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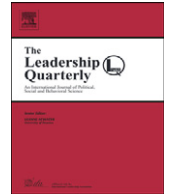
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Transformational leadership sub-dimensions and their link to leaders' personality and performance

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ABSTRACT

The multi-dimensionality of the transformational leadership construct has been under debate in the last decades. To shed more light on this issue, we conducted a meta-analysis ($k = 58$ studies), examining the transformational leadership sub-dimensions and their links to leader personality and performance in order to gather empirical evidence of the multi-dimensionality of transformational leadership. First, the results showed that the Big 5 personality traits are directly linked to transformational leadership sub-dimensions and to the overall measure, and are indirectly linked to leader performance. Interestingly, however, different combinations of the personality traits are differentially related to the transformational leadership behaviors. For instance, whereas inspirational motivation is related to all personality traits, only openness to experience and agreeableness affect individualized consideration. These findings emphasize the importance of examining the transformational leadership sub-dimensions separately to gain a deeper understanding of the nature and the antecedents of these leadership behaviors.

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Introduction

There is strong empirical evidence that transformational leadership, more than any other leadership style, is highly effective (see meta-analyses of Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996; Wang, Oh, Courtright, & Colbert, 2011). Transformational leadership's potential to address issues that are relevant in the modern, changing, and uncertain work environment is the main reason for its positive influence (Lim & Ployhart, 2004). Interestingly, however, regardless of transformational leadership's strong impact on research and practice (Bass, Jung, Avolio, & Berson, 2003; De Groot, Kiker, & Cross, 2000; Gong, Huang, & Farh, 2009; Grant, 2012; Jansen, Vera, & Crossan, 2009; Judge & Piccolo, 2004; Yammarino & Bass, 1990), transformational leadership theory still suffers from inconsistent results regarding the four-factor structure of its construct (e.g., Bass & Avolio, 1993).

Originally, Bass (1985) and Burns (1978) introduced transformational leadership as part of the full-range leadership theory. This theory includes three leadership styles encompassing transformational, transactional, and laissez-faire leadership. Transactional leadership is composed of three dimensions: contingent reward, active management-by-exception, and passive management-by-exception. Although laissez-faire leadership has some features in common with passive management-by-exception, it has been

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argued that laissez-faire leadership should be treated as separate from transactional leadership, as it represents the absence of leadership (Bass, 1998; Judge & Piccolo, 2004). The original idea behind transformational leadership was that leaders can appeal to followers' moral values in order to achieve (reforming) goals (Burns, 1978) and influence followers to transcend their self-interest for the larger good of their team and organization in order to realize optimal performance levels (Bass, 1985; Burns, 1978). Building on this concept, Bass (1985) proposed that the transformational leadership construct comprises four sub-dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (see also Avolio & Bass, 2004; Yukl, 2013). Although both transactional and transformational leadership thus comprise different sub-dimensions, only transactional leadership research shows a systematic examination of the separate components (e.g., Hinkin & Schriesheim, 2008; Yammarino, Spangler, & Bass, 1993). A possible explanation for this difference in focus may be that, in terms of transactional leadership, the different sub-dimensions have differential effects on outcomes, such that contingent reward is labeled relatively positive and management-by-exception (both active and passive) is labeled relatively negative. However, as all transformational leadership sub-dimensions seem to be associated with positive outcomes, and are often found to be highly interrelated, researchers frequently collapse the four sub-dimensions into one overarching transformational leadership construct (e.g., DeRue, Nahrgang, Wellman, & Humphrey, 2011; Epitropaki & Martin, 2013; Ewen et al., 2013; Føllesdal & Hagtvvet, 2013). Recently, however, the usefulness of the concept's four-factor structure has been called into question (e.g., van Knippenberg & Sitkin, 2013). As such, we set out to examine the multi-dimensionality of transformational leadership by examining personality traits as antecedents and performance as an outcome of transformational leadership's four sub-dimensions.

On the one hand, it has proven difficult to replicate the proposed four-factor structure (Bycio, Hackett, & Allen, 1995; Carless, 1998; Hinkin & Tracey, 1999; Tejada, Scandura, & Pillai, 2001; Tepper & Percy, 1994). Consequently, many empirical tests of transformational leadership operationalize it as a unitary construct (DeRue et al., 2011; Epitropaki & Martin, 2013; Ewen et al., 2013; Føllesdal & Hagtvvet, 2013). For example, we carefully reviewed recent papers in the *Leadership Quarterly* and found that seven out of ten papers on transformational leadership published in 2013 and 2014 used its unitary operationalization.⁵ Two broad sets of arguments have been put forward in support of transformational leadership as a unitary construct (Bycio et al., 1995; Carless, 1998; Tejada et al., 2001; Tepper & Percy, 1994). First, researchers have stated that the transformational leadership sub-dimensions are often highly inter-correlated and should therefore not be distinguished conceptually (Yukl, 2013). Second, it has been argued that, although the dimensions may have theoretical merit, they do not have adequate discriminant validity for a separate examination (Bycio et al., 1995; Carless, 1998; Tejada et al., 2001; Tepper & Percy, 1994).

On the other hand, another group of researchers has emphasized the importance of examining the transformational leadership sub-dimensions individually (e.g., Sutton & Staw, 1995; van Knippenberg & Sitkin, 2013), which sparked recent empirical examinations following this advice (e.g., Antonakis & House, 2014; Parr et al., 2013). van Knippenberg and Sitkin (2013) explicitly discourage examining the transformational sub-dimensions as an overall construct. They argue that no theory indicates whether researchers should apply an additive – that is, the sub-dimensions are summed to create an overall transformational leadership measure – or an interactive approach – that is, any transformational leadership dimension becomes more effective the more a leader conveys other transformational leadership sub-dimensions – when combining the sub-dimensions into an overall construct. Furthermore, these scholars propose that it is likely that different transformational leadership sub-dimensions influence different outcomes via different mediators and in different ways, and thus require different theoretical argumentation to account for transformational leadership's multi-dimensional nature. A study by Parr et al. (2013) supports this idea by showing that the transformational leadership sub-dimensions influence organizational commitment via anxiety in different ways. That is, they find that idealized influence and individualized consideration have an indirect and positive effect on organizational commitment through anxiety, that inspirational motivation has an indirect and negative effect on organizational commitment through anxiety, and that intellectual stimulation has no indirect effect on organizational commitment.

We conducted a meta-analysis with the intention of advancing the field in terms of the transformational leadership construct's uni-dimensional, or multi-dimensionality, puzzle. Like van Knippenberg and Sitkin (2013), we argue that the different transformational leadership sub-dimensions should be distinguished, because they are likely to have different origins; that is, different personality antecedents. For instance, it is reasonable to assume that personality traits that stimulate followers to think out of the box – such as openness to experience – are more strongly related to a sub-dimension like intellectual stimulation, whereas traits that promote leaders' caring behavior – such as agreeableness – are likely to predict individualized consideration more strongly. Assuming that transformational leadership is a multi-dimensional construct, we investigate the assumption that its sub-dimensions have different antecedents by linking these to the Big 5 personality traits (Costa & McCrae, 1992; Goldberg, 1990). In doing so, we provide the first meta-analytic test examining all of the transformational leadership sub-dimensions and their links to the Big 5 personality traits. Thereby, we update the meta-analysis by Bono and Judge (2004) and address one limitation of their study – the combination of idealized influence and inspirational motivation into one charismatic leadership measure. Furthermore, we extend their work by examining the transformational leadership sub-dimensions and their links to leader performance and whether these sub-dimensions influence outcomes differently, which would support the multi-dimensionality of the transformational leadership construct.

We not only argue that the transformational leadership sub-dimensions are differently linked to the Big 5 personality traits (Costa & McCrae, 1992), but also that the personality traits affect effective leader performance indirectly via their differential effects on different leadership behaviors (e.g., Bono & Judge, 2004; Cavazotte, Moreno, & Hickmann, 2012; DeRue et al., 2011; Hetland & Sandal,

⁵ LQ papers in 2013/2014 that used the unitary-approach: Epitropaki and Martin (2013), Ewen et al. (2013), Føllesdal and Hagtvvet (2013), Tse, Huang, and Lam (2013), Zhang, Wang, and Pearce (2014), and Zhu, Newman, Miao, and Hooke (2013).

LQ papers in 2013/2014 that used the separation-approach: Antonakis and House (2014), Parr, Hunter, and Ligon (2013), and Peus, Braun, and Frey (2013).

2003; Rubin, Dierdorff, Bommer, & Baldwin, 2009). Previous studies investigating the mediating role of transformational leadership have failed to distinguish between the different transformational leadership sub-dimensions (e.g., Cavazotte et al., 2012; DeRue et al., 2011). We contribute to this literature by testing a comprehensive model pertaining to the mediating role of the transformational leadership sub-dimensions separately, rather than the overarching charismatic or transformational leadership construct.

Transformational leadership

Burns (1978) and Bass (1985, 1990, 1998) introduced transformational leadership, which is described as a meaningful and creative exchange between leaders and their followers to induce a vision-driven change in followers (Bass, 1985). Transformational leadership comprises the following four sub-dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence implies role modeling behavior, identification with the leader, and the internalization of the leader's vision, values, and missions through the charismatic leader's emotional impact (Avolio & Bass, 2004). Inspirational motivation involves motivating behaviors, which give followers' tasks meaning, thus fostering optimism through leader behavior, and inspiring followers through symbolic actions (Avolio & Bass, 2004). Intellectual stimulation comprises behaviors that stimulate followers by reframing problems, by pushing them to develop creative and innovative ideas, and by approaching old situations in new ways (Bass et al., 2003). Individualized consideration covers leader behavior that includes providing a supportive climate and new learning opportunities (e.g., coaching; Bass et al., 2003).

