The Two Facets of Conscientiousness: Interaction of Achievement Orientation and Dependability in Predicting Managerial Execution

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Abstract

The two facets of conscientiousness, achievement orientation and dependability, have frequently been found to relate to performance outcomes in different manners. However, little research has examined the interaction between these two facets. In this paper we examine the main effect and interaction of these two facets in predicting managerial execution. Using two separate samples of Executive Master of Business Administration (EMBA) students (N = 167 in Study 1 and N = 269 in Study 2), we found that dependability but not achievement orientation had a direct positive association with coworkers’ rating on managerial execution. More importantly, there was an interaction effect between these two facets. Dependability was strongly associated with execution among managers with high achievement orientation, but not among managers with low achievement orientation.

*Keywords:* Managerial execution, conscientiousness, achievement orientation, dependability, interaction.
The Two Facets of Conscientiousness: Interaction of Achievement Orientation and Dependability in Predicting Managerial Execution Effectiveness

Personality research over the past two decades has consistently shown that the big five personality traits, namely, extraversion, openness to experience, agreeableness, conscientiousness, and emotional stability, are reliable and valid predictors of employees’ work performance (Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001; Hurtz & Donovan, 2000; Salgado, 1997), including the performance of managers and leaders (Judge, Bono, Ilies, & Gerhardt, 2002; Oh & Berry, 2009; Robertson, Baron, Gibbons, MacIver, & Nyfield, 2000). However, it has also been increasingly recognized that these five traits stand at a very high-order level in the personality hierarchy, and may thus be too broad to reveal detailed information about individual differences. Using finer-grained traits, such as the facets of the big five, may help enhance the prediction on job performance (Ashton, 1998; Dudley, Orvis, Lebiecki, & Cortina, 2006; Hough, 1992; Oswald & Hough, 2010; Stewart, 1999).

Despite of the many efforts revealing the value of narrower traits of the big five, most of them tend to focus on their main effect and insufficient research has considered that facet-level traits may also interact in predicting performance outcomes. As has been shown by several empirical investigations on the big five domains, interaction between personality traits are likely to occur, such as between extraversion and conscientiousness (Witt, 2002), between agreeableness and conscientiousness (Witt, Burke, Barrick, & Mount, 2002), and between conscientiousness and emotional stability (Judge & Erez, 2007). The implications from these findings demonstrate that personality traits are not independent and complementary, instead, can have a multiplicative relationship in relating to performance, such that the relationship
between one personality trait and performance depends on the varying level of another personality trait (R. Hogan, Hogan, & Roberts, 1996; Moon & Livne, 2011).

The same logic can be extended to studying facet-level traits, which has not been given much attention to this date. This is thus the main focus of the current investigation. In this paper, we focus our attention on the facets of conscientiousness. There are two reasons for this. First, among the big five traits, conscientiousness has frequently been found as the most useful predictor of performance across job contexts (Barrick & Mount, 1991; Barrick et al., 2001; Hurtz & Donovan, 2000; Salgado, 1997). Secondly, evidence about facet-level constructs is perhaps most well established on conscientiousness than on other big five domains. Two broad facets of conscientiousness, achievement orientation and dependability, have been consistently discovered from the conscientiousness domain (Ashton, 1998; Hough, 1992; Moon, 2001; Moon, Kamdar, Mayer, & Takeuchi, 2008; Oswald & Hough, 2010). Therefore, we consider it is meaningful to begin our attempts in investigating the interaction among facet-level traits from the use of conscientiousness and its two facets.

To examine the interaction of conscientiousness facets, we chose to focus on a finer-grained performance aspect, managerial execution. This criterion is chosen for two reasons. First, this criterion is conceptually related to conscientiousness and should thus demonstrate strong empirical linkages with the predictor (Bartram, 2005). Second, despite that many researchers tend to use broad rather than narrow performance domains, such as overall job performance or task performance, it has been pointed out that matching predictors and criteria on bandwidth is an important approach to maximize predictive validity (Campbell, 1990; J. Hogan & Roberts, 1996; Moon & Livne, 2011; Ones & Viswesvaran, 1996). As this study uses finer-grained personality predictors, it is more appropriate to use similarly finer-grained
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While most past studies focusing on the domain level of conscientiousness trait have confirmed its positive and potent effect in predicting work performance across job context (Barrick & Mount, 1991; Barrick et al., 2001; Hurtz & Donovan, 2000; Salgado, 1997), it has been recognized that conscientiousness is a complex, high-order construct that has a great bandwidth and is comprised of multiple facets (Costa & McCrae, 1995; Costa, McCrae, & Dye, 1991; Dudley et al., 2006; Goldberg, 1993; Oswald & Hough, 2010; Paunonen, 1998). In particular, researchers have successfully differentiated two major facets from the broad domain of conscientiousness: a dependability facet (sometimes labeled as duty, conformity, order, etc.) that captures the concept of being disciplined, rule-following, detail oriented and trustworthy, as well as an achievement orientation facet that addresses the tendency to strive for excellence, adopt high standard and set challenging goals (Costa et al., 1991; Dudley et al., 2006; Hough, 1992; Jackson, Ashton, & Tomes, 1996; Mount & Barrick, 1995).

