Personality Determinants of Employee Performance: Beyond the Big Five

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Abstract

Over the past years there has been a growing body of literature that examines the connection between personality and job performance. In accordance with recent development in the field, this study examined the influence of 4 narrow traits (willpower, optimism, grit and need for achievement) on task performance. Using a digital questionnaire, 114 working Dutchmen participated. None of the assessed traits was found to predict task performance. Previous research has suggested that the relationship between personality and job performance is complicated. The results of this study underscore that assertion. To enhance criterion-related validity of studies of the personality-performance relationship, it is recommended to meet with this complexity by taking moderators, contextual influences and curvilinearity into account.

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The relationship between personality and job performance has been a frequently studied research topic in organizational psychology (Barrick, Mount, & Judge, 2001; Jude, Klinger, Simon, & Yang, 2008). Nonetheless, the quest to establish clear-cut, univocal connections between personality and job performance follows a bumpy road. In the first era of this pursuit, results were generally insignificant. Guion and Gouttier (1965) provide a clear example of this. Their finding that personality does not predict job performance leads to the conclusion that there is no generalizable evidence that personality measures can be recommended as good or practical tools for employee selection. According to Hogan and Roberts (2001, p.7), this is a methodological and theoretical issue. They commented that past studies on personality were "sprawling in conceptual disarray, with no overarching theoretical paradigm and the subject matter was operationalized in large numbers of poorly validated scales with different names". It is no wonder, then, that reviewers of the literature drew pessimistic conclusions regarding the utility of personality measures for employee selection purposes (Kanfer, 1990).

However, the systematic investigation of the personality-job performance link got rid of this cloak of pessimism when the Five Factor Model (FFM) was discovered. It was revealed that five dimensions, namely extraversion, agreeableness, conscientiousness, neuroticism and openness, are the core aspects of personality (Digman, 1990; John & Srivastava, 1999; McCrae & Costa, 1999). As Digman and Inouye (1986, p. 116) put it, "if a large number of rating scales is used and if the scope of the scales is very broad, the domain of personality descriptors is almost completely accounted for by five robust factors." The road was now paved, but, as it

turned out, the path to reaching the goal of mapping how personality relates to job performance by no means turned into a highway.

That is to say, results of studies investigating this relationship were still far from analogous. Even meta reviews (which use data of several studies, thereby increasing sample size and making the test more powerful), report different findings. Barrick et al. (2001) summarize:

> Barrick and Mount (1991) found that conscientiousness was the only FFM trait to display non-zero correlations with job performance across different occupational groups and criterion types. In contrast, Tett, Rothstein and Jackson (1991) found that only emotional stability displayed non-zero correlations with performance, and two other Big Five traits – agreeableness and openness – displayed higher correlations with performance than conscientiousness. […] Salgado (1997) and Anderson and Viswesvaran (1998) found that two traits from the five-factor model – emotional stability and conscientiousness – displayed non-zero correlations with job performance. Other meta-analyses have also been conducted, with as much variance in the findings as those reported above (Hough 1992; Salgado 1998). Referring only to the first two studies, Goldberg (1993) has described the differences in findings based on a similar body of knowledge as "befuddling" (p. 31). (p. 10)

It is interesting to notice how "non-zero" correlations are emphasized, implicating that there is a lot of variance still unaccounted for. That is important because it indicates that there are other (personality) variables than merely the Big Five that influence the personality-

performance connection. As will be explained later, this study makes an attempt to fill this gap by investigating the impact of several *specific* (in contrast to the Big Five) personality variables.

Aiming to clear the fog that had been surrounding the road since the very beginning, Barrick et al. (2001), tried to settle the debate once and for all. By performing a meta review of meta reviews, they aimed to create clarity in the 'befuddling' pile of data. They found that, regarding FFM predictors of overall work performance, only Conscientiousness (ρ=.13) and Emotional Stability (ρ=.27) correlated significantly with job performance. The other three components of the FFM did not have significant relationship with general job performance.

Why is that the case? The way the FFM is organized, with the Big Five being literally 'big', aggregated constructs, consisting of multiple lower-level traits, might have something to do with it (Hough & Oswald, 2005). Indeed, Ashton (1998) argues that these narrow traits are more solid predictors of job performance. It might, in other words, be beneficial to change the scope of the personality-performance research.

Beyond the Big Five: Narrow Traits

In accordance with this, several calls have been made to investigate the relation between lower order personality variables and job performance. However, because most research to date has focused on the Big Five framework of personality (Judge, Rodell, Klinger, Simon, & Crawford, 2013), the predictive power of narrow traits, has not been adequately examined (Dudley, Orvis, Lebiecki, & Cortina, 2006).