Many researchers have investigated the transformational leadership construct by using the multifactor leadership questionnaire (Avolio, Bass, & Jung, 1995, 1999; Den Hartog, van Muijen, & Koopman, 1997; Goodwin, Wofford, & Whittington, 2001; Hinkin & Schriesheim, 2008; Kanste, Miettunen, & Kyngäs, 2007). Numerous meta-analyses and studies have gathered evidence supporting the transformational leadership paradigm across different situations and settings (Bass, 1997; Bass et al., 2003; De Groot et al., 2000; Gong et al., 2009; Grant, 2012; Jansen et al., 2009; Judge & Piccolo, 2004; Yammarino & Bass, 1990). Moreover, research has shown that, although transformational leaders can be more or less effective in different contexts (e.g., Antonakis, Avolio, & Sivasubramaniam, 2003; Kearney & Gebert, 2009) and in different samples (e.g., women and men, or younger and older leaders; Eagly, Johannesen-Schmidt, & van Engen, 2003; Kearney, 2008), specific aspects of transformational leadership are strongly and universally endorsed across cultures (Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999).

Personality and transformational leadership

Research has shown that personality traits have a profound influence on people's motivations, behaviors, and perceptions, including their values, (anti)social behavior, and organizational citizenship behavior (Eysenck, 1970; Fischer & Boer, 2014; Krueger et al., 2002; Lord, De Vader, & Alliger, 1986; Marcus, Ashton, & Lee, 2013; Ones, Dilchert, Viswesvaran, & Judge, 2007; Organ & Ryan, 1995). This research clearly points to a potential link between personality and leadership behavior. However, given that transformational leadership comprises different sub-dimensions (Bass, 1985), it is important to examine whether certain personality traits affect these sub-dimensions equally. We utilize the Five Factor Model of personality (Costa & McCrae, 1992; Goldberg, 1990) to explore these ideas, since it is a useful structure for organizing personality (Judge, Bono, Ilies, & Gerhardt, 2002). This theoretical model offers a five-factor structure of personality (also called the Five-Factor Model-FFM, or Big 5) containing the factors neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Costa & McCrae, 1992; Goldberg, 1990).

Based on current considerations in the transformational leadership literature, we adopt the idea that the transformational leadership sub-dimensions specify and pertain to different leadership behaviors (Sutton & Staw, 1995; van Knippenberg & Sitkin, 2013). This implies that leaders who focus on idealized influence show role modeling behavior, those who show inspirational motivation try to motivate people to perform beyond expectations, those who provide intellectual stimulation challenge their followers to be creative and innovative, and those who focus on individualized consideration care about their followers' needs (Avolio & Bass, 2004). Acknowledging the differences between the behaviors associated with the sub-dimensions, we argue that these transformational leadership sub-behaviors might also have different antecedents, which may be found in the leader's personality characteristics.

Within the present meta-analysis, we will update and extend Bono and Judge's (2004) most recent and extensive meta-analysis in this field. They investigated the relationships between the Big 5 and the transformational (and transactional) leadership sub-dimensions. Within their analysis, they combined idealized influence and inspirational motivation into one charismatic leadership measure. As stated above, recent theoretical work has called for the separate investigation of all the transformational leadership sub-dimensions (van Knippenberg & Sitkin, 2013). As such, we will extend Bono and Judge's (2004) analysis by examining all the transformational leadership sub-dimensions separately. Below, we present theoretical arguments for the differential relationships between the five personality traits and the four sub-dimensions of transformational leadership.

Neuroticism

Neuroticism and its opposite pole, emotional stability, reflect the tendency towards emotional adjustment. Individuals who score higher on neuroticism have a strong predisposition to experience emotional instability, including feelings of fear, sadness, defense, insecurity, and guilt, whereas emotionally stable people are relaxed and even-tempered (Costa & McCrae, 1992; McCrae & Costa, 1991). We argue that neuroticism might be negatively related to leadership behaviors, including all of the transformational leadership sub-dimensions. Research has shown that neuroticism is strongly related to low self-esteem and self-efficacy (Bono & Judge, 2004; Judge, Erez, Bono, & Thoresen, 2002). In this respect, Northouse (1997) argues that self-confidence is a prerequisite for leadership behavior. Therefore, individuals who are highly neurotic probably avoid leadership responsibilities (Bono & Judge, 2004) and are

less likely to “involve themselves in their followers' effort” and needs, which are characteristics of individualized consideration (Bass, 1985, p. 173). Additionally, we assume that these individuals do not show idealized influence, inspirational motivation, or intellectual stimulation, since they are unlikely to be perceived as a role model due to their uncertainty, are too insecure to provide followers with a vision, and are too fearful to undertake change efforts (Bono & Judge, 2004). Bono and Judge's (2004) findings support our arguments regarding the negative relationships between neuroticism and the transformational leadership sub-dimensions, even though they combined idealized influence and inspirational motivation into one charismatic leadership dimension.

Extraversion

Extraversion reflects the tendency to be outgoing, active, talkative, and optimistic (Costa & McCrae, 1992), with enthusiasm and assertiveness regarded as the two most important aspects of this personality trait (DeYoung, Quilty, & Peterson, 2007). Similar to Bono and Judge (2004), we propose that extraversion might be positively linked to idealized influence and inspirational motivation. Extraverted leaders are socially domineering (Depue & Collins, 1999) and highly expressive in their social interactions (McCrae & Costa, 1987). People who are more extraverted are thus likely to be comfortable with setting a direction and, as a result, are more likely to be considered a role model, which is a characteristic of idealized influence (House & Howell, 1992; Watson & Clark, 1997), as well as create inspirational motivation via emotionality (e.g., Watson & Clark, 1997). Moreover, extraversion might be positively linked to intellectual stimulation, since extraverted people enjoy change (Bono & Judge, 2004). Although not hypothesized by Bono and Judge (2004), the relationship between extraversion and individualized consideration is an interesting one. Extraversion is characterized by both dominance and positive emotionality (Costa & McCrae, 1992; Depue & Collins, 1999), which might differentially influence the degree to which individualized consideration is displayed. A stronger focus on dominance might lead extraverted people to care less about others and to be less interested in fostering good relationships (Campbell, Rudich, & Sedikides, 2002; Emmons, 1984; Raskin & Hall, 1981). However, positive emotionality is said to be related to appreciating affiliation with others and valuing personal contact (Depue & Collins, 1999). As such, extraversion might sometimes be positively and sometimes negatively related to individualized consideration, depending on which of the two characteristics of extraversion is more dominant. Given these considerations, we do not expect to find a relationship between extraversion and individualized consideration.

Openness to experience

People who are open to experience can be described as creative, autonomous, unconventional, curious, flexible, and thoughtful (McCrae, 1994; McCrae & Costa, 1987). Having an open mindset might allow individuals to see more individual differences between other people (Homan, Greer, Jehn, & Koning, 2010) and treat them with less limitations and prejudice (Flynn, 2005). Therefore, partially extending Bono and Judge's (2004) arguments, we predict that leaders who score higher on openness will be concerned about their followers individually (i.e., show individualized consideration), and will thus be more liked and accepted as a role model (i.e., exhibit idealized influence). Furthermore, open and creative people are good at developing and articulating an attractive vision, because they are imaginative and creative (i.e., show inspirational motivation; John & Srivastava, 1999; McCrae & Costa, 1987). Finally, we argue that openness to experience will be particularly associated with intellectual stimulation. Owing to their resourcefulness and flexibility (John & Srivastava, 1999; McCrae, 1994), people who score high in openness are likely to cope with organizational change, might see new approaches to problem solving, and might think outside the box, all of which are characteristics of intellectual stimulation. Furthermore, research on openness and creativity has supported the relationship between openness and intellectual stimulation. This research has shown that openness to experience is positively linked to divergent thinking and creativity (e.g., George & Zhou, 2001; Schilpzand, Herold, & Shalley, 2011), which are facets of intellectual stimulation.

Agreeableness

Agreeableness reflects the tendency to be warm, generous, kind, and gentle (Graziano & Eisenberg, 1997; McCrae & Costa, 1987), to be trusting and modest, and to avoid conflicts (Costa & McCrae, 1992; Graziano, Jensen-Campbell, & Hair, 1996). We thus propose that agreeableness is likely to be positively related to individualized consideration. Agreeable leaders are friendly, kind, and want the best for their followers. They are, therefore, likely to be concerned with others' needs and interests, which is a characteristic of individualized consideration. Research by Bowling, Beehr, and Swader (2005) supports the proposed positive relationship between agreeableness and individualized consideration by showing that more agreeable individuals provide more social support. Similarly, Sörensen, Duberstein, Chapman, Lyness, and Pinquart (2008) found that higher levels of agreeableness are associated with greater awareness of care needs. Moreover, in line with Bono and Judge (2004), we argue that agreeableness might be positively related to idealized influence and inspirational motivation. Research on referent power shows that people who are liked by others due to their friendliness, similarities, or kindness have a greater influence on their followers than people who are not seen as friendly, kind, or similar (Busch & Wilson, 1976; Hinkin & Schriesheim, 1989; Martin, 1978). Agreeable leaders show these “positive” characteristics, and it is thus likely that followers feel more attracted to these leaders and are more likely to accept them as role models (i.e., idealized influence). Furthermore, highly agreeable people might express positive visions due to their kindness (i.e., show inspirational motivation; Bono & Judge, 2004). Additionally, extending the theorizing, and contrary to Bono and Judge's (2004) findings, we argue that agreeableness might be negatively related to intellectual stimulation. Agreeable leaders value harmony, prefer cooperation, and avoid arguments and conflicts (Graziano et al., 1996; Van Kleef, Homan, Beersma, & van Knippenberg, 2010), whereas exhibiting intellectual stimulation requires provoking arguments, exchanging different perspectives, and pushing people to do things differently (Avolio & Bass, 2004). Agreeable leaders may thus be more likely to stress the importance of conformity and cohesion, which might instigate a low divergence of ideas and inhibit out of the box thinking (i.e., less intellectual stimulation).