Several scholars have proposed different views to conceptualize and examine the different implications of these two facets in predicting various performance outcomes. For example, in the context of innovative citizenship behavior (i.e., taking charge), Moon (2001) and Moon, Kamdar, Mayer, and Takeuchi (2008) suggested that dependability is more other-centered whereas achievement orientation is more self-centered. Accordingly, the authors found that the two facets were both predictive...
of taking charge, but in opposite directions: the relationship was positive for dependability (duty), but negative for achievement orientation. In predicting overall job performance for different types of job, Hough (1992) reported that achievement orientation was more important for managers/executives, while dependability was more important for health care workers whose job require more detail orientation and persistence. In the context of different career development stages for sales personnel, Stewart (1999) reported that dependability (order) was more important in the transition stage (i.e. newly hired) when individuals need to structure and organize the new environment, whereas achievement orientation was more important for the maintenance stage (i.e. veteran) during which goal attainment is warranted. In sum, these perspectives suggest that these two facets are conceptually and empirically different from each other. By considering them separately rather than lumping them together, we can reveal more refined relationships between the facet-level traits and specific performance outcomes and potentially enhance the predictive validity of using personality assessment.

Despite these earlier studies provide useful insights about the differential effects of the two facets, they only concern the complementary effect rather than synergistic effect of the facet-level constructs. It has been suggested that since personality constructs are not independent of each other and different personality constructs are nested within the same individuals, moderation effect should be expected among traits that are not highly correlated (Moon & Livne, 2011; Penney, David, & Witt, 2011). Put differently, because different personality traits represent different functions in shaping individuals' performance, it is possible that impact of one trait on behaviors can depend on the levels of other traits (R. Hogan et al., 1996). Studies focusing on the domain-level of big five traits have supported this idea with
empirical findings on interaction effect of personality traits in predicting performance (Judge & Erez, 2007; Witt, 2002; Witt et al., 2002). For instance, Witt (2002) found that the relationship of extraversion with job performance in service context depends on the level of conscientiousness, such that extraversion positively related to performance among highly conscientious people but not among relatively less conscientious people, because only when individuals were most effective to get details right (i.e., high conscientiousness), they are more likely to use their interpersonal skills to satisfy customers (i.e., high extraversion).

Taking the same perspective, we expect that it is worthwhile to examine the interactions between personality facet-level traits, such as between dependability and achievement orientation, as these interactions may provide meaningful and incremental information about performance outcomes. In this study, we aim to examine interaction effect of dependability and achievement orientation on managerial execution. We focus on managerial execution here for two major reasons. First, it is an important aspect of managerial performance without which organizational strategies and ideas cannot be turned into concrete and visible business results (Bossidy & Charan, 2002; Charan & Colvin, 1999; Kaplan & Norton, 2008). As has been demonstrated in organizational innovation literature, successful innovation does not occur when a creative idea is generated (i.e., idea generation), but rather, when that new idea is put into practice (i.e., idea implementation) (Axtell et al., 2000; Choi & Chang, 2009). Similarly, it is only through deliberate and persistent execution could managers and leaders turn their strategies and visions into reality and drive positive business outcomes. Second, managerial execution is a performance outcome that is not only conceptually and empirically linked to conscientiousness (Bartram, 2005), but is also a narrow-defined performance which is desirable to test
the impact of facet-level traits according to a bandwidth-matching perspective. Specifically, researchers have suggested that more meaningful predictor–criterion relationships occur when the constructs of both ends are underpinned by similar latent structure and are of similar bandwidth (Campbell, 1990; J. Hogan & Roberts, 1996; Ones & Viswesvaran, 1996). Thus, it is more desirable to use a performance outcome that is both conceptually related to and that are of similar bandwidth with the predictors. Given that predictors of relatively narrow bandwidth (i.e. facets of conscientiousness) are targeted, relatively narrow performance outcome should be more appropriate. Therefore, in this study we use managerial execution as the desired outcome for investigating facet-level conscientiousness. More details about this performance construct are discussed in the next section.

Managerial execution

Although execution has often been discussed in business practice, a clear and scientific definition of this term is lacking. Among the sparse evidence, Bossidy and Charan (2002) indicated that ‘execution is a systematic process of rigorously discussing hows and whats, questioning, tenaciously following through, and ensuring accountability’ (p. 22). Bartram and colleagues (Bartram, 2005; Kurz & Bartram, 2002) in a recently developed work performance model, the Universal Competency Framework, posited organizing and executing as one of the eight most fundamental competencies, and defined this factor as ‘plans ahead and works in a systematic and organized way; follows directions and procedures; focused on customer satisfaction and delivers a quality service or product to the agreed standard’. These scholars imply that, first, execution is action-oriented such that it is about the work behaviors that contribute directly to “getting things done”; and second, execution is a process that
includes both the phase of planning and organizing resources, and the phase of delivering and implementing tasks.

In order to offer a more theoretical basis to unpack the nature of execution in managerial context, we draw on the action theory (e.g., Frese & Zapf, 1994) which suggests that plans lead to goal-directed implementation, as well as on previous conceptualization about execution as discussed above, to define managerial execution behaviors as: *allocating tasks, organizing resources, implementing plans and tackling arising problems to achieve goals*. Such a definition suggests that an observed execution behavior is the outcome of a process from preparation (e.g., allocating tasks, organizing resources) to implementation (e.g., implementing plans and tackling arising problems). Given that managers and leaders execute tasks by organizing and coordinating people, time, and resources to get things done (Gorman, 2007), it is necessary for them to first organize tasks and set clear action directions, and secondly, to effectively implement the plans and carry out appropriate actions to achieve goals.