Still, that does not mean that lower order personality variables are of no importance. For instance, Barrick, Stewart and Piotrowski (2002) found that the relationships of conscientiousness and extraversion with sales performance were mediated by accomplishment

and status striving. Barrick et al. (2001, p. 24) subsequently pointed out that "linking predictors and criteria at a more specific level […] could increase validities and enhance understanding." This suggestion that using broad traits exclusively may result in a loss of predictive validity has been expressed multiple times (Paunonen, Haddock, Forsterling, & Keinonen, 2003; Roberts, Walton, & Viechtbauer, 2006; Murphy & Dzieweczynski, 2005) and was proven to be correct by Paunonen (1993) [1], who found that various self-report behavioral criteria were better predicted by lower level traits than by the Big Five. The same observation was made by, among others Paunonen and Ashton (1998, 2001, 2013) and Judge et al. (2013). It was also repeatedly found that specific traits explain strong linkages between personality and performance better than broad traits do (Tett, Steele, & Beauregard, 2003; Judge et al., 2013; Jenkins & Griffith, 2004; Conte & Gintoft, 2005; Vinchur, Schippmann, Switzer, & Roth, 1998; Ashton, Paunonen, & Lee, 2014). Rothtstein and Goffin (2005, p.163) go on to conclude that "judging from [empirical studies,] narrow traits are clearly outperforming broad dimensions of personality". Furthermore, Dudley et al. (2006) argue that a narrow trait measure is more indicative of a respondent's standing on an identifiable psychological construct. Thus, a more substantively meaningful theoretical framework of trait–work behavior associations can be established.

This study draws on the above-mentioned appeals to investigate the connection between narrow traits and to use of narrower bandwidth measures in the prediction of work related behavior (Tett et al., 2003; Murphy 1994; Hurtz & Donovan, 2000). The purpose of this

[1] This study was criticized by Ones and Viswesvaran (1996, p. 623) who argued that Paunonen's findings were the result of methodological 'errors', including an "extremely small sample size and high capitalization on chance, poor nature of the criteria involved, [and] problems of reliability both in the criteria and the predictors (note the smaller number of items for the Big Five dimensions versus the relatively larger number of items for the narrow personality scales)". But Paunonen's results were confirmed in a subsequent study (Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995), to which none of Ones and Viswesvaran's criticisms apply.

research, namely, is to examine the relationship between several specific personality variables and task performance. More specifically, this study will investigate the influence of willpower, grit, optimism and need for achievement on task performance. With this goal, this study will be of added value to the existing literature because it will lead to a greater understanding of the personality-job performance link, by examining traits of which the connection to job performance has seldom been assessed. Understanding this relationship, and knowing which personality traits predict solid job performance, allows for improving selection procedures. When you know what to look for in a job candidate, what characteristics actually predict job performance, you can make more successful choices when deciding who to hire.

According to Dudley et al. (2006), in order to maximize the predictive validity of narrow traits, as compared with a global Big Five Factor, a particular narrow trait or traits must be selected based on strong a priori linkages to the criterion (see also Rothstein & Jelly, 2003; Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995; Schneider, Hough, & Dunnette, 1996). This is in accordance with the principle of construct correspondence, which states that psychological variables need to be measured at the same level of generality (or specificity) as the behaviors they aim to predict (Fishbein & Ajzen, 1974; Barrick & Mount, 2003). The criterion of the present study is one specific aspect of job performance, namely, task performance. Task performance refers to general job performance as defined by one's job description. It can be defined as the effectiveness with which job incumbents perform activities that contribute to the organization's technical core either directly by implementing a part of its technological process, or indirectly by providing it with needed materials or services (Borman &

Motowidlo, 1997). It reflects how well an individual performs the duties required by the job (Christian, Garza, & Slaughter, 2011).

In the remaining part of the introduction the specific personality variables that are hypothesized to have a favorable impact on task performance will be presented; the required linkages will be established. Since the relationship between the studied traits and task performance has hardly been measured before, studies that looked at other indicators of performance, Grade Point Average and sales for example, will be used to establish hypotheses. Correlational studies suggest that it is valid to make predictions regarding task performance based on other performance measures. Kuncel, Hezlett, & Ones (2004) show that abilities measured by tests designed to measure academic aptitude, are valid predictors of job and task performance. There is also meta-analytic evidence that grades predict job performance (Roth, Be Vier, Switzer, & Schippman, 1996). Furthermore, one can, with caution, argue that, on average, higher wages and more sales (in jobs where it is people's task to sell) can be viewed as general indicators of task performance.