Conscientiousness

Finally, conscientiousness encompasses responsibility, achievement orientation, dependability, and deliberation (McCrae & Costa, 1987). This is one of the most commonly investigated traits in work and organizational psychology (Bono & Judge, 2004). Individuals who score high on conscientiousness have a tendency to work hard and to have a sense of direction and self-discipline (Costa & McCrae, 1992). Although this trait is quite easily linked to leader performance, it is more difficult to predict the nature of the relationships between conscientiousness and the transformational leadership sub-dimensions. Even though Bono and Judge (2004) find very small positive relationships between conscientiousness and the transformational leadership sub-dimensions (i.e., $r = .10$ for the relationship between conscientiousness and individualized consideration, and all r s $< .06$ for the other sub-dimensions), we could theoretically argue that highly conscientious people are not likely to exhibit any of the four transformational leadership sub-dimensions. Conscientious leaders are not likely to stimulate outside the box thinking, to undertake change efforts, and to specifically care about their followers – which are characteristics of intellectual stimulation and individualized consideration. People who score relatively high on conscientiousness are highly structured and linear in their way of working, which helps them avoid detours and spending more time than necessary on an issue. This would likely limit their display of intellectual stimulation. Furthermore, there are few reasons to believe that highly conscientious people will exhibit a positive vision, or be inspiring in general (Bono & Judge, 2004), because conscientious leaders use a more rational appeal to motivate their followers (Cable & Judge, 2003), whereas idealized influence and inspirational motivation are more strongly connected to emotions (Bono & Ilies, 2006).

In summary, and in contrast to Bono and Judge's (2004) hypotheses and findings, we propose the following: We expect no relationship between extraversion and individualized consideration. Moreover, we argue that agreeableness may be negatively related to intellectual stimulation, because agreeable leaders avoid conflicts and discussing different opinions, which is not beneficial for “out of the box” thinking. Finally, we propose null-relationships, or slightly negative relationships, between conscientiousness and idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Thus, we assume that the Big 5 personality traits are differentially related to the different transformational leadership sub-dimensions. More specifically, within the current meta-analysis, we address the following question to provide greater clarity with regard to the transformational leadership construct's uni-dimensionality or multi-dimensionality:

Research Question 1: Do the Big 5 personality traits exhibit differential patterns of relationships with the four transformational leadership sub-dimensions?

Transformational leadership and leader performance

Effective leaders promote effective organizational functioning (Dirks & Ferrin, 2002; House & Aditya, 1997) by enabling individuals, teams, and organizations to perform well (Bass, 1990; Follett, 1926). Consequently, it is essential to investigate the factors that influence leaders' performance. We therefore decided to focus on leader performance, defined as leaders' abilities, skills, and achievement in a defined task (e.g., Fleishman, 1982; Fleishman & Quaintance, 1984), as the dependent variable in our model. However, the question is whether we can assume that idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration all influence the leader's performance to the same extent, or whether there are differences between the sub-dimensions and their relationships with leader performance. Interestingly, Bono and Judge (2004) did not include transformational leadership outcomes in their meta-analysis. However, in order to provide a comprehensive outlook on the multi-dimensionality issue in transformational leadership research, it is interesting to examine whether certain sub-dimensions of transformational leadership affect outcomes differentially.

It is likely that the different transformational leadership sub-dimensions influence leader performance in different ways (Parr et al., 2013; van Knippenberg & Sitkin, 2013). For instance, we could argue that the optimism and the inspiration characteristics of *inspirational motivation* are more strongly related to leader performance than displays of caring behavior towards followers, conveyed by individualized consideration. However, with a few exceptions (e.g., Parr et al., 2013), the separate transformational leadership sub-dimensions and their link to (leader) performance have not been investigated in one model in order to explore whether they have uniform or differential effects on leader performance. Therefore, we contribute to previous research by exploring how the different transformational leadership sub-dimensions influence leader performance. More specifically, we address the following question:

Research Question 2: Do the transformational leadership sub-dimensions exhibit differential patterns of relationships with leader performance?

Personality and leader performance

Previous research has mostly focused on the link between followers' personality traits and their performance (Anderson & Viswesvaran, 1998; Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001; Kamdar & Van Dyne, 2007), whereas only a few studies have investigated leaders' personality traits in relation to their performance (e.g., Judge, Bono, et al., 2002). In line with our previous argumentation that leaders' performance is highly relevant in organizations (Dirks & Ferrin, 2002; House & Aditya, 1997), we investigate the relationships between the Big 5 personality traits and leader performance. Previous work has generally suggested

that extraversion, openness to experience, agreeableness, and conscientiousness are positively related to performance, whereas neuroticism is negatively related to performance (Barrick & Mount, 1991).

People who score high on extraversion are characterized by high dominance and expressiveness, which, in turn, are important for leader performance (Barrick & Mount, 1991; Watson & Clark, 1997). Openness to experience is related to creative thinking, an important skill of effective leaders (Judge, Bono, et al., 2002; Sosik, Kahai, & Avolio, 1998). Conceptually, the link between agreeableness and leadership is ambiguous, because agreeable people are both empathic and likeable, but also likely to be compliant and passive (Judge, Bono, et al., 2002). Although a previous meta-analysis has shown agreeableness to be the least relevant predictor of leader effectiveness, the overall relationship was positive (Judge, Bono, et al., 2002), supporting Stogdill's (1974) conclusion that agreeableness is important for leader effectiveness (see also Hogan, Curphy, & Hogan, 1994). Highly conscientious people are well organized, behave responsibly, and are goal oriented; it is thus likely that they will perform well (Barrick et al., 2001). Finally, most meta-analyses have shown that neuroticism is negatively related to job performance in most jobs (e.g., Barrick et al., 2001), as many types of performance are likely to suffer when someone is anxious, sad, and insecure (e.g., Barrick et al., 2001; Judge & Bono, 2001). These considerations bring us to our first hypothesis.

Hypothesis 1. Neuroticism (a) is negatively related to leader performance, whereas extraversion (b), openness to experience, (c) agreeableness (d), and conscientiousness (e) are positively related to leader performance.

Additionally, we propose that personality traits influence leader performance directly and indirectly through their connections to outcomes' proximal antecedents (e.g., transformational leadership; Cavazotte et al., 2012). In the following section, we elaborate on our prediction that the Big 5 traits have an indirect effect on leader performance via transformational leadership and its sub-dimensions.

Personality, leadership behaviors, and leaders' performance

The prediction that overall transformational leadership could be a mediator between the Big 5 traits and leader performance has been supported since the beginning of the century (e.g., Cavazotte et al., 2012; DeRue et al., 2011; Rubin et al., 2009; Van Woerkom & De Reuver, 2009; Zaccaro, Kemp, & Bader, 2004). The main argument is that personality traits predict specific leadership behaviors, which, in turn, are related to leaders' performance. Researchers have argued that transformational leadership's mediating role is especially plausible given the conceptual and empirical links between personality and overall transformational leadership (Bono & Judge, 2004; Kirkpatrick & Locke, 1991; Terman, 1904; Zaccaro et al., 2004), between overall transformational leadership and performance (Avolio & Bass, 2004; Bass, 1985; Judge & Piccolo, 2004), and between personality traits and performance (Barrick & Mount, 1991, 2005). According to these studies, personality traits influence leader performance indirectly via their link to transformational leadership behavior, such as the capacity to influence, inspire, transform, change, and care for followers (Cavazotte et al., 2012).

Following the same logic, we argue that the Big 5 personality traits have indirect effects on leader performance via the transformational leadership sub-dimensions. Bono and Judge (2004) have shown links between the Big 5 and the transformational leadership sub-dimensions, which in turn have been found to be positively linked to leader effectiveness (Antonakis & House, 2014), and there is a link between personality and performance (Barrick & Mount, 1991, 2005). Previous research and theorizing (van Knippenberg & Sitkin, 2013) point to the idea that these indirect relationships might differ (cf. Parr et al., 2013). If the research questions that we put forward above are supported, this should also be illustrated in the strength of personality traits' indirect effects on leader performance via the four different transformational leadership sub-dimensions. For instance, when examining the relationship between a leader's agreeableness and leader performance, we might argue that agreeableness indirectly affects leader performance via individualized consideration (a behavior that is likely to be positively influenced by agreeableness; Bowling et al., 2005), but not via intellectual stimulation (a behavior that agreeableness is less likely to promote; Graziano et al., 1996). Similarly, openness to experience might largely and indirectly influence leader performance via intellectual stimulation, and less so via the other transformational leadership sub-dimensions. In line with this reasoning, we state the following hypothesis and pose our final question:

Hypothesis 2. The Big 5 personality traits have indirect effects on leader performance via transformational leadership.

Research Question 3: Do the indirect effects of the Big 5 personality traits on leader performance via transformational leadership differ in the four transformational leadership sub-dimensions?

Method

Identification and selection of studies

The studies included in this meta-analysis were identified via a literature search (Academic Search Premier, EBSCO, EconLit and PsycINFO, multi-source search) for studies published between 1887 and 2012, using the keywords *personality*, *Big 5*, *neuroticism*, *extraversion*, *openness*, *agreeableness*, *conscientiousness*, *transformational leadership*, *leadership*, and *performance*. The first author also submitted a request for additional relevant or unpublished material (to help mitigate any potential file drawer problem, which

often occurs in research; Csada, James, & Espie, 1996; Rosenberg, 2005) to the Organizational Behavior Division Listserv of the Academy of Management and contacted authors who had recently published works in the personality traits and leadership area. This search produced more than 1000 studies, including all studies that had a relevant search term in the abstract. Of those, we included studies that (a) investigated the relationships between at least two of the relevant variables, (b) reported sufficient statistical data (correlations based upon independent samples; correlations coded as effect sizes), and (c) included samples from non-clinical adult populations. Some articles included samples of different organizations or different countries (e.g., Piccolo et al., 2012). These samples were treated as separate studies. Many of the papers introduced the importance of leaders, but investigated the relationship between the leader and the follower, examined other leadership behaviors than transformational leadership, used other performance measures, or measured only the followers' personality. We excluded these studies, as well as theoretical and review articles.