Conceptualizing managerial execution in terms of both preparation and implementation stages has its merits in acknowledging that managerial execution is a process involving thinking and doing in completing tasks. Our approach is in line with existing research on innovation, which has been defined as having two broad stages – idea generation and idea implementation (Amabile, 1988; Axtell et al., 2000; Mumford, Scott, Gaddis, & Strange, 2002; West, 1990). The idea generation stage refers to individuals or groups coming up with ideas to address organizational needs, while the idea implementation stage refers to the transformation of ideas into new practices, products and procedures. Idea implementation, which frequently depends on the approval, support and resources of others, is a more social process and is thus far more challenging than inventing ideas (Axtell et al., 2000; West, 2002). Only
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through this two-stage process could novel ideas be turned into end outcomes and help the organization achieve competitive advantage. In the same vein, only when managers and leaders dedicate themselves to the time-consuming and painstaking execution process could organizational tasks and projects be completed.

We need to pay more attention on managerial execution since it has been well noticed that many business failures are often not due to flawed business strategy but rather, the poor execution skills on the part of leaders (Bossidy & Charan, 2002; Charan & Colvin, 1999; Kaplan & Norton, 2008). These authors pointed out that while many leaders concentrate their efforts on creating visions and conceptualizing strategies, these behaviors are not sufficient on their own. Instead, leaders also need to invest time and energy into the painstaking execution stage to actually do things, so that their visions would be translated into concrete, visible results. When managers lack execution, their projects would run the risk of not being followed through and left unfinished, and their goals and promises would be left unfulfilled.

Indeed, in acknowledging its importance, managerial execution has been viewed as one of the key dimension(s) of managerial behaviors in almost all performance models (Bartram, 2005; Borman & Brush, 1993; Tett, Guterman, Bleier, & Murphy, 2000). However, it has been rarely studied in-depth among past studies, compared to broader performance outcomes such as overall job performance or overall leadership effectiveness. However, an increasing number of scholars (Bartram, 2005; J. Hogan & Holland, 2003; Hurtz & Donovan, 2000) have suggested focusing on more specific performance outcomes because different performance factors contain rather distinct meanings and are thus underlined by different predictive mechanisms. For example, Bartram (2005) in his meta-analysis examined the relationship between big five personality and the Great Eight performance dimensions and found that each
performance dimension was differentially predicted by different traits. For the dimension of organizing and executing, conscientiousness was the only big five factor trait which had meaningful prediction, with an observed correlation of .15. The remaining four personality traits showed virtually zero relationships ($r$ ranged from -.05 to .04). In contrast, another Great Eight performance dimension, interacting and presenting, was only predicted by extraversion ($r = .18$), but not by other traits ($r$ ranged from -.01 to .07). Thus, although organizing and executing and interacting and presenting are both important managerial performance, they are preceded by different dispositional traits. Such results suggest the multidimensional nature of performance and the need of closer examination on specific performance factors.

In this study, we aim to focus on the concept of managerial execution and to extend Bartram’s (2005) work by understanding the relationship between conscientiousness and managerial execution. Specifically, we provide a finer-grained measurement for managerial execution and consider the potential interaction effect between two specific facets of conscientiousness, dependability and achievement orientation, in predicting managerial execution. In the following section, we suggest that both facets are important yet with different implications on the outcome of managerial execution, and then propose our hypotheses on the potential interactions between these two facets.

Hypotheses development

We expect that dependability will positively predict managerial execution performance. This is because dependability indicates the tendency to be disciplined, methodical, organized, planful, and respectful of regulations (Dudley et al., 2006; Hough, 1992), and thus reflect an ability to constrain and regulate oneself (Costa et al., 1991). These qualities are in line with the content of execution, which is about
committing to plans and schedules, following through projects and fulfilling promises. In support of this view, there has been empirical evidence showing that dependable individuals tend to be good organizational citizens by fulfilling their roles and executing on assigned tasks, so as to meet expectations and contribute to the whole organization (Hough, 1992; Moon, 2001; Moon et al., 2008). Accordingly, we propose that dependability helps managers to excel in execution, and its effect is mostly through the function of regulating an individual’s attention and behavior to stay on track and follow through.

\textit{H1: Dependability will positively predict managerial execution performance.}

We also expect that achievement orientation will positively predict managerial execution performance. Since achievement orientation is a form of intrinsic motivation (Elliot & Harackiewicz, 1994), it motivates an individual to set high-level goals (Phillips & Gully, 1997) and enables this person to devote more effort and commitment towards goal achievement (Locke & Latham, 2002). As such, achievement orientation can act as an important driver during task execution, given that successful execution is a fundamental part of job accomplishment. Past research on achievement orientation has shown that this facet is positively related to overall task performance (Dudley et al., 2006; Hough, 1992), and since execution is a key facet of task performance (Bartram, 2005), we expect the effect from achievement orientation will also hold for this performance outcome. Taken together, we hypothesize that achievement orientation will positively contribute to managers’ execution, and its effect is mostly through the function of enhancing an individual’s inner drive and efforts towards accomplishing better results.

\textit{H2: Achievement orientation will positively predict managerial execution performance.}
More importantly, in line with the idea that moderation effect would exist among personality traits such that the prediction of one trait on performance can be dependent on the level of another trait (R. Hogan et al., 1996; Moon & Livne, 2011), we consider the potential interaction effects of these two facets in predicting managerial execution. Specifically, we expect that achievement orientation will provide an enhancing effect on the association between dependability and managerial execution such that dependability will have a strong impact on managerial execution when achievement orientation is higher, but dependability will have a less strong impact on managerial execution when achievement orientation is lower. We based our reasoning on self-regulation theory from an ego-depletion perspective (Baumeister & Vohs, 2007).