Willpower

Willpower is the ability to control or override one's thoughts, emotions, urges and behavior (Gaillot et al., 2007). Willpower is a sub-trait of the Conscientiousness factor. According to Seligman (2011), there is not much literature on how it relates to performance. By contrast, Hoffman, Baumeister, Förster and Vohs (2012) discovered that people spend at least a fifth of their waking hours resisting desires; making the ability to do so (willpower) a valuable asset.

The famous marshmallow experiment by Mischel, Ebbesen and Raskoff Zeis (1972) provides a first glimpse into the power of self-control. In this study, children who could resist eating a marshmallow for fifteen minutes (and thus exercise self-control), got a second one. Children who could not resist the temptation, did not get a reward. In a follow up study (Mischel, Shoda, & Peake, 1988) the researchers tracked down the original participants and found out that the children who were able to resist the marshmallow at an age between three and five years old went on to get better grades and test scores. The children who had managed to hold out the entire 15 fifteen minutes went on to score 210 points higher on the SAT (a standardized test for most college admissions in the United States) than the ones who had craved after the first half minute. The children with willpower grew up to become more well-liked by their peers, earn higher salaries, have a lower BMI and having less problems with drug abuse. These results are spectacular, because it is rare for something measured in early childhood to significantly predict anything in adulthood (Baumeister & Tierney, 2011). This predictive power is the main reason that willpower was selected for this study.

The predictive power of willpower has been confirmed several times. It has been shown to be more important than any other trait in predicting college grades (Wolfe & Johnson, 1995) and, more specifically, to have about two times the predictive power of IQ in predicting academic performance (Duckworth & Seligman, 2005).

It is therefore hypothesized that willpower is positively related to task performance (Hypothesis 1).

Grit

Grit, which would also be categorized as belonging to Conscientiousness, is defined as "perseverance and passion for long-term goals" (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087). According to Seligman (2011), the difference between willpower and grit is that self-discipline accounts for high achievement, while grit accounts for truly extraordinary achievement. The rationale for this is as follows.

In his magnum opus, Charles Murray (2003) observed that the shape of the distribution of performance, is not remotely bell-shaped. Instead, the curve is log-normal. As well as in sports (number of tournaments won) and fields of science (number of citations) there are two or three giants who grab the lion share of influence. The shape of genius – with the *top* performers outdistancing the average *excellent* performer by a much greater margin than they would in bell-shaped distributions – follows from multiplying, rather than adding, the underlying causes. Nobel prize winner William Shockley (1957), who invented the transistor, also noticed this phenomenon:

> For example, consider the factors that may be involved in publishing a scientific paper. A partial listing, not in order of importance, might be: (1) ability to think of a good problem, (2) ability to work on it, (3) ability to recognize a worthwhile result, (4) ability to make decisions as when to stop and write up the results, (5) ability to write adequately, (6) ability to profit constructively from criticism, (7) determination to submit the paper to a journal, (8) persistence in making changes (if necessary as a result of journal action)… Now if one man exceeds another by 50 percent in each of the eight factors, his productivity will be larger by a factor of 25. (p. 286)

The more grit you have, the more hours you spend on a task and those hours multiply your progress to the goal. In particular, grit entails the capacity to sustain both effort and interest in projects that take months or even longer to complete (Duckworth & Quinn, 2009). In theory, grit would increase performance. Duckworth et al. (2007) and Duckworth and Quinn (2009) provide evidence that this is also the case in practice. This clear link to performance is why grit was chosen as a predictive variable.

Firstly, when following students through their studies, the authors noted that high grit predicted high grades, even when holding SAT scores constant. At the US Military Academy, grit predicted grade point average, military performance (but so did some other tests). However, grit predicted which new arrivals would complete the summer training and which ones dropped out more accurately than any other test and better than all the other tests combined. At The Scripps National Spelling Bee, grit predicted making it into the final round and statistics show that gritty finalists outperformed the rest (this effect was mediated by how much time the kids spent studying the words). Fourth, grit accounted for 4% of the variance in educational attainment among adults.

It is, thus, hypothesized that grit is positively related to task performance (Hypothesis 2).

Need for Achievement

Individuals differing in need for achievement (nAch) differ in the effort they exert on a task, and consequently, how they perform. This is confirmed by Beh (1990) who notes that people high in nAch score higher on vigilance tasks because of their increased cardiovascular activity (this increased activity was not present in low achievers). People who score high on

nAch, always want to perform outstanding. This important influence on motivation is why need for achievement was selected for this study.