In sum, we used 58 of these studies for the meta-analytic review (see Appendix A for the references and Appendix B for an overview of the included studies). We included studies in which either the leaders themselves, or their followers, rate the leaders' personality traits. These studies used measurement instruments like the NEO-Five Factor Inventory (Neuroticism: $\alpha = .83$,⁶ Extraversion: $\alpha = .76$, Openness to experience: $\alpha = .72$, Agreeableness: $\alpha = .80$, Conscientiousness: $\alpha = .72$; Costa & McCrae, 1992; see Table 1 for an overview of the personality and leadership scales used in the studies), or the HEXACO-PI-R (Neuroticism: $\alpha = .79$, Extraversion: $\alpha = .84$, Openness to experience: $\alpha = .81$, Agreeableness: $\alpha = .84$, Conscientiousness: $\alpha = .86$; Ashton & Lee, 2008; De Vries et al., 2008) to assess personality traits.

Furthermore, our analysis included studies in which the follower, the leader, or the superior provide transformational leadership behavior ratings. The multifactor leadership questionnaire (Avolio et al., 1995) was the most commonly used transformational leadership measure. In our meta-analysis, we investigate correlations of the four transformational leadership sub-dimensions (idealized influence, $\alpha = .78$; inspirational motivation, $\alpha = .80$; intellectual stimulation, $\alpha = .83$; individual consideration, $\alpha = .77$), as well as the overall transformational leadership construct ($\alpha = .86$). For the overall construct, we calculated the effect sizes based on the correlations with the overall transformational leadership score, if reported, or aggregated the correlations, using the transformational leadership sub-dimensions to determine the associations with the overall transformational leadership concept if the original paper provided no direct correlation with the overall score. In the latter case, we used the correlation between each of the leadership sub-dimensions and the Big 5 (as well as leader performance) to calculate an average correlation across the sub-dimension correlations (Hunter & Schmidt, 1990). For instance, to calculate the average correlation between the overall transformational leadership and neuroticism in the study by Antonakis and House (2004), we averaged the correlations of neuroticism with idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

The studies that we included in the meta-analysis used a variety of leader performance measures ($\alpha = .81$), such as 360-degree feedback (Strang & Kuhnert, 2009), a management performance appraisal (i.e., an annual report on each leader), Williams and Anderson's (1991) in-role behavior seven-item scale, and items like "How capable is the person you are evaluating as a leader?" (De Hoogh et al., 2005). Leader performance ratings were provided by followers, observers, or superiors.

The first author coded all the studies and resolved any ambiguities in terms of inclusions or coding with her co-authors. Furthermore, an independent, trained rater, who coded 100% of the included studies, ensured inter-rater agreement on the coded variables (effect sizes). Cohen's Kappa (Cohen, 1960), which measures inter-rater agreement, was sufficiently high (.85), and the discrepancies were resolved through discussion.

Table 2 provides an overview of the studies' characteristics and shows that most research was conducted in North America and in other Western contexts. In order to account for the cultural diversity in the research contexts, we tested whether studies conducted in non-Western Asian and Latin American settings showed systematically different associations with performance (related to personality and performance) and transformational leadership (related to personality). Moderator analyses showed significant differences in effect sizes between non-Western and Western samples in five of the 11 analyses. However, the effect size differences show a mix of smaller and larger effect sizes in non-Western samples. This indicates an unsystematic effect, possibly due to random sampling variations rather than systematic cultural influences. Our random effect modeling accounts for this kind of variation.

The samples comprised mainly male leaders and an equal number of male and female followers, who were, on average, younger than their leaders. Examining the context of the studies, our analysis showed that the studies were mostly conducted in business contexts, followed by university and army contexts. Furthermore, the studies investigated their research question mostly at the individual or dyad level, and utilized a survey. The response rate was high.

Finally, ten studies utilized a longitudinal design, while 48 used a cross-sectional design. We conducted moderator analyses to assess whether longitudinal/cross-lagged designs report different associations with leader performance than cross-sectional designs. We focused the moderator analysis on performance associations, because these associations were most likely computed with variables measured at two time points. The analyses revealed that the associations between neuroticism and performance ($Q(1) = 0.62, p = 0.43$), openness and performance ($Q(1) = 0.35, p = 0.56$), agreeableness and performance ($Q(1) = 0.39, p = 0.53$), and conscientiousness and performance ($Q(1) = 0.32, p = 0.57$) showed no differences in effect sizes, whereas the associations between extraversion and performance ($Q(1) = 10.65, p < 0.01$) and transformational leadership and performance ($Q(1) = 55.89, p < 0.001$) showed differences in the effect sizes. It should be noted that the overall variance in the latter association

⁶ The reported reliabilities are an average of the reliabilities reported in the included studies.

Table 1
Personality and leadership scales included in the papers.

Study	Personality scale	Leadership scale
Antonakis and House (2004)	NEO-PI (Costa and McCrae, 1992)	MLQ-5X (Bass and Avolio, 1995)
Antonakis and House (2014)	Authors did not provide this information	Authors did not provide this information
Awamleh and Gardner (1999)		MLQ-5X/Short (Bass & Avolio, 1995)
Bergner, Neubauer, and Kreuzthaler (2010)	NEO-FFI (Costa and McCrae, 1992)	
Berry, Page, and Sackett (2007)	Work behavior inventory (Page, 2005)	
Bing and Lounsbury (2000)	16 PF Fifth Edition (Conn & Rieke, 1994)	
Bono and Ilies (2006)		MLQ-5X (Bass & Avolio, 1995)
Brown and Treviño (2009)	Schwartz (1996)	MLQ-5X (Avolio et al., 1999; Bass & Avolio, 2000)
Brown, Treviño, and Harrison (2005)		Item generation upon previous theorizing and research (e.g., Treviño, Brown, & Hartman, 2003)
Cable and Judge (2003)	NEO-PI-R (Costa and McCrae, 1992)	MLQ-5X (Bass, 1985; Judge & Bono, 2000)
Cavazotte et al. (2012)	Individual perceptions inventory (Goldberg, 1999)	MLQ (Bass and Avolio, 1997)
Chan and Chan (2005)		MLQ-5X (Bass & Avolio, 1995)
Clarke (2010)	Individual perceptions inventory (Goldberg, 1999)	MLQ-5X (Bass & Avolio, 2000)
Connelly and Ruark (2010)		MLQ-5X (Bass & Avolio, 1995)
Crant and Bateman (2000)	NEO-FFI (Costa and McCrae, 1992)	Conger & Kanungo (1994)
D'Alessio (2008)	NEO-PI-R S (Costa and McCrae, 1992)	MLQ-5X/Short (Avolio & Bass, 2004)
De Hoogh, Den Hartog, and Koopman (2005)	NEO-PI-R (Costa and McCrae, 1992)	CLIO (De Hoogh et al., 2004)
Detert and Burris (2007)	Top management openness scale (Ashford, Rothbard, Piderit, & Dutton, 1998)	MLQ (Bass & Avolio, 1990)
De Vries, Lee, and Ashton (2008)	HEXACO-PI (De Vries, Roe, Taillieu, & Nelissen, 2004; Lee, Ashton, & De Vries, 2005)	MLQ (Bass & Avolio, 1997; Den Hartog et al., 1997)
De Vries (2012)	HEXACO-PI-R (Ashton & Lee, 2008; De Vries et al., 2008)	CLIO (De Hoogh et al., 2004)
De Vries, Bakker-Pieper, and Oostenvelde (2010)		CLIO (De Hoogh et al., 2004)
Hetland and Sandal (2003)		
House, Spangler, and Woycke (1991)	16 PF5 (Russel & Karol, 1994)	MLQ-5X/Short (Bass & Avolio, 1995)
Self-developed and behavioral charisma factors of Simonton (1986, 1988)		
Howell and Avolio (1993)		MLQ (Bass & Avolio, 1990)
Judge and Bono (2000)	NEO-PI-R (Costa and McCrae, 1992)	MLQ-5X (Bass & Avolio, 1995)
Jung and Sosik (2006)	Brief inventory of values (Schwartz, 1992; Stern, Dietz, & Guagnano, 1998)	MLQ-5X (Bass & Avolio, 1997)
Jung, Yammarino, and Lee (2009) (1)		Transformational leadership behavior inventory (Podsakoff, MacKenzie, Moorman, & Fetter, 1990)
Jung, Yammarino, and Lee (2009) (2)		Transformational leadership behavior inventory (Podsakoff et al., 1990)
Lim and Ployhart (2004)	Individual perceptions inventory (Goldberg, 1998, 1999)	MLQ-5X (Avolio et al., 1999)
Langford (2003)	Bipolar Big 5 markers (Shafer, 1999) five clustered single-item measures of the Big 5	Transformational leadership behavior inventory (Podsakoff et al., 1990)