According to self-regulation theory and an ego-depletion perspective (Baumeister & Vohs, 2007), the motivation to achieve goals or to meet standards is the key factor that enables the operation of a self-regulation system. However, all regulated actions take ego resources to monitor and modify behaviors to achieve a goal in a planned direction. This effortful regulation process is especially crucial for execution performance because execution requests efforts to focus on different elements (such as bringing together staff and organizing resources) to make sure all things are on the right track in completing tasks according to plans. As mentioned before, individual high in dependability tend to focus on details, duties and rules in completing tasks (Costa et al., 1991), and thus will have higher execution effectiveness; however, at the same time, they also need to pay more ego resources in the effortful regulation process. As such, having a stronger motivation is crucial to foster strong ego resources in the regulation process (Job, Dweck, & Walton, 2010). Because achievement orientation reflects an underlying motivation to strive for
excellence and achieve success, we expect that achievement orientation would act as the agent to facilitate the effect of dependability.

Specifically, the desire to achieve and the tendency to set and commit to high goals (i.e. achievement orientation) will be the driving force that pushes an individual to better enact their dependability throughout task execution so as to deliver excellent results. All things being equal, individuals with higher achievement orientation may be more effective in managing their internal regulatory forces and would more actively employ their dependability to complete assigned tasks and achieve goals. By contrast, individuals with lower achievement orientation may not place as much value on goal fulfillment and may therefore not invest as much efforts as they can. Even though some of them may have a strong dependable tendency to keep them organized and reliable in completing tasks, they may do just enough to get by, rather than achieving their full potential. These arguments point to a potential interaction effect such that dependability will be positively moderated by the magnitude of an individual’s achievement orientation, and this interaction would be especially important when executing tasks is the concerned performance aspect. Taken together, we hypothesize:

\[ H3: \text{Achievement orientation will moderate the relationship between dependability and managerial execution performance, such that the effect of dependability on managerial execution performance will be stronger among managers with higher achievement orientation.} \]

Study 1

In Study 1, we examine the interaction effect of achievement orientation and dependability in predicting the outcome of managerial execution rated by direct
supervisors. An exploratory approach was adopted to first, assess the validity of the two conscientiousness facets as well as the selected indicators of managerial execution, and second, to test our proposed hypotheses.

Method

Participants and Procedure

Participants were 167 part-time Executive Master of Business Administration (EMBA) students attending a leadership development workshop at a graduate business school of China. Their mean age was 40.65 years, and 88% were male. As part of the course requirement, the EMBAs completed a personality measure (discussed below). In the mean time, they were asked to invite their direct supervisor at work to rate their execution effectiveness.

Measures

Personality measures

A Big Five-based personality inventory, Page’s Work Behavior Inventory (PWBI, Page, 2009), was used. The criterion-related and construct validity of this personality measure has been well reported in the PWBI manual (Page, 2009). In this measure, six scales were designed to measure the broad domain of conscientiousness. These include: achievement orientation (e.g. ‘I have high personal standards for the quality of my work’), initiative (e.g. ‘I do more than has been requested of me’), persistence (e.g. ‘I rarely give up when faced with obstacles’), attention to details (e.g. ‘I am good at identifying and preventing careless mistakes or omissions’), dependability (e.g. ‘Once I have made a commitment, I can always be trusted to follow through’) and rule following (e.g. ‘Even though it may be inconvenient, I always follow the rules’). Each scale contains 10 to 12 behavioral items, on which test
respondents report their degree of agreement on a 5-point Likert scale, with 1 indicating strongly disagree and 5 indicating strongly agree. Raw scores were then standardized against the test publisher’s global norm. The Chinese version of these scales was used. The Chinese and English versions of PWBI have been found to have equivalent reliability (Liang & Yang, 2006) and high same-scale reliability across language forms based on responses from bilingual test takers (Thompson, Hartmann, Vang, & Tubré, 2008). On the six conscientiousness scales, Cronbach’s alpha ranged from .69 to .78. The overall conscientiousness scale had a Cronbach’s alpha of .90.

Given that no previous evidence was available about the factor structure of the conscientiousness domain using this specific personality instrument, we conducted an exploratory factor analysis using principle axis factoring extraction and promax rotation, to examine whether the six conscientiousness scales can be explained by the two major factors of achievement orientation and dependability. A two-factor structure was found, with two factors explaining 72.07% of variance. Factor loadings of the six scales are shown in Table 1. As can be seen, the first factor was strongly loaded by 

dependability, rule following, and attention to details, and thus clearly reflects the dependability facet. The second factor was strongly loaded by 

achievement orientation and initiative, and thus clearly reflects the achievement aspect. The persistence scale loaded on both factors, although slightly higher on the achievement orientation factor.

The above results demonstrate that using conscientiousness scales in the PWBI, the two facets of conscientiousness, achievement and dependability can be clearly found. Given the existence of cross-loading (especially with the persistence
scale\(^1\)) and also for the purpose of better controlling measurement errors associated with each individual scale, we chose to use the factor scores of the two factors in further analysis. This is to best represent the latent factors from factor analysis result, an approach having been used by other researchers (e.g., Judge, Erez, Bono, & Thoresen, 2003).

Criterion measure

Managerial execution was assessed by four competencies taken from a leadership competency measure (Wang, Fang, & Mobley, 2006). These leadership competencies are crucial to individual effectiveness in executing core tasks, including organizing, tasks allocation, problem solving in implementation, and execution skills. These competencies were selected by the authors from the entire competency pool to best represent the managerial execution concept. To assess whether the items of these four competencies can well capture the concept of managerial execution, a content validation analysis was conducted by inviting four experienced I/O psychologists to independently assess whether each item is essential for managerial execution, according to the definition provided in the earlier section. Using Lawshe’s (1975) approach, these I/O psychologists were required to rate “essential”, “useful but not essential”, and “not necessary” on each item with a total of 15. Across four raters, the

\(^1\) To test whether our results are affected by the inclusion of the crossing-loading scale of persistence, we deleted persistence from the exploratory factor analysis and use the revised factor scores in further analysis. It was found that results were well sustained. Given that results were largely similar, we decided to retain persistence in the analysis so as to comprehensively assess the content of the conscientiousness domain.
content validity ratio (CVR) across all items was 0.77, reflecting a good degree of agreement that the items being used tap the construct we intend to measure.