One might think that the difference between grit and nAch is minimal. That is however not the case. Individuals high in grit do not need a certain circumstance, reason, or positive feedback to exert extra effort. By contrast, McClelland (1985) noted that there is plenty evidence that individuals high in nAch only work harder when the challenge they face is difficult, but not too hard.

The difference with willpower is that need for achievement especially applies in performance-situations. Individuals high in nAch distinguish themselves in these situations with a moderate challenge, because they have an internal urge to achieve, and therefore perform better. Willpower, on the other hand, is salient in all situations and refers to the ability to resist and override urges and thoughts. This ability to resist temptations and override distracting thoughts might make high-willpower individuals better performers in several domains, independent of how difficult the challenge is and unrelated to their need for achievement. The two constructs are different, but not completely independent, as Mischel (1961, p. 544) theorized: “There can be little realization (and thus little maintenance) of the motive to compete with a standard of excellence [nAch] unless the person is able to delay immediate but smaller gratifications and to choose instead larger future rewards and goals [willpower]. Mischel (1961) found a correlation of .31, confirming that the two constructs are distinct, but not unrelated.

There is no shortage of evidence for a positive nAch-performance connection. For example, Harrell and Stahl (1983) found that nAch correlates positively with Grade Point

Average (GPA) in accounting students, and Schroth and Lund (1994) have made the same observation for performance on cognitive tasks. Hickson and Driskill's (1970) study revealed that students high in achievement motivation are more likely to enter college honors programs and have a higher GPA. A bit more recent support for this was given by Lepper, Corpus, and Iyengar (2005) and Richardson and Abraham (2009) who found that achievement orientation predicted college grades. Chou (2009) showed that achievement motivation has a positive influence on job efficiency and job effectiveness.

In a meta-review, Collins, Hanges and Locke (2004) conclude that there is a positive correlation (r = .46) between need for achievement and entrepreneurial performance in individual studies (r = .18) and known group studies. In this type of research, researchers identify two or more preexisting groups of individuals (e.g. entrepreneurs versus managers, scientists, and professionals) and test for mean differences on some dependent variable among these groups, hoping to find differences between the selected groups on this variable (Collins et al., 2004).

Because of the above-mentioned findings that reveal a picture of a positive relationship between achievement motivation and performance, it is predicted that need for achievement is positively related to task performance (Hypothesis 3a). In line with McClelland's findings it is expected that this relationship is moderated by perceived level of challenge in the current job, such that the relationship is strengthened when the perceived level of challenge is high (Hypothesis 3b).

Optimism

The origins of the psychological construct of optimism (which belongs to Extraversion in the FFM) lay in the experimental learned helplessness research. These experiments are usually conducted in a triadic design (Seligman, 2011). One group (escapable) is exposed to a nettlesome event, such as loud noise. However, they have the ability to make it stop, by pushing a button, for example. The second group receives exactly the same noise, but it goes on and off, regardless of what they do. Thus, the second group is helpless by definition: nothing they do alters the event. A third group (control) receives no noise at all. In the second part of the triadic design, all the groups have the ability to make the noxious event stop. It is usually found that the majority of the second group does not make any effort to do so, because their previous experience has made them believe that their actions do not have any influence on the future outcome (Maier & Seligman, 1976). Nonetheless, not all of them become helpless. Typically, about one third of people (and animals) never become helpless; they keep on trying to make the annoying event stop because they believe their actions influence the future outcome, regardless of previous experience (Seligman, 1991). Those people are optimists.

They believe that causes of setbacks are temporarily, changeable and local (Seligman, 1998). On the other hand they take credit for positive happenstances in their lives and they believe that the personal causes of the positive events continue to exist in the future (Kluemper, Little & DeGroot, 2009). Tiger (1979, p. 18), then, defines optimism as “a mood or attitude associated with an expectation about the social or material future—one which the evaluator regards as socially desirable, to his advantage or his pleasure”.

Although the relation between trait optimism and job-related outcomes has seldom been assessed (Kluemper et al., 2009), there are numerous reasons to assume that optimists perform better on their tasks.

To begin, taking credit for positive life events and believing that setbacks are changeable, requires an internal locus of control. Studies in this direction indeed point to a strong and positive correlation between optimism and internal locus of control (e.g. Guarnera & Williams, 1987). Internal locus of control has been found to be a solid predictor of job performance (Judge and Bono (2001) found a correlation of .22). Next, Mohanty (2010) demonstrated that optimists have a higher employment probability and have higher wages. These findings indirectly suggest that there might be a positive optimism-job performance relationship.