McNeese-Smith (1999)		
Nahrgang, Morgeson, and Ilies (2009)	NEO-PI-R (Costa and McCrae, 1992)	Leadership practice inventory (Posner & Kouzes, 1992)
Naidoo, Kohari, Lord, and DuBois (2010)		Leader attributed charisma scale (Hunt, Boal, & Dodge, 1999)
Neufeld, Wan, and Fang (2010)		MLQ-5X (Bass & Avolio, 1990)
Piccolo et al. (2012) (1)		MLQ-5X (Bass & Avolio, 2000)
Piccolo et al. (2012) (2)		MLQ-5X (Avolio & Bass, 2002)
Ployhart, Lim, and Chan (2001)	Individual perceptions inventory (Goldberg, 1998, 1999)	Ratings were based on a job analysis conducted for an entry-level military leader and interviews conducted with experienced military commanders (Bass, 1985, 1998)
Reichard et al. (2011)	NEO-FFI (Costa and McCrae, 1989)	Self-report measure of transformational leadership (Reichard, Riggio, & Smith, 2009)
Ross and Offermann (1997)		MLQ (Bass, 1985)
Rubin et al. (2009)		Transformational leadership inventory scale (Podsakoff, MacKenzie, & Bommer, 1996)
Rubin, Munz, and Bommer (2005)	Individual perceptions inventory (Goldberg, 1999)	Transformational leadership inventory scale (Podsakoff et al., 1996)
Shao and Webber (2006)	NEO-PI-R form S (Costa and McCrae, 1992)	MLQ-5X (Avolio et al., 1995)
Sosik (2001)		MLQ-5X (Bass & Avolio, 1997)
Sosik (2005)	Schwartz (1992), Stern et al. (1998)	MLQ-5X (Bass & Avolio, 1997)
Sosik, Avolio, and Jung (2002)		MLQ-5X (Bass & Avolio, 1997); C-K scale (Conger, Kanungo, Menon, & Mathur, 1997)
Sosik, Juzbasich, and Chun (2011)		
Spangler, Dubinsky, Yammarino, and Jolson (1997)		
Strang and Kuhnert (2009)	Items from the work of Epstein and Meier (1989), Hendrick (1990), and Jackson (1974)	
Personality and leadership profile (Hagberg Consulting Group, 2002)	MLQ-5X (Bass & Avolio, 1997)	
MLQ (Bass and Avolio, 1989)		
Van Iddekinge, Ferris, and Heffner (2009)	Assessment of individual motivation (Heggstad, Young, Strickland, & Rumsey, 1999; White and Young, 1998)	
Rational Biodata Inventory (Kilcullen, Putka, McCloy, & Van Iddekinge, 2005)		
van Knippenberg and van Knippenberg (2005)		Questions inspired by Bass (1985) and Platow, van Knippenberg, Haslam, van Knippenberg, and Spears (2002)
Van Woerkom and De Reuver (2009)	Multicultural personality questionnaire (Van der Zee & Van Oudenhoven, 2000, 2001)	CLIO (De Hoogh et al., 2004)
Von Wittich and Antonakis (2011)	NEO-PI (Costa and McCrae, 1992)	MLQ (Bass & Avolio, 1995)
Walumbwa and Schaubroeck (2009)	Goldberg's Big 5 inventory (1990)	MLQ (Bass & Avolio, 2004)
Wofford, Goodwin, and Whittington (1998)		MLQ-5X (Bass & Avolio, 1989)
Yammarino, Dubinsky, Comer, and Jolson (1997)		MLQ (Bass & Avolio, 1990)
Yammarino et al. (1993)		MLQ (Bass, 1985)
Zopiatis and Constanti (2012)	NEO-FFI (Costa and McCrae, 1992)	MLQ-5X (Bass & Avolio, 1995)

Table 2
Summary of study characteristics.

Variable	Value	SD	Min	Max
Mean year publication	2005	5.39	1991	2012
Mean leader age	38.23	7.16	19.30	50.70
Mean follower age	32.05	9.11	19.00	46.13
Mean leader male	70.83	23.23	0.00	100.00
Mean follower male	53.93	24.95	8.00	100.00
Mean response rate leader	62.89	23.02	10.60	95.00
Mean response rate follower	57.63	23.73	18.00	87.00
Sample's country of residence				
North America (USA, Canada)	39			
Western (Europe, UK, Australia)	14			
Brazil	1			
Asian (Hong Kong, Singapore, South Korea)	4			
Type of study				
Survey	48			
Others	10			
Level				
Individual, dyad	52			
Group	06			
Context				
University	09			
Business	44			
Army	05			
Design				
Cross-sectional	48			
Longitudinal	10			

Note. In terms of the categorical variables, the numbers in the table represent the frequencies of reports on the variables.

(between transformational leadership and performance) is extremely high (total $Q(34) = 418.81, p < 0.001$) and the significant difference is only in the strength of the effect, whereas the direction and statistical meaningfulness remain the same (longitudinal, $r = .38, p < 0.001$; cross-sectional $r = .64, p < 0.001$). Additionally, all of the longitudinal studies' effect sizes are within the credibility intervals of cross-sectional study effect sizes, indicating that the longitudinal designs are not outliers, but within the normal range of study

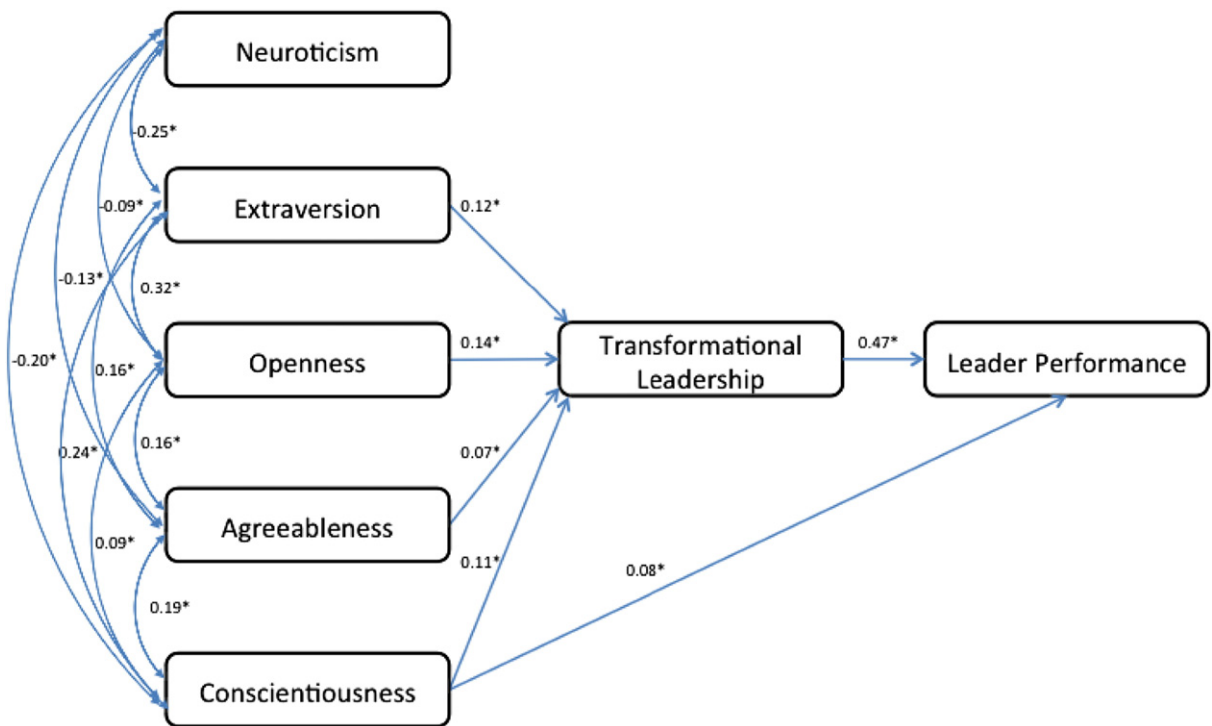


Fig. 1. Model of the Big 5's effects on leader performance mediated by transformational leadership. Note. Standardized path-coefficients are presented. Only significant relationships are visualized in the figure. Information pertaining to the non-significant path-coefficients can be obtained from the first author. * $p < 0.05$.

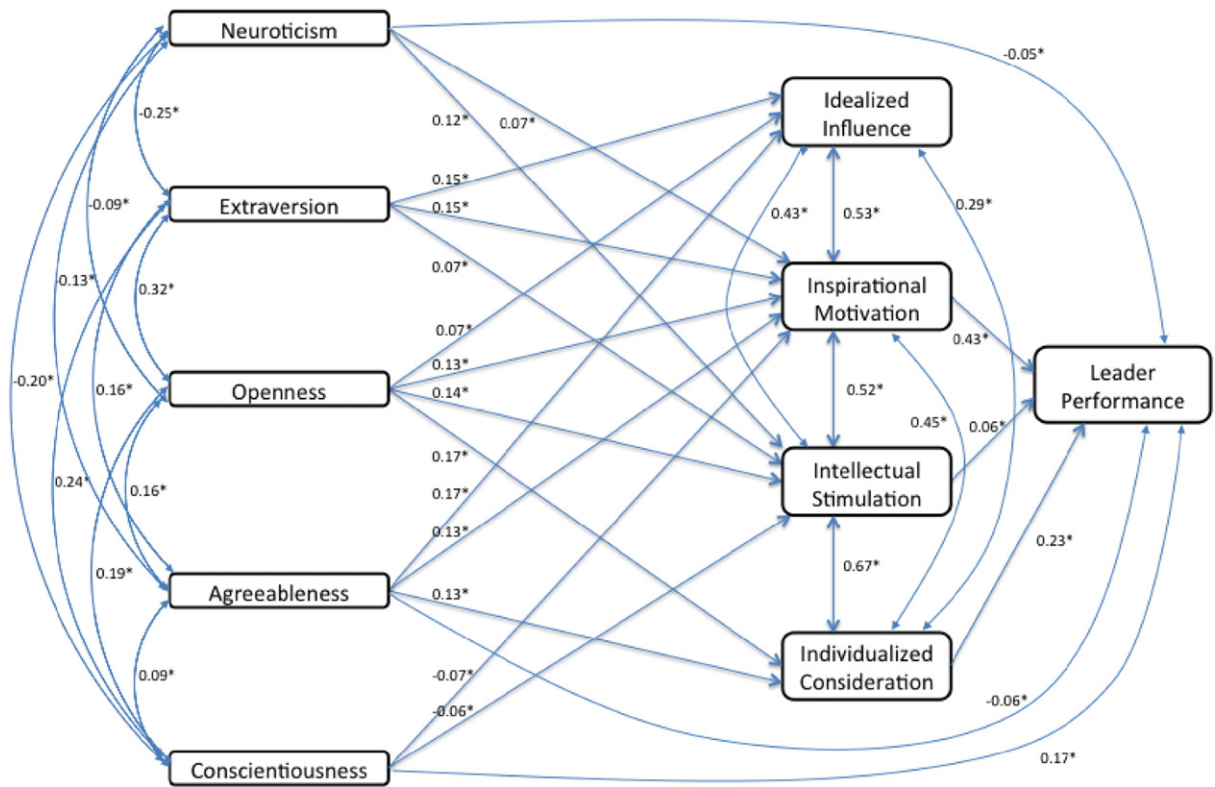


Fig. 2. Combined model of the Big 5's effects on leader performance mediated by the transformational leadership sub-dimensions. Note. Standardized path-coefficients are presented. Only significant relationships are visualized in the figure. Information pertaining to the non-significant path-coefficients can be obtained from the first author. * $p < 0.05$.

variance. Therefore, we decided to include longitudinal designs in our meta-analysis as an inclusive and conservative approach to expand the generalizability of the findings.