Supervisors provided ratings on a 1-5 Likert scale (1 = Never, 5 = Always) in terms of how frequently the target person demonstrates certain behaviors in daily work. An example item of each of the four competencies is: ‘Determines, obtains and organizes necessary resources to accomplish the task’ (measuring organizing); ‘When assigning a task to a subordinate, makes sure that the deadline, time horizons and expectations are clearly communicated’ (measuring task allocation); ‘Knows how to find alternatives to achieve the goals’ (measuring problem solving in implementation); and ‘Always finishes work before the deadline’ (measuring execution skills).

Exploratory factor analysis on the four competencies produced a 1-factor structure, with the first factor explained 78.50% of total variance. This result suggests that the four competencies were highly interrelated, and it is more desirable to aggregate them into an overall execution factor. Therefore, we aggregated the four competencies and used the overall score in further analysis. The overall execution scale had an internal consistency of .90.

Results

Descriptive analysis

Table 2 presents the descriptive results of all study variables. In order to avoid confusion in terminology, we used Dependability Factor and Achievement Factor to

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2 We used a composite score here because it helps present the figures (Figure 1 and Figure 2) so that execution is plotted with original scores. Nevertheless, based on the same rationale to partial out measurement errors as in measuring personality factors, we also computed a factor score from these four execution constructs, using exploratory factor analysis to extract one factor to represent the high-order managerial execution construct. We conducted the same regression analysis using the factor score of managerial execution, and obtained similar findings. Therefore, for clarity in presenting figures, we chose to report results based on the composite score rather than the factor score of managerial execution performance.
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refer to our operationalizations of the theoretical constructs of dependability and achievement orientation. We also reported overall conscientiousness in the table to allow result comparison. All variables were normally distributed, including execution which had relatively high mean scores (mean = 4.08 in Sample 1). The two background variables, age and sex, did not relate to supervisory ratings of execution. The achievement factor and dependability factor correlated at .65. Managerial execution ratings positively related to the dependability factor ($r = .16, p < .05$), but not to the achievement factor ($r = .04, n.s.$). Therefore, Hypothesis 1 was supported, but Hypothesis 2 was not.

Regression analysis

We conducted hierarchical regression analysis on managerial execution ratings by entering age, sex, achievement orientation and dependability in the first step, and the interaction term in the second step. We computed the interaction term of achievement and dependability by multiplying the factor scores of these two factors. No centering was needed because the factor scores were already standardized. As reported in Table 3, in the first step, the dependability factor had a positive effect on execution ($\beta = .21, p < .05$) whereas the achievement orientation factor had null effect ($\beta = -.09, n.s.$). In the second step, the interaction term emerged as a significant predictor in both samples ($\beta = .21, p < .01$), while the effect of the dependability factor still held ($\beta = .24, p < .05$). The entering of the interaction term significantly increased the variance explained on execution, the outcome variable ($\Delta R^2 = .04, F(1, 162) = 7.63, p < .01$).

Figure 1 displays the interaction plot on execution ratings, using non-standardized regression coefficients with a mean of plus or minus one standard deviation for the achievement orientation factor and the dependability factor. As
expected, the positive effect of dependability was stronger among managers with higher achievement orientation. Results of simple slope test showed that the effect of dependability on execution was significantly positive among managers high on achievement orientation (simple slope $\beta = .44, t = 3.44, p < .01$), but was not significant among managers low on achievement orientation (simple slope $\beta = .05, t = 0.42, p > .05$). H3 was thus supported.

Supplementary analysis

To examine to what extent considering the facets of conscientiousness outperforms the broad conscientiousness factor as a whole, we performed a regression analysis by entering conscientiousness rather than the two facets and their interaction as the predictor. Results show that conscientiousness did not significantly predict managerial execution ($\beta = .08, n.s.$), after controlling for age and sex, and the regression model explained only 2% of variance in the outcome. This is much less than the 8% of variance explained by the two facets and their interaction term. Also, the broad conscientiousness factor did not correlate to the outcome in Table 2 ($r = .09, n.s.$), obscuring the fact that the dependability facet actually positively correlated with the outcome ($r = .16, p < .05$). These results suggest that the two main facets of conscientiousness may have cancelled out each other and thus led to an overall less strong effect when conscientiousness was examined as a whole. The facets and their interaction demonstrated unique and superior prediction compared to the broad conscientiousness factor.
Study 2

In Study 2, we examine the interaction effect of achievement orientation and dependability in predicting the managerial execution as rated by peers. As having been suggested by researchers, in addition to supervisors, peers can provide valid observations and assessment of individuals’ work behaviors (Oh & Berry, 2009; Wu & Wang, 2011). This may especially be the case for execution behavior, which is a key component in all jobs and should be observed by all coworkers. Therefore, using performance ratings from multiple rater sources across two different samples provides a means to cross validate the observed results. In addition, based on the derived factor structure in Study 1, we use a confirmatory approach in Study 2 to assess the validity of the two conscientiousness facets and the selected indicators of managerial execution, and to test our hypotheses. The use of confirmatory approach helps to provide stronger support to our results.

Method

Participants and Procedure

Participants were 269 part-time EMBA students attending a leadership development workshop at the same business school in China. Their mean age was 38.91 years, and 82% were male. As part of the course requirement, the EMBA students completed the same personality measure as used in Study 1. In the mean time, they were asked to invite at least three peers at work to rate their execution effectiveness on the same scale as used in Study 1. The aggregated scores across different peers’ ratings were used in subsequent analysis.