There is also more direct evidence for a positive link between optimism and job performance. Furthermore, optimistic salesman sell more (Seligman, 1998), optimistic CEOs receive higher performance ratings from the chairpersons of their boards and head companies with greater returns on investment (Pritzker, 2002), and optimistic students perform better (Lee, Ashford, & Jamieson, 1993).

This leads to hypothesis 4: optimism is positively related to task performance.

Method

Procedure

Participants were sampled using the author's network. To avoid extreme snowball sampling and to remain able to calculate the response rate, it was requested to redistribute the

questionnaire only to a limited number of people. These people did not spread the questionnaire any further. Only working participants (no students) were recruited. Subjects who agreed to participate got an e-mail with the link to a digital survey. The introduction to the survey informed participants that the aim of this research was to investigate the relationship between personality traits and one's job, and that responses would be processed strictly anonymously. Anonymity was guaranteed because it was not possible to trace responses back to individuals. People who received the link to the survey and who had not indicated to the author that they filled out the questionnaire yet after one week, received a reminder. Respondents did not receive any kind of reward for participating.

Participants

The sample included 114 respondents. In total, the questionnaire was sent to 288 people. Hence, the response rate equals 40%. The 114 participants consisted of 55 males and 59 females. The average age was 31,24 (*SD* = 8.19). The sample as a whole hardly suffered any work disabilities (*M* = 1.46, *SD* = 0.79) and was relatively well-educated (*M* = 3.80, *SD* = 1.05, range = 1 – 5). The sample included few part-timers, since the average amount of working hours per week was 36.24 (*SD* = 7.48). Given the young age, the sample had relatively many years of working experience (*M* = 11.09, *SD* = 9.98).

Measures

The following covariates were assessed: gender, age, years of education, educational level, years of working experience at current organization and years of total working experience, number of working hours per week and work disability (measured with a single

item adapted from Kapteyn, Smith and Van Soest (2007)). Questionnaires that used a Likert scale that, in their original publication, deviated from a 7 point format (e.g. a 5 point format) were assessed with a 7 point Likert scale to avoid confusing participants with different response categories. Thus, answers were given on a Likert scale, ranging from 1 ('not at all like me') to 7 ('very much like me'). This format was employed for all scales. If necessary (that is, if the questionnaire was not in Dutch already), the questionnaires were translated into Dutch in cooperation with a native English speaker from the Tilburg University Language Center, using translation – back translation.

Willpower. Willpower was measured using the Brief Self-Control Scale (BSCS) (Tangney, Baumeister & Boone, 2004) consisting of 13 items. This scale has shown high reliability: an Alpha of .84 and a test-retest reliability of .88 (Tangney et al., 2004). In a study by Duckworth and Seligman (2005), the BSCS also showed high internal reliability with, again, a score of .84 on Cronbach's Alpha. 'I am good at resisting temptation' is an example item from this scale. The Cronbach's alpha of this scale was .77.

Grit. Grit was assessed using the Short Grit-Scale (Grit-S), consisting of 8 items. The Grit-S displayed acceptable internal consistency, with alphas ranging from .73 to .83 in four samples (Duckworth & Quinn, 2009). 'I finish whatever I begin' is an example item. In this study, internal consistency was unsatisfactory ($\alpha = .62$). Alpha if item deleted analysis showed no particular weak items.

Need for achievement. The scale used to assess Achievement Motivation was the short form of the Ray-Lynn Achievement Motivation Scale (Ray, 1979). According to Ray (1979), the 14 item achievement motivation scale has been shown to have uniformly satisfactory reliability.

In a recent study, Cronbach's alpha was found to be .83 (Negovan & Bogdan, 2013). It has also been shown to have high convergent validity as shown by correlations across occupations, and peer-ratings and self-ratings of need for achievement (Ray, 1979). In this study, the items were rewritten into statements, instead of questions, so the 7 point Likert scale could be used. An example item is 'I am satisfied to be no better than most other people at my job' (reverse scored). The Cronbach's alpha was .76.

Job Challenge. Job challenge was measured with the perceived job challenge scale (Preenen, Van Vianen, De Pater, & Geerling, 2011). The questionnaire has 17 items. In previous studies, the alpha coefficient ranged from .80 to .93 (Preenen, et al., 2011). An example item is 'At work, I perform tasks that test my skills'. Cronbach's alpha was .92.

Optimism. Optimism was measured using the revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994). This 6-item scale has been shown to be viable instrument in assessing people's generalized sense of optimism. In previous research, Cronbach's alpha equaled .78 and test-retest reliability after 28 months was .79 (Scheier et al., 1994). These psychometric values have been confirmed in more recent studies (e.g. Jobin, Wrosch, & Scheier, 2013). An example item is 'I'm always optimistic about my future'. This study failed to replicate the abovementioned favorable psychometric properties; Cronbach's alpha was only .66. Alpha if item deleted analysis showed no particular weak items.