Meta-analysis: meta-analytic structural equation modeling technique

By the end of the last decade, most meta-analyses with correlational data only investigated bivariate relationships, despite many research questions requiring multivariate analyses (Schulze, 2007). Meta-analytic structural equation modeling (MASEM) is a technique that allows for the examination of such complex research questions and the testing of theoretical models. MASEM (Cheung, 2008, 2010; Cheung & Chan, 2005, 2009; Viswesvaran & Ones, 1995) is a combination of meta-analysis (Aguinis, Pierce, Bosco, Dalton, & Dalton, 2010; Hafidahl, 2007) and structural equation modeling (Hoyle, 1995). This is a recent development in meta-analytical techniques (Schulze, 2007).

First, we computed the effect sizes of all the relevant associations in this study, using sample-size weighting and random-effects models, which account for the variability between the samples and the sampling errors (Lipsey & Wilson, 2001). These effect sizes were used to create a pooled correlation matrix. Next, we applied structural equation modeling to the obtained pooled correlation matrix in Mplus6 (Muthén & Muthén, 2002). We tested one model regarding the overall transformational leadership behavior to (a) examine the relationships between personality traits and leader performance, (b) explore how transformational leadership behavior is related to personality, (c) how transformational leadership is related to leader performance, and (d) gain insight into whether and how transformational leadership behavior mediates the relationship between personality and leader performance (see Fig. 1 for the obtained relationships concerning the overall transformational leadership). Additionally, we tested the combined model, including the paths of all the personality traits on the four transformational leadership sub-dimensions and their associations with performance (see Fig. 2). This combined model illustrates how the transformational leadership sub-dimensions influence the interplay between leader personality and leader performance. To test our hypotheses and research questions, we assessed the paths coefficients through MASEM, since it takes the intercorrelations between the variables into account (particularly between the transformational leadership sub-dimensions). In addition, we estimated the significance of transformational leadership's indirect effects by means of 95%-confidence intervals (MacKinnon, Lookwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2008).

Table 3
Meta-analytic review of study variables.

		Pf	N	E	O	A	C	II	IM	IS
N	$r [k, N]$	-.06 [12, 3003]								
	CI	-.16, .05								
	Cred. Int	-.26, .14								
	ρ ; SD ρ	.01; .19								
E	$r [k, N]$	.13** [12, 3159]	-.25* [21, 4048]							
	CI	.06, .20	-.41, -.09							
	Cred. Int	.01, .25	-.68, .19							
	ρ ; SD ρ	.12; .19	-.28; .38							
O	$r [k, N]$	.13** [15, 3291]	-.09 [21, 3715]	.32** [20, 3577]						
	CI	.02, .20	-.21, .02	.25, .38						
	Cred. Int	-.02, .28	-.40, .22	.16, .48						
	ρ ; SD ρ	.09; .08	-.10; .27	.42; .16						
A	$r [k, N]$	.07** [12, 2688]	-.13 [21, 3799]	.16** [22, 4016]	.16** [20, 3577]					
	CI	.02, .12	-.26, .01	.06, .27	.08, .25					
	Cred. Int	-.02, .16	-.49, .24	-.13, .45	-.06, .39					
	ρ ; SD ρ	.03; .23	-.18; .27	.25; .22	.22; .26					
C	$r [k, N]$	.16** [11, 2865]	-.20* [22, 4270]	.24** [21, 4048]	.09 [20, 3577]	.19** [21, 3799]				
	CI	.07, .25	-.35, -.04	.16, .32	-.00, .18	.11, .27				
	Cred. Int	.00, .32	-.64, .25	.02, .45	-.15, .33	-.01, .40				
	ρ ; SD ρ	.26; .27	-.21; .43	.30; .27	.14; .24	.23; .23				
TFL	$r [k, N]$	.49** [35, 6592]	-.08 [20, 2763]	.20** [19, 2548]	.20** [23, 3785]	.13* [19, 2736]	.16* [18, 2591]			
	CI	.40, .58	-.16, .01	.10, .30	.11, .30	.05, .21	.05, .26			
	Cred. Int	.16, .81	-.31, .15	-.06, .47	-.08, .48	-.08, .34	-.11, .42			
	ρ ; SD ρ	.52; .34	-.08; .29	.22; .36	.27; .30	.11; .25	.17; .25			
II	$r [k, N]$	.34* [5, 976]	-.03 [6, 854]	.19* [5, 632]	.14** [5, 632]	.20** [6, 854]	.08* [6, 854]			
	CI	.02, .65	-.14, .08	.06, .32	.06, .22	.11, .29	.01, .16			
	Cred. Int	-.03, .70	-.18, .12	.03, .35	.04, .25	.07, .32	-.03, .19			
	ρ ; SD ρ	.62; .32	.01; .24	.37; .27	.31; .24	.16; .23	.15; .14			
IM	$r [k, N]$	.54** [5, 979]	.02 [6, 821]	.18** [6, 821]	.19** [6, 821]	.15** [6, 821]	-.01 [6, 821]	.60** [6, 1060]		
	CI	.37, .72	-.07, .11	.08, .28	.10, .29	.07, .23	-.08, .06	.42, .78		
	Cred. Int	.34, .75	-.11, .14	.03, .32	.06, .33	.03, .26	-.08, .06	.36, .84		
	ρ ; SD ρ	.59; .27	.13; .16	.27; .25	.35; .27	.13; .26	.04; .09	.72, .35		
IS	$r [k, N]$	.44** [5, 871]	.09 [6, 754]	.08 [6, 754]	.15 [6, 754]	.05 [6, 754]	-.04 [6, 754]	.46** [6, 1060]	.57** [6, 1060]	
	CI	.17, .72	-.05, .23	-.04, .20	-.01, .30	-.10, .19	-.11, .03	.22, .70	.38, .75	
	Cred. Int	.14, .75	-.10, .28	-.09, .25	-.07, .36	-.16, .25	-.11, .03	.14, .78	.33, .81	
	ρ ; SD ρ	.56; .38	.17; .28	.12; .23	.35; .35	-.05; .20	-.08; .10	.60, .40	.68, .28	
IC	$r [k, N]$	.47** [6, 1057]	-.03 [5, 632]	.09 [5, 632]	.19* [5, 632]	.15* [5, 632]	.02 [5, 632]	.46** [6, 1060]	.51** [7, 1246]	.70** [7, 1138]
	CI	.27, .67	-.10, .05	-.06, .24	.03, .35	.03, .27	-.08, .11	.20, .73	.32, .68	.64, .76
	Cred. Int	.22, .73	-.11, .06	.07, .11	.17, .21	.00, .30	-.11, .14	.12, .81	.24, .77	.61, .79
	ρ ; SD ρ	.54; .34	.04; .13	.09; .25	.36; .37	.08; .32	.05; .22	.58, .41	.59, .35	.83, .12

Note. Pf = leader performance; N = neuroticism; E = extraversion; O = openness to experience; A = agreeableness, C = conscientiousness; TFL = transformational leadership; II = idealized influence; IM = inspirational motivation; IS = intellectual stimulation; IC = individualized consideration; r = pooled correlation; k = number of studies, N = sample size; Cred. Int = 80% credibility interval; CI = 95% confidence interval; ρ = estimated corrected correlation; SD ρ = standard deviation of corrected correlation.

* $p < .05$.

** $p < .01$.

Results

We examined the sample-size weighted random effect sizes of the relationships between the Big 5 personality traits, the different transformational leadership behaviors, and leader performance, using them as inputs in the subsequent SEM analyses. Table 3 reports the sample-size weighted correlations (r), the number of studies on a specific relationship (k), the sample size of a specific relationship (N), the 80% credibility intervals (Cred. Int.), and the 95% confidence intervals (CI). Additionally, we report the effect size ρ (incl. SD ρ ; Hunter & Schmidt, 1990) correcting the raw correlations for the reliabilities of dependent and independent variables (cf. Bono & Judge, 2004). Reliabilities were taken from the included studies; missing values were replaced by means. The remaining analyses (incl. MASEM) are based on the uncorrected random-effects effect size r (Cheung & Chan, 2005).

Extraversion showed positive relationships with overall transformational leadership, idealized influence, and inspirational motivation, but non-significant links to intellectual stimulation and individualized consideration. Openness to experience was positively related to transformational leadership and all its sub-dimensions. The relationships between agreeableness and overall transformational leadership, idealized influence, inspirational motivation, and individualized consideration were positive, but agreeableness was not significantly related to intellectual stimulation. We found a positive relationship between conscientiousness and overall transformational leadership, and between conscientiousness and idealized influence. Furthermore, the links between conscientiousness and inspirational motivation, intellectual stimulation, and individualized consideration were all non-significant. Finally, we found non-significant links between neuroticism and transformational leadership and all its sub-dimensions.