Measures

*Personality measures*
The Chinese version of the same personality instrument as in Study 1 was used, in which six scales measures the broad domain of conscientiousness. Internal consistency ranged from .67 to .77 across the six conscientiousness scales. The overall conscientiousness scale had an internal consistency of .92.

Using the factor structure of the conscientiousness domain as derived from Study 1, we performed confirmatory factor analysis (CFA) with samples in Study 2. We assessed the model fit by CFI and TLI (values > 0.90 are acceptable and > 0.95 excellent), RMSEA (< 0.08 is acceptable and < 0.05 is excellent) and SRMR (< 0.08 is acceptable) (Bentler, 1990; Browne & Cudeck, 1993; Hoyle, 1995; Hu & Bentler, 1999). CFA results suggest that a two-factor structure by allowing persistence to double-load on both factors, produced excellent fit to the data ($\chi^2 = 17.09$, $df = 7$, $p < .05$, CFI = .98, TLI = .97, RMSEA = .07, SRMR = .03). We also examined an alternative model by only allowing persistence to load on the achievement factor, and this model produced much poorer fit ($\chi^2 = 86.61$, $df = 8$, $p < .01$, CFI = .87, TLI = .76, RMSEA = .19, SRMR = .07). This suggests that across both samples, persistence consistently demonstrated dual meanings and thus should not be forced to load on only one latent factor. Same as in Study 1, we used factor scores of the two factors in further analysis. This is due to the superiority of factor scores in controlling for measurement errors as explained earlier.

**Criterion measure**

The same four competencies measuring managerial execution used in Study 1 were used in this study. To validate the construct validity of the criterion measure, we conducted a confirmatory factor analysis to see whether these four competencies converge on a single factor, as was found in Study 1. The model fit results of the one-factor model were excellent ($\chi^2 = 500.46$, $df = 90$, $p < .01$, CFI = .96, TLI = .96,
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RMSEA = .05, SRMR = .03). We also examined a four-factor model in which the four competencies of managerial execution were interrelated but distinct from each other. Estimation of this model failed to converge due to the linear dependency among three of the four latent factors. The overall execution scale had an internal consistency of .92.

Results

Descriptive analysis

The descriptive results of all study variables are displayed in Table 2. All variables were normally distributed, including managerial execution which had relatively high mean scores (mean = 4.17). The background variable of age related to peer ratings of execution ($r = .19$, $p < .01$), suggesting that older managers were judged by their peers as more effective in executing tasks. The achievement factor and dependability factor correlated at .65. Managerial execution ratings positively related to the dependability factor ($r = .18$, $p < .01$), but not to the achievement factor ($r = .11$, n.s.). Therefore, Hypothesis 1 was supported, but Hypothesis 2 was not. These results are consistent as those found in Study 1. Next, we performed two parallel analyses, one using the same regression approach as in Study 1, and the other using structural equation modeling (SEM) approach, to test our hypotheses. Using the regression approach helps provide results in raw score terms that are easy to be interpreted and compared with those derived from Study 1. Using the SEM approach allows considering both the measurement and structure model at the same time, and can thus generate more accurate estimation of the latent factors and provide more solid cross-validation to our results.

Regression analysis
In line with Study 1, we used factor scores of achievement orientation and dependability derived from EFA analysis and conducted hierarchal regression analysis on execution ratings by entering age, sex, achievement orientation and dependability, and the interaction term of achievement orientation and dependability. As reported in Table 3, the dependability factor had a positive effect on execution ($\beta = .16, p < .05$) whereas the achievement orientation factor had null effect ($\beta = .00, n.s.$). In the second step, the interaction term emerged as a significant predictor ($\beta = .19, p < .01$), while the effect of the dependability factor still held ($\beta = .18, p < .05$). The entering of the interaction term significantly increased the variance explained on execution, the outcome variable ($\Delta R^2 = .04, F(1, 263) = 10.31, p < .01$).

Figure 2 displays the interaction plot on execution ratings, using non-standardized regression coefficients with a mean of plus or minus one standard deviation for the achievement orientation factor and the dependability factor. As expected, the positive effect of dependability was stronger among managers with higher achievement orientation. Results of simple slope test showed that the effect of dependability on execution was significantly positive among managers high on achievement orientation (simple slope $\beta = .34, t = 3.48, p < .01$), but was not significant among managers low on achievement orientation (simple slope $\beta = .01, t = 0.14, p > .05$). H3 was thus again supported.

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Insert Figure 2 about here

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Structural equation modeling (SEM)
We also performed an SEM model in Mplus (Muthén & Muthén, 2007) by incorporating both measurement model and structural model at the same time. Rather than obtaining factor scores first and then testing the interaction effect in regression model in a two-step procedure, a SEM approach helps to test measurement structure and interaction effect in one single step. In this SEM model, we specified an achievement orientation factor (indicated by achievement orientation, initiative, and persistence), a dependability factor (indicated by dependability, rule following, attention to details, and persistence) and a managerial execution factor (indicated by all four competency indicators). We allow persistence to indicate both achievement orientation factor and dependability factor so to acknowledge its dual meanings. In the structural model, we specify the latent managerial execution factor to be predicted by the achievement orientation factor, the dependability factor and their interaction effect. Results of model estimation\(^3\) showed that the dependability factor had a positive effect on execution (estimate = .016, S.E. = .007, \(p < .05\)), the achievement orientation factor had null effect (estimate = -.002, S.E. = .005, n.s.) and their interaction term also had a positive effect on execution (estimate = .002, S.E. = .001, \(p < .01\)). Overall, the same findings were obtained when the SEM approach was used.