Task Performance. Task performance was measured using four items adapted from Song and Chathoth (2013), and three items adapted from Griffin, Neal and Parker (2007). Previously, the items of Song and Chathoth (2013) scored an alpha of .88, and construct validity was confirmed through factor analysis. The items from Griffin et al. (2007), which also have

shown an alpha of .88, were added to ensure that the whole dimension of task performance would be covered properly. That is, they supplement the items from Song & Chathoth (2013), to increase the content validity of the scale. Together, the seven items reflect the whole definition of task performance: the items from Song and Chathoth (2013), namely, refer almost exclusively to one's effectiveness and contributions to the organizational core goal, while the items from Griffin et al. (2007), on the other hand, deal with general performance according to one's task description. This results in a total of seven items. 'I contribute more to the effectiveness of my work unit as compared to most people in the same unit' is an example item.

Although this task performance scale was constituted by items from different scales, and these items had never been used together in previous literature, the scale showed good reliability ($\alpha = 0.90$). A maximum likelihood factor analysis with direct oblimin rotation showed that the items adapted scales from Griffin et al. (2007) and Song and Chatoth (2013) did not 'go together', that is to say, they load on different factors. The different items from both scales each loaded on one separate factor. The factors, on the other hand, correlated strongly ($r = .52$). The two extracted factors accounted for 81% of the original variance. The fact that they load on different factors is not problematic, since task performance is not assumed to be a one-dimensional construct (Campbell, 1990). Given the high internal consistency, no adaptations were made to the scale.

Noteworthy, the exclusive use of self-report measures does not undermine the validity of the present study. Support exists for the accuracy of self-rated performance measures (Fahr & Werbel, 1986). For example, Farh, Werbel and Bedain (1988) reported high similarity between self-ratings and supervisory ratings. Furthermore, Shrauger and Osberg (1981)

compared self-evaluations to other evaluation tools and found that self-appraisals were as predictive of behavior as other assessment methods.

Analysis

To analyze the data, multiple hierarchical regression was employed. The first entry were the control variables (gender, age, years of education, educational level, years of working experience at current organization and years of total working experience, number of working hours per week and work disability). The second block contained the previously introduced personality variables and perceived job challenge. The third and last entry consisted of the postulated interaction effect between need for achievement and perceived job challenge. Task performance was the dependent variable.

Results

Descriptive values of the variables can be found in Table 1. Table 2 displays the relevant correlations. The majority of the personality variables correlated significantly with task performance. That is to say, need for achievement (r = .49, p < .01), optimism (r = .19, p < .01) and grit (r = .18, p < .05) correlated significantly with task performance. This is in line with the predictions. Contrary to the expectations, however, willpower was not related to task performance. Results of the regression analyses (Table 3) revealed that none of the hypotheses were supported by the data. By contrast, adding the personality variables to the regression (Model 2) did lead to a significant F change (R^2=.45, F(5,101)=6.940, p<.005). As shown in the third and final model, none of the personality variables predicted task performance significantly

(despite the significant correlations). Moreover, the interaction between need for achievement and perceived job challenge was not significant. Interestingly, work disability was the only significant predictor of task performance (b =-.33, p < .01). There was a negative relation between indicating to suffer from a disability that influences your work and self-rated job performance.

Discussion

The purpose of this study was to test whether several lower-order personality variables predicted task performance. It was predicted that people who score higher on willpower, grit, optimism and need for achievement perform better on their tasks. This relationship was not found. The postulated interaction effect between need for achievement and perceived job challenge was also not apparent in the data.

It is important to note that the relationships between personality and job performance were not very strong in earlier studies, either. As mentioned in the introduction, previous meta-analyses did not find large effect sizes when investigating the impact of personality on employee performance. A recent meta-analysis by Judge et al. (2013), investigating the effect of narrow and broad traits, found very few estimated corrected correlations ($\hat{\rho}$) above .20 for narrow traits and no estimated corrected correlations higher than .19 for broad traits. Judge et al. (2013, p.36) consequently conclude that “what we lack is anything close to a full explanation of [performance] criteria, even when using the broad and lower-order traits in concert.” Clearly, the correlation coefficients found by this study are not in disagreement with the results of Judge et al. (2013).

Notwithstanding, there are several possible explanations for the insignificant results of this study. To be exact, results might have been insignificant because of curvilinearity, situational specificity or due to a too specific focus on traits (as opposed to states).

