]	.01/.01[a2]	.14/.15*[a2]	-	.05/.06*[b4]
Job experience	-	.10/.12*[a2]	.16/.19*[a1]	.14/.15*[a2]	-	-	-	-	-	-
Orientations and Job Attitudes:										
Self-efficacy	.17/.22*[a3]	.36/.44*[b3]	.15/.19*[a3]	.48/.65*[2]	-	-	.23/.27*[1]	-	-	.11/.12[1]

Role breadth self-efficacy	-	.50/.58*[1]	.26/.30*[b1]	.42/.49*[1]	-	-	-	-	-	-
Internal locus of control	.02/.02[a1]	.26/.34*[b1]	-	.13/.18*[1]	-	-	-	-	-	-
Responsibility for change	-	.35/45*[a1]	.30/.37*[a1]	-	.53/.73*[b1]	-	-	-	-	-
Commitment	-	.24/.29*[a2]	.17/.20*[a2]	.21/.24*[2]	-	-	-	-	-	.09/.11*
Job satisfaction	.11/.14*[a1]	.21/.25*[b1]	.11/.13*[a2]	.25/.32*[3]	.10/.11*[a]	.10/.11*[a]	.10/.11*[a]	.20/25*[a2]	-	.14/.16*[a2]
Performance variables:										
Innovation	.32/.42*[a1]	.22/.29*[a2]	.33/.43*[a2]	.22/.26*[1]	-	-	-	-	-	.65/.73*
Objective performance	.25/.30*[a3]	.08/.09*[b2]	.27/.32[a3]	.12/.13*[2]	-	-	-	-	-	-
Supervisor-rated performance	-	.17/.20*[a1]	.51/.58*[b2]	.15/.16*[1]	.22/.26*[a1]	-	.43/.51*[b1]	.12/.14*[a1]	-	.52/.57*[b2]

Note. Table entries are sample size-weighted before the slash and reliability corrected mean effect sizes after the slash (r_w/r_{wc}). Identical superscript letters indicate that the weighted correlations effect sizes do not differ statistically significantly across different sources for the same proactivity concept (e.g., extraversion is significantly more strongly correlated with personal initiative/personality than with proactive personality. Dashes indicate that values could not be calculated ($k < 3$).

[1]$k = 3 - 5$. [2]$k = 6 - 9$. [3]$k = 10 - 15$. [4]$k = 16 - 20$. [5]$k = 21 - 25$. [6]$k > 25$.

*$p < .05$ (based on 95 % confidence interval).

Table 8 CORRECTED

Hierarchical Regression Analyses of Objective and Rated Performance on Proactivity Concepts

	Objective performance			Supervisor-rated performance		
Variable	β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1 Conscientiousness	.155			.237		
Step 1 Extraversion	.074			.052		
Step 1 Openness to experience	-.035			-.004		
Step 1 Neuroticism	-.007			-.028		
Step 1 Agreeableness	.072	.047		.010	.072	
Step 2 Personal initiative[a]	.111	.057	.009	.154	.091	.019
Step 2 Personal initiative/personality (self-rating)	-.034	.048	.001	.054	.074	.002
Step 2 Personal initiative/behavior (supervisor-rating)	–	–	–	.510	.305	.232
Step 2 Personal initiative/behavior[b]	.239	.099	.052	.480	.286	.214
Step 2 Proactive personality	.061	.049	.002	.048	.073	.001
Step 2 Taking charge[c]	–	–	–	.306	.161	.089
Step 2 Taking charge self-rating	–	–	–	.166	.096	.024
Step 2 Taking charge supervisor-rating	–	–	–	.412	.239	.167
Step 2 Voice[c]	–	–	–	.259	.133	.061
Step 2 Voice self-rating	–	–	–	.055	.074	.002
Step 2 Voice supervisor-rating	–	–	–	.507	.310	.238

Note. All regressions based on r_w; that means the meta-analytic inter-correlation matrix for this Table was not reliability corrected. Numbers 1 and 2 indicate Step 1 and 2, respectively, of the multiple hierarchical regression analyses. All coefficients (except the beta weight for the relationships between neuroticism-objective performance and openness to experience – supervised-rated performance) are significant at $p < .001$. Because sample sizes are very large, statistical significance of coefficients is less relevant. Dashes indicate that values could not be calculated ($k < 3$). [a]Averaged across measurement techniques and data sources (i.e., interview, self- and other-rated). [b]Includes supervisor-ratings and interview data of personal initiative. [c]Averaged across data sources (i.e., self-, peer-, and supervisor-ratings).