Supplementary analysis

Same as in Study 1, we examined to what extent the facets and their interaction outperformed the broad conscientiousness factor in predicting performance outcome. We performed a regression analysis by entering conscientiousness rather than the two facets and their interaction as the predictor. Results showed that despite conscientiousness significantly predicted managerial execution (\(\beta = .15, p < .05\)), the

\(^3\) Mplus does not report conventional model fit indices for a model including interaction effects between latent factors. Thus, we only reported model estimates here to illustrate that the interaction pattern is the same as found in regression analysis.
regression model explained less well ($R^2 = .06$) than the model containing the two facets and their interaction ($R^2 = .10$). Besides, when examining the correlation table, we found that the positive relationship between conscientiousness and managerial execution was actually entirely contributed by the scales addressing the dependability facet (persistence, attention to details, dependability, and rule following all had significant positive relationship with the outcome, while achievement and initiative both had non-significant relationship with the outcome). Therefore, the result pattern was consistent as in Study 1, showing that the facets and their interaction demonstrated unique and superior prediction compared to the broad conscientiousness factor.

Discussion

Across two studies, we found consistent evidence that dependability but not achievement orientation positively predicted managerial execution. This echoes earlier studies of the differential effect of these two facets in relating to performance outcomes, and demonstrates that there is value in separating narrower facets from broader personality facets (Dudley et al., 2006; Hough, 1992; Moon, 2001; Moon et al., 2008; Stewart, 1999). This result also provides empirical evidence about the personality predictor of managerial execution, a performance outcome that is frequently of concern in business operations (Bossidy & Charan, 2002; Charan & Colvin, 1999; Kaplan & Norton, 2008) yet has been insufficiently studied in academic literature. Most importantly, we found that the positive effect of dependability only occurred among managers who had higher achievement orientation, revealing that different facets (i.e., achievement orientation and dependability) of a broad trait (i.e., conscientiousness) can interactively affect individuals’ performance at work. We discuss each of the main finding in more details as follows.
Managerial execution and the two facets of conscientiousness

First, our results support earlier studies about the differential effect of the two facets of conscientiousness and confirm that conscientiousness is indeed a broad personality domain that may have lumped together factors with different or contrasting meanings (Dudley et al., 2006; Hough, 1992; Moon, 2001; Moon et al., 2008; Stewart, 1999). This lumping could lead to the loss of useful information and could obscure real causes of individual differences on work performance, and this is especially the case when prediction is the main purpose of research (Hough, 1992; Hough & Oswald, 2000).

Secondly, our results reveal the personality antecedent for managerial execution, a facet of task performance which has been insufficiently studied in past research. We found that dependability but not achievement orientation had a main effect on execution effectiveness. This result is reasonable since the execution aspect of task performance may concern more about the painstaking process in project delivery and implementation, such as aligning people and resources, monitoring progress, following through and bringing projects to the end (Bossidy & Charan, 2002; Gorman, 2007). As a result, dependability as an inhibitive, self-constraining tendency (Costa et al., 1991) may be more important in regulating oneself during task execution. Execution may concern less about the initial stages in a project such as setting goals and creating strategies, for which achievement orientation may be a more important personality antecedent.

Thirdly, our results lend support to the argument of using finer-grained performance outcome in studying personality – performance relationships (Bartram, 2005; J. Hogan & Holland, 2003). Task performance as a relatively high-order performance construct has been suggested to be predicted by both achievement and
dependability, with achievement predicted slightly better than dependability especially for managerial population (Dudley et al., 2006; Hough, 1992). Our study here, however, shows that if we look into the finer facets of task performance, such as execution, different relationship would emerge. Therefore, it is worthwhile to move to more specific aspects of task performance so as to reveal distinct predictive patterns.

Interaction of achievement and dependability

The discovery of interaction effect echoes earlier studies that have revealed synergistic effect among personality traits (Judge & Erez, 2007; Witt, 2002; Witt et al., 2002), and further indicates that interactions not only occur to the main big five domains, but can also occur to facet-level constructs that are within the same Big Five domain. This result is supportive of the potential moderations among personality traits, due to the less independent and nesting nature of personality variables (R. Hogan et al., 1996; Moon & Livne, 2011). As shown in this study, capturing this interaction can help enhance the prediction on performance outcomes and reveal the dynamic interplay among facet-level traits.

The interaction patterns were in line with our hypothesis and were consistent across two different samples. Specifically, the positive effect of dependability on execution only occurred among managers with high achievement orientation but not among managers with low achievement orientation. This confirms the hypothesis that achievement orientation may act as the motivating agent that facilitates dependability, representing the self-regulation system, to function more effectively (Baumeister & Vohs, 2007). Achievement orientation can be understood as the driver that continuously pushes individuals to invest efforts in employing self-regulation during task execution, providing them with sense of meaning, direction and motivation. As a result, high achieving individuals will particularly benefit from having a high self-
regulation tendency, as reflected in the dependability trait. In comparison, low achieving individuals may not be driven by an inner desire to excel and succeed, and may not be as proactive and taking as much initiative as high-achieving managers do (Costa et al., 1991). As a result, they may only be interested in getting the job down, without giving their best efforts and fully utilizing their dependability to achieve most prominent results. They may thus be perceived by others as mediocre executors such that even having a strong dependability cannot help compensate this perception.