Firstly, the insignificant regression coefficients might be insignificant because the relationship between personality and task performance might be curvilinear. Regression assumes linearity, so if the relationship is curvilinear this might have decreased the likelihood of finding significant results using regression. Noteworthy, Brown and Marshall (2001) found an inverted-U-shaped relationship between optimism and performance. Furthermore, previous studies have uncovered curvilinear relationships between personality and performance for several broad (Le et al., 2011; LaHuis, Martin, & Avis, 2005; Carter et al., 2013; Moon, 2001) as well narrow (Day & Silverman, 1989; Selenko, Mäkikangas, Mauno, & Kinnunen, 2013; Zettler & Lang, 2013) traits. However, other studies have failed to confirm this relationship (Robie & Ryan, 1999) or have yielded inconclusive results (Zettler & Solga, 2013). Hence, speculations about curvilinearity remain tentative, although not unlikely (Burch & Anderson, 2008), but lack firm empirical establishment (Le et al., 2011).

Secondly, situational specificity might play an important role, suggesting that plain personality traits are not enough to predict performance. “Situational strength refers to the idea that various characteristics of situations have the capability to restrict the expression and, therefore, criterion-related validity of non-ability individual differences (Mullins & Cummings, 1999; Snyder & Ickes, 1985; Weiss & Adler, 1984)” (Meyer, Dalal, & Bonaccio, 2009, p. 1078). Meyer et al. (2009) meta-analytically demonstrate that the effects of conscientiousness on

performance are moderated by situational strength. In addition, Blickle et al. (2012) show that criterion-related validity of personality measures when predicting job performance increases when taking context into account. It, thus, differs per condition when certain personality aspects predict certain outcomes (Tett & Christiansen, 2007); context can influence behavior at work in many ways (Johns, 2006; Cappelli & Sherer, 1991).

Accordingly, the results in this study might be insignificant because relationships between personality and job performance are situation specific (Tett & Burnett, 2003). On the other hand, situation-specificity was investigated in this study by means of the postulated interaction effect between need for achievement and job complexity. This effect was not found. That might mean that situational specificity is not that important after all. Another interpretation might be that *some* context variables (such as situational strength) still play an important role. In fact, validity of personality tests has been shown to vary by within-job situations (Kell, Rittmayer, Crook, & Motowidlo, 2010). Future research should provide answers to this question.

A final reason for the insignificant results might be the exclusive focus on personality *traits*. Research has indicated that *states* are important predictors of several performance outcomes (Van der Heijden, Van Dam, Xanthopoulou, & De Lange, 2014; Nezlek, 2007; Yeo & Neal, 2006; Chen, Gully, Whiteman, & Kilcullen, 2000). Traits may have an impact on states or related behaviors, yet states are those individual characteristics that initiate the psychological processes explaining micro-level behavior (George, 1991). Van der Heijden et al. (2014, p. 257) consequently argue that “States are the strongest determinants of how workers will feel and

behave at work each particular moment in time". The insignificant results in this study might reflect that statement.

Concluding, these three possible explanations hint at a more complex picture. A picture in which the function of each trait depends on many factors (Judge & Erez, 2007; Witt, Burke, Barrick, & Mount, 2002). Together, they suggest that it is not surprising that when the focus lies predominantly on traits and linearity is assumed, no strong connection is found between personality and (task) performance.

Future research, therefore, should take into account this complexity, in order to get a better understanding of the personality-job performance relationship. Curvilinearity, states and context-dependency should be taken into account when investigating the impact of personality on job performance. That way, more specific and meaningful results and stronger connections can be uncovered.

Limitations

An important caveat was the low observed internal consistency of two of the independent variables (i.e. grit and optimism). This questionable reliability negatively affects the meaningfulness and external validity of the results of this study. Given the fact that these two personality aspects did not begin to come close to significance, it is unlikely that a higher internal consistency would have had overthrown the results of this study, though.

Secondly, the sampling method might limit the external validity of this study´s findings. The sample, namely, existed solely of people in the author's network, which was restricted to a

limited cultural group of employees. This cross-cultural generalizability of this study's results, therefore, is highly questionable.

Another drawback of this study is its cross-sectional design. Assessing the independent and dependent variables at the same moment, makes it impossible to say something about causality. In this study, the exact nature of the relationship between personality and performance will therefore remain unknown.