The overall transformational leadership measure had a sizable positive relationship with leader performance. The transformational leadership sub-dimensions were all positively related to leader performance, but the strength of the effect varied. Moreover, we found small, but consistent, positive relationships between leader performance and extraversion, openness to experience, conscientiousness, and agreeableness, as well as an insignificant link to neuroticism.

Additionally, we tested the homogeneity of the effect sizes with the Q -test statistic to analyze whether each effect size was consistent across the studies (see Hedges & Olkin, 1985). Our analysis showed an absence of homogeneity in the different relationships. However, no systematic moderator effects were found in terms of the method (e.g., the performance rater), or study variables (e.g., design, cultural background (see above), personality/leadership scales). Further, all the subsequent SEM analyses were repeated, using effect sizes corrected for the abovementioned moderators. The results remained virtually unchanged.⁷

Research questions and hypotheses testing

Figs. 1 and 2 show the models for the associations between personality traits, transformational leadership behaviors, and leader performance. *Research Question 1* focused on the potential different relationships between the Big 5 and the transformational leadership behaviors. Fig. 1 shows the standardized path coefficients between personality traits, overall transformational leadership, and leader performance. We found that extraversion, openness to experience, agreeableness, and conscientiousness had a positive relationship with the overall transformational leadership measure. In contrast, neuroticism was not related to the overall transformational leadership measure.

Moreover, we simultaneously tested all the transformational leadership sub-dimensions by taking their intercorrelations into account in order to evaluate the interplay between personality, transformational leadership, and leader performance (Fig. 2). The effect sizes between the transformational leadership sub-dimensions were highly positive. Furthermore, and in line with our assumption that personality traits are differentially linked to the transformational leadership sub-dimensions, we found that extraversion had positive relationships with idealized influence, inspirational motivation, and intellectual stimulation, but had no relationship with individualized consideration. Openness to experience was positively related to all the transformational leadership sub-dimensions. We found that agreeableness was significantly positively related to idealized influence, inspirational motivation, and individualized consideration, but was not related to intellectual stimulation. Moreover, conscientiousness was not related to idealized influence and individualized consideration, and was negatively related to inspirational motivation and intellectual stimulation. However, caution is warranted when interpreting the negative links, since these relationships were of such small magnitude that we cannot confidently interpret these findings, which may be driven by suppression. Finally, neuroticism was positively related to inspirational motivation and intellectual stimulation, whereas it was not related to idealized influence and individualized consideration. In sum, our results indicate that personality traits are differentially associated with transformational leadership in general and with its four sub-dimensions in particular (*Research Question 1*).

Research Question 2 focused on the relationships between the sub-dimensions of transformational leadership and leader performance. The overall transformational leadership measure was positively related to leader performance (see Fig. 1). Furthermore, and in line with our assumptions, the transformational leadership sub-dimensions proved to be differentially linked to leader performance (see Fig. 2). We found that idealized influence was not significantly related to leader performance, whereas inspirational motivation, intellectual stimulation, and individualized consideration were positively linked to leader performance. Inspirational motivation revealed the strongest link to leader performance, followed by individualized consideration and intellectual stimulation.

To test *Hypothesis 1*, we examined the relationship between the five personality traits and leader performance in a model excluding transformational leadership. We found that neuroticism was negatively related to leader performance ($\beta = -.11, p < 0.05$). Furthermore, extraversion and openness to experience were positively related to leader performance (extraversion: $\beta = .11$,

⁷ These results can be obtained from the corresponding author upon request.

Table 4

The 95% confidence intervals of Big 5 personality traits' indirect effects on leader performance via transformational leadership behaviors.

Variables	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Transformational leadership	[−.02, .01]	[.04, .07]	[.05, .08]	[.02, .05]	[.03, .07]
Idealized influence	[−.00, .01]	[.03, .06]	[.01, .04]	[.04, .07]	[−.01, .02]
Inspirational motivation	[.02, .06]	[.06, .11]	[.05, .10]	[.05, .09]	[−.06, −.02]
Intellectual stimulation	[.03, .07]	[.01, .05]	[.04, .08]	[.00, .04]	[−.04, .00]
Individualized consideration	[−.02, .02]	[−.01, .03]	[.06, .10]	[.04, .08]	[−.03, .01]

$p < 0.05$; openness to experience: $\beta = .16$, $p < 0.05$). Finally, agreeableness showed a slightly positive association with leader performance ($\beta = .06$, $p < 0.05$) and conscientiousness was positively associated with leader performance ($\beta = .16$, $p < 0.05$). In sum, **Hypothesis 1a–e** is supported, whereby the path coefficient of agreeableness is not meaningful due to its very small magnitude.

Hypothesis 2 and **Research Question 3** focused on leader personality's indirect effect on leader performance via the different transformational leadership behaviors. We tested the significance of the different personality traits' indirect effects on leader performance via transformational leadership (overall and sub-dimensions). **Table 4** provides an overview of the 95% confidence intervals of the different indirect effects. Partially supporting **Hypothesis 2**, we found that extraversion, openness to experience, agreeableness, and conscientiousness had significant indirect effects on leader performance via the overall measure of transformational leadership. We did not find support for an indirect effect of neuroticism on leader performance via transformational leadership.

Furthermore, we found that leader performance was indirectly influenced by extraversion, openness to experience, and agreeableness via idealized influence, by neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness via inspirational motivation, by neuroticism, extraversion, openness to experience, and agreeableness via intellectual stimulation, and, finally, by openness to experience and agreeableness via individualized consideration. Thus, in attempting to answer **Research Question 3**, our results seem to indicate that personality traits influence leader performance indirectly via different transformational leadership sub-dimensions. For instance, individualized consideration only speaks to the indirect effect of openness to experience and that of agreeableness on leader performance, whereas inspirational motivation can account for the relationship between all of the Big 5 traits and leader performance.

Discussion

With this meta-analysis, we intended to update our current knowledge of the role of leader personality in shaping transformational leadership and leader performance. More specifically, we aimed to address the current debate on the distinctiveness of the transformational leadership construct (e.g., [van Knippenberg & Sitkin, 2013](#)). We examined whether the Big 5 personality traits showed differential associations with the different transformational leadership sub-dimensions, and whether these showed differential relationships with leader performance. Our meta-analysis updates the one by [Bono and Judge \(2004\)](#), since we include more recent research, investigate all the transformational leadership sub-dimensions, and extend the relationships between the Big 5 and transformational leadership to leader performance by testing a comprehensive theoretical model. Our meta-analytical findings support and extend the idea that it is important to consider the different sub-dimensions separately, as we found differential dispositional antecedents and outcome relations in respect of the transformational leadership sub-dimensions.

Personality and transformational leadership

Our results provide insights into how the overall transformational measure and its sub-dimensions are related to the different Big 5 personality traits. The meta-analytic data seem to support the current theoretical movement, stressing the need to investigate the transformational leadership sub-dimensions separately ([Sutton & Staw, 1995](#); [van Knippenberg & Sitkin, 2013](#)). For instance, we found that agreeableness is positively related to idealized influence, inspirational motivation, and individualized consideration, but not to intellectual stimulation. In the next section, we discuss the specific findings regarding the relationships between the Big 5 personality traits and transformational leadership by comparing them with and contrasting them against [Bono and Judge's \(2004\)](#) findings.

Neuroticism

Interestingly, the positive relationship between neuroticism and two of the transformational leadership sub-dimensions contradicts the findings of [Bono and Judge \(2004\)](#). Although the path-coefficients between neuroticism and inspirational motivation and intellectual stimulation were small and the zero-order correlations were not significant, the direction surprised us. A possible theoretical explanation could be that neurotic leaders tend to be sensitive to contextual and interpersonal influences, because they are insecure about the workplace, or their tasks, and may therefore more often give their followers the opportunity to participate in tasks. Their followers may thus be relatively autonomous with regard to suggesting ideas and performing tasks and consequently feel intellectually stimulated. The provided autonomy and participation might potentially instigate the idea that everyone is working together, creating a stronger belief in and commitment to a vision. Again, however, because these findings are not aligned with previous theory and the zero-order correlations are not significant, they should be interpreted with caution, and future research is clearly needed.

Extraversion

We found that extraversion is positively associated with the overall transformational leadership measure, idealized influence, inspirational motivation, and intellectual stimulation, whereas it was not related to individualized consideration. Bono and Judge's (2004) previous work had no specific hypothesis on individualized consideration, but predicted extraversion's positive relationship with overall transformational leadership. Our results showed that this procedure is suboptimal, because individualized consideration is not, like the other sub-dimensions, predicted by extraversion. Theoretically, this makes sense, as extraversion has been found to be positively related to narcissism and dominance (e.g., Emmons, 1984; Raskin & Hall, 1981; Vazire, Naumann, Rentfrow, & Gosling, 2008), implying that extraverted leaders might have a tendency to focus on themselves rather than being concerned with their followers, or promoting good relationships, especially when the "dominance" dimension of extraversion (and not the affiliation dimension) is more predictive of behavior.

Openness to experience

Like Bono and Judge (2004), we found a positive relationship between openness and transformational leadership, as well as all its sub-dimensions. Thus, we conclude that openness to experience might be very important in light of transformational leadership's emergence, although we acknowledge that the path-coefficients are relatively small (between .07 and .17). This is especially interesting in times when openness values are becoming increasingly important (Wanberg & Banas, 2000). People in organizations have to increasingly deal with issues that require high degrees of openness – such as demographic changes and globalization (Graen, Hui, & Taylor, 2006) – and research has shown that openness to change, which is highly correlated with openness to experience, is essential to meet these challenges (Seppälä, Lipponen, Bardi, & Pirttilä-Backman, 2012; Wanberg & Banas, 2000). Therefore, we call for a more in-depth examination of the openness-transformational leadership relationship, because we believe that this would benefit theory and practice.