In both samples, it seems that managers with high achievement orientation yet low dependability were rated as especially poor executors, in comparison to managers of other achievement – dependability combinations. This result may suggest that high achievement oriented managers may especially need to possess a dependability trait so as to help them act on and accomplish their current tasks. This may be due to that these managers are highly focused on their personal success and advancement in the organization (Hough, 1992), and such strong striving for future success may potentially compromise their day-to-day operations. Drawing on the perspective that individual behaviors are determined by goals and that goal conflicts may consume individuals’ resources (Penney et al., 2011), we may speculate that highly achievement oriented yet poorly dependable individuals may have limited resources to direct themselves towards both long-term goals, which are more beneficial for their advancement, and their day-to-day operation whose benefits for career may be less clear. As mentioned before, dependability indicates effective regulation system (Costa et al., 1991). If an individual lacks such self-regulation system, these managers’ work ethics might be compromised so that they might overlook the core requirements of their day-to-day job roles; they may also be likely to raise high expectations without delivering what they promised, and thus run into the risk of causing great
disappointment and eliciting others’ concerns about their execution ability. As a result, these managers may be perceived by colleagues as especially poor when task execution is the criterion.

Practically, our finding suggests that using personality assessment can help to select and develop managers who can execute well on organizational strategies and deliver results that benefit the whole organization. As already noticed by many companies (Bossidy & Charan, 2002; Charan & Colvin, 1999; Gorman, 2007; Kaplan & Norton, 2008), a major deficiency among many senior leaders nowadays is that they are not able to translate visionary strategies and ideas into operations and to produce promised results. Therefore, it is important for organizations to recognize potential talent shortage in this critical gap area, and to select, develop and retain managers who are ready to roll over their sleeves and get things done. This study not only shows that managers’ execution effectiveness is partially dependent on their personality trait dependability, but also, the effect of dependability can be different for people with different achievement orientation. A direct implication for organizations is that when strong execution skill is required to complete a task, organizations need to enlist managers who are both highly achievement oriented and highly dependable, as these managers can invest most effort to deliver best results. It may be particularly risky to assign such tasks to managers who have high achievement and low dependability (which may apply to some creative and visionary leaders who are less effective in executing), and if this has to be the case, organizations should pay special attention, such as providing these managers with highly dependable assistants or colleagues, to ensure the accountability of results.

Limitations
There are several limitations of this study. First, our operationalization of the managerial execution construct may not be ideal. Our measures were taken from an existing leadership competency measure and the post-hoc selection of competencies was based on subjective judgment. This is much less ideal to use measures that are specifically designed to assess the construct. Based on our definition of managerial execution derived from theoretical analysis, future research needs to engage in more rigorous scale development process to generate more appropriate measures of managerial execution.

Second, we focused only on facets of the conscientiousness domain and one narrow facet of the broad task performance domain. It should be noted that other meaningful interactions could occur by using other performance outcomes and/or by focusing on facets of other big five traits. In this study, we use conscientiousness facets with their conceptually related performance outcome of managerial execution. If other performance factor is chosen, the same interaction as discovered here may not be found. For instance, if researchers are interested in interpersonal related performance constructs, then the facets of conscientiousness may not be as relevant as those of extraversion or agreeableness. Unfortunately, a comprehensive investigation of all big five traits and other performance outcomes is beyond the scope of the current investigation. We hope, however, that focusing on conscientiousness and its conceptually related performance is a reasonable point to start the attempt of examining the interactions of facet-level traits, given that conscientiousness is the most important Big Five trait in work settings and its two facets being most well recognized.

Third, we were not able to collect any contextual variables, such as measures on organizational setting or individuals’ job types, which may have affected both the
pattern of relationships between personality facets and the outcome variable, and the way the two facets interact. However, by using EMBA samples from diverse organizational and industry background, we hope that the findings can speak about some general behavioral patterns among managers and executives.

Finally, our data were collected only from Chinese managers. Although our proposed dispositional influence on managerial execution performance is not tied to specific cultural context, future studies are needed to cross-validate our findings in samples from other culture setting.

Conclusion

Overall, this study clarifies the facet-level constructs of conscientiousness, demonstrates the value in drawing distinctions between these two facets, and illustrates their interplay in relation to performance outcomes. This study supports the use of narrow rather than broad personality traits, and also presents the value of using narrow rather than broad performance criteria. More importantly, this study contributes to our understanding about the interaction among facet-level personality traits, and demonstrates that such interaction may have implications in disentangling the dynamism among personality predictors in relating to work performance. Future studies could extend from this investigation by examining the interaction of other meaningful facet-level traits, so as to reveal the real predictive validity that personality assessment can offer.

Reference


Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of*
Two Facets of Conscientiousness


Table 1: Factor analysis of six facets of Conscientiousness in Study 1 (N=167)

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Note:
1) Principle axis factoring extraction and promax rotation was used.
2) Factor loadings higher than .30 are bolded.
Table 2. Mean, standard deviation, and inter-correlations among all study variables (below diagonal: Study 1; above diagonal: Study 2).

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Note: **p<.01, *p<.05.
Table 3. Execution effectiveness regressed on achievement orientation, dependability and the interaction between the two facets.

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<td>7.63**</td>
<td>(1, 161)</td>
<td></td>
<td>10.31**</td>
<td>(1, 263)</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.08</td>
<td></td>
<td></td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔR²</td>
<td>.04**</td>
<td></td>
<td></td>
<td>.04**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. **p<.01, *p<.05.
2. B = Unstandardized weight, SE = Standard Error of unstandardized weight, b = Standardized weight
Figure 1. Interaction plot of achievement orientation factor and dependability factor in predicting supervisor-rated execution in Sample 1.
Figure 2. Interaction plot of achievement orientation factor and dependability factor in predicting peer-rated execution in Sample 2.