Theoretical implications

The results of previous studies have suggested that the question "Does personality predict job performance?" is too simple and does not cover the complexity of the issue at hand (Meyer et al., 2009). In accordance with these findings, this study seems to be another one in a long line of correlational designs that found only weak connections between personality and performance. Whereas previous research has yielded disappointing results regarding the relationship between performance and broad traits, this study found comparable results for narrow traits. This seems to suggest that taking other factors besides traits (broad or narrow) into account may increase criterion-related validity, and reap more fruitful research findings. Future research should examine which factors can do this job.

Practical implications

The non-significant results of this study suggest that when personality tests are used for selection purposes, willpower, grit, need for achievement and optimism are probably not the best choices to predict the candidates' task performance. Placing this study in a line with other

studies that found weak correlations between personality and performance, it should be reconsidered if personality measures are good selection tools *at all* (Morgeson et al., 2007).

However, other authors suggest that personality tests are apt selection tools, as long as no one-size-fits-all test is used (Schmidt & Hunter, 1998; Mount & Barrick, 1995). That is to say that interaction effects (possessing a certain trait might be beneficial in certain occupancies, but not in others), curvilinearity (a higher score on a particular trait is not per se a better score) and multidimensionality (assessing broad traits as well as relevant, researched narrow traits[2] and states) should be taken into account in order to maximize the usefulness, validity and informative value of personality measures when selecting employees.

Conclusion

This study investigated the influence of willpower, grit, optimism and need for achievement on task performance, using a cross-sectional design, employing self-report questionnaires. A positive relationship between these personality aspects and the criterion of task performance was expected. Furthermore, a positive interaction between need for achievement and job complexity was postulated. However, none of the hypotheses could be confirmed. This could indicate that the question "Does personality predict job performance?" is too simple and should be reconsidered. Future research should investigate this complexity by taking curvilinearity, states and contextual variables into account, and see whether the role of one-size-fits-all personality assessments for selection purposes should be reevaluated.

[2] This study did not find significant results using (solely) narrow traits. Still, that does not mean that narrow traits should be wrote off completely (see, for an example of the possible value of narrow traits, Paunonen et al. (2003)). Judge et al. (2013), in support of this call for multidimensionality in selection tools, argue that traits are most useful as predictors when broad and narrow traits are used in concert.

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Table 1. *Descriptive Values of Variables*

	N	Mean (SD)	Range
Task Performance	114	5,00 (1,05)	1,00 – 7,00
nAch	114	5,00 (0,66)	3,71 – 6,36
Optimisme	114	5,21 (0,74)	3,33 – 7,00
Grit	114	4,72 (0,73)	2,75 – 6,25
Willpower	114	4,71 (0,75)	3,08 – 6,46
Job Challenge	114	4,94 (0,99)	1,00 – 6,86

Table 2. *Pearson Correlations Between Dependent and Independent Variables*

	1	**2**	**3**	**4**	**5**	**6**
1. Task performance	-					
2. nAch	.49**	-				
3. Optimism	.19**	.32**	-			
4. Grit	.18*	.34**	.14	-		
5. Willpower	-.00	.41**	.08	.69**	-	
6. Job Challenge	.27**	.36**	.37**	.03	-.15*	-

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

Table 3. *Regression Coefficients of Covariates and Independent Variables*

Model		Unstandardised		Sig.
		B	SE	
1	(Constant)	5.08	.70	.00
	Gender	.47	.15	.00
	Age	-.00	.02	.85
	Education	-.12	.08	.10
	Experience (total)	.04	.02	.02
	Experience (current job)	-.02	.01	.04
	Hours per week	-.00	.01	.80
	Work disability	-.40	.08	.00
2	(Constant)	3.70	.85	.00
	Gender	.18	.16	.27
	Age	-.00	.01	.85
	Education	-.14	.08	.07
	Experience (total)	.02	.02	.14
	Experience (current job)	-.01	.01	.17
	Hours per week	-.01	.01	.36
	Work disability	-.36	.08	.00
	nAch	.40	.14	.00
	Optimism	.08	.10	.43
	Grit	.05	.14	.71
	Willpower	-.10	.15	.51
	Job Challenge	.02	.09	.83
3	(Constant)	7.96	3.17	.01
	Gender	.19	.16	.24
	Age	-.01	.02	.57
	Education	-.13	.08	.10
	Experience (total)	.03	.02	.10
	Experience (current job)	-.01	.01	.16
	Hours per week	-.01	.01	.44
	Work disability	-.33	.09	.00
	nAch	-.40	.59	.50
	Optimism	.13	.11	.22
	Grit	.03	.14	.83
	Willpower	-.10	.15	.48
	Job Challenge	-.90	.66	.18

nAch*challenge	.17	.12	.17