Agreeableness

We found that agreeableness is also not related to all sub-dimensions in the same manner. The positive relationships with idealized influence, inspirational motivation, and individualized consideration are understandable, because it is highly conceivable that kind, warm, and generous leaders will be liked, accepted as role models, will impress their vision positively, and will help their followers when needed (Bono & Judge, 2004; Busch & Wilson, 1976; Hinkin & Schriesheim, 1989; Martin, 1978). In contrast to previous work by Bono and Judge (2004), who found a positive relationship between agreeableness and intellectual stimulation, our findings suggest that these constructs are not related to each other. This finding might be explained by work showing that agreeable persons have a strong preference for cooperation and harmony, which could hinder critical exchanges about perspectives and, therefore, divergent thinking – a characteristic of intellectual stimulation (Graziano et al., 1996; Van Kleef et al., 2010).

Conscientiousness

Whereas conscientiousness was positively related to overall transformational leadership (which contradicts findings by, for instance, Lim & Ployhart, 2004, but is in line with Bono & Judge, 2004) we found negative (albeit weak) relationships with two of the transformational leadership sub-dimensions. We found no relationship between conscientiousness and idealized influence. This finding is in line with the argumentation by Bono and Judge (2004) that there are no specific reasons for surmising that conscientious leaders are especially visionary. However, they found a marginal positive relationship between charisma (a combination of idealized influence and inspirational motivation) and conscientiousness. Furthermore, and contrary to Bono and Judge (2004), we found no relationship between conscientiousness and individualized consideration. This might be due to leaders scoring higher on conscientiousness being very structured, being straightforward, using rational appeals (Cable & Judge, 2003), and having a high need for cognitive closure (Neuberg, Judice, & West, 1997), which implies that they will not specifically care about their followers. Moreover, in contrast to Bono and Judge (2004), who found small positive relationships, we found negative associations between conscientiousness and inspirational motivation and intellectual stimulation. This seems to indicate that being highly conscientious influences the degree to which a leader provides and articulates a vision negatively, as well as lessens a leader's ability to stimulate others to think out of the box. However, we have to be very careful when interpreting these results, since we found significant marginal negative relationships in the regression analysis, but non-significant relationships near zero in the correlation matrix (Table 3). These differences might be due to suppression.

Given the non-significant, or negative, relationships between conscientiousness and the transformational leadership sub-dimensions, it is striking that we found a positive relationship between conscientiousness and the overall transformational leadership construct. To further examine this inconsistent finding, we performed additional analyses, in which we examined whether different operationalizations of transformational leadership can account for these effects. We compared studies that reported the effect size between conscientiousness and an overall transformational leadership measure with those that examined different transformational leadership sub-dimensions, which we then combined into an overall transformational measure. The combined measures of transformational leadership showed lower correlations ($r = .11$) with conscientiousness than studies using an overall transformational leadership measure ($r = .25$). These findings seem to imply that the specific measure used affects the correlation between conscientiousness and transformational leadership, although this cannot account for the negative relationships between conscientiousness and two of the sub-dimensions. Another potential explanation, which we could not examine with our data, is the use of different questionnaires in different types of research settings, or in different publication years. In this respect, situational factors, such as the type of job, or work design (e.g., more vs. less creative, or more vs. less social interaction required), or conscientiousness becoming more, or less, important for certain sub-dimensions over time, might differentially affect the relationships between conscientiousness and the different sub-dimensions. In this respect, it is interesting that Bono and Judge (2004) found positive, but marginal, relationships between conscientiousness and the transformational leadership sub-dimensions ($ps < .06$; except for individualized

consideration [$p = .14$]), but only a modest link to the overall transformational leadership ($p = .13$). Consequently, future research could investigate what different transformational leadership measures capture, how they differ from those that measure overall transformational leadership, whether certain scales are more likely to be used in certain settings, and how potential contextual moderators differentially affect the relationships between conscientiousness and the different sub-dimensions.

Summarizing, our findings stress that the differentiation between the different transformational leadership sub-dimensions should become standard in leadership research, because they are differentially related to personality traits. Since most studies⁸ and meta-analyses still operationalize transformational leadership as an overall measure (Cavazotte et al., 2012; DeRue et al., 2011; Judge & Piccolo, 2004; van Dierendonck, Stam, Boersma, de Windt, & Alkema, 2014), this is an important aspect to take into account in future research. A clear illustration of the problems associated with combining the sub-dimensions into an overall construct can be found in our findings on conscientiousness and neuroticism and their different effects on the transformational leadership sub-dimensions. Future research using this separation approach could provide a deeper understanding of transformational leadership and its nomological net, which would contribute to the development of a theory pertaining to which combinations of different sub-dimensions actually feed into an overall transformational leadership measure.

Transformational leadership and leader performance

Our findings on the relationship between transformation leadership and leader performance are in line with previous research and show that transformational leadership has strong positive effects on leader performance (Dumdum, Lowe, & Avolio, 2002; Judge & Piccolo, 2004). The effect sizes of the transformational leadership sub-dimensions differ substantially, so that idealized influence shows the weakest impact on leader performance and inspirational motivation the strongest. The behaviors that transformational leaders express might explain this difference: Leaders who focus more on idealized influence act as a role model, allowing followers to orient themselves to their leaders' behavior. These behaviors might be more consequential for the followers' performance rather than that of the leaders. Conversely, the motivational aspect of leaders who focus more on inspirational motivation might influence followers and leaders, since these leaders motivate, foster optimism, and inspire — behaviors that might have an impact on their own motivation to perform and subsequent performance as well. The difference between the relationships between idealized influence and leader performance, and between inspirational motivation and leader performance is especially interesting, given that the two sub-dimensions are seen as having the strongest conceptual overlap and, consequently, have often been combined into one charismatic leadership measure (e.g., Bono & Judge, 2004; van Knippenberg & Sitkin, 2013). Our findings imply that this practice should be reconsidered, as the two sub-dimensions do not always produce coherent effects.

Our data also suggest that theory can be further advanced by focusing on the development of leadership behaviors, because we have seen that leadership behavior may feed into leader performance. Numerous studies have confirmed the impact of leadership development programs on leader and follower performance, on follower development and commitment, and on branch-level financial performance (e.g., Barling, Weber, & Kelloway, 1996; Collins & Holton, 2004; Dvir, Eden, Avolio, & Shamir, 2002). In this regard, Avolio, Sosik, Jung, and Berson (2003) highlight the importance of the context when investigating leadership development, since leadership is a combination of leaders, their follower, and the specific context (Day, 2000; Fiedler, 1996). Therefore, concentrating more intently on the promising effects of leadership development intervention could be a fruitful approach for future research and practice.

Personality and leader performance

Given our findings regarding the Big 5 personality traits and leader performance, we showed that neuroticism is negatively associated with leader performance and that the direct effects of extraversion, openness to experience, and conscientiousness significantly enhance leaders' performance. These results are in line with previous research that has found that these personality factors are important for leader success (Barrick & Mount, 1991; Barrick et al., 2001; Judge, Bono, et al., 2002; Sosik et al., 1998; Watson & Clark, 1997).

Furthermore, as in the meta-analysis of Judge, Bono, et al. (2002), agreeableness was the least relevant predictor of leader effectiveness in our meta-analyses. However, the overall relationship was positive. Thereby, we support the reasoning of those researchers who have classified agreeable people as empathic and likeable, but also likely to be compliant and passive (Judge, Bono, et al., 2002). It seems that this passiveness deters agreeable people from performing well.

In sum, understanding the significance of focusing on a few important distinct personality traits in the selection process could help organizations improve their often-used, trait-based procedures (e.g., Fulmer & Conger, 2004) to identify the best performing leaders (DeRue et al., 2011).

Personality, transformational leadership behaviors, and leaders' performance

Studies and meta-analyses have shown that transformational leadership behavior could be a mediator between the Big 5 and leader performance, but have failed to distinguish between the different transformational leadership sub-dimensions (e.g., Cavazotte et al., 2012; DeRue et al., 2011; Rubin et al., 2009). However, it is important to differentiate between these sub-dimensions, because different personality traits' indirect effects on leader performance might be driven by different leadership behaviors. First, we find support for the indirect effects of the Big 5 personality traits on leader performance via transformational leadership, idealized influence, inspirational motivation,

⁸ In our meta-analysis, 38 studies investigated transformational leadership as an overall construct, whereas only 13 distinguished between the transformational leadership sub-dimensions.

intellectual stimulation, and idealized consideration. However, because the different personality traits influence the transformational sub-dimensions and promote leader performance differentially, not all indirect effects are significant. Consequently, we can conclude that certain traits are more likely to influence leader performance via certain leadership behaviors. It would be worthwhile for future research to examine which contingency factors influence these indirect effects. In this respect, research on the Big 5 and performance has shown that some personality traits only influence performance under certain conditions (Barrick & Mount, 1991; Barrick, Stewart, Neubert, & Mount, 1998; Mount & Barrick, 1995; Tett, Jackson, & Rothstein, 1991). The same might true for their indirect effects. For instance, is it likely that those Big 5 personality traits that foster intellectual stimulation behavior are mostly activated in situations requiring creativity, or that individualized consideration behaviors are more strongly connected to personality traits in jobs that require caring about people's needs.

Practical implications

Our research shows that one specific personality trait may not characterize effective leaders, or execute one specific leadership behavior, but that different combinations of personality traits linked to certain leadership behaviors might lead to success. Thus, organizations should invest in personnel selection and leadership development training. A combination of selection and training instruments has the advantage that development programs can effectively respond to each individual. Our meta-analysis showed that different personality trait combinations affected the transformational leadership sub-dimensions and that these (except idealized influence) had positive effects on leader performance. Therefore, there are several strategies to reach the goal of developing well performing leaders. Development programs might first consider and analyze leaders' personality and then focus on suitable leadership behavior. For instance, our meta-analysis has shown that openness and agreeableness are predictors of individualized consideration, so that leaders who score high on these personality traits might not benefit from a training that focuses on individualized consideration elements (i.e., they will learn relatively little, as they inherently show these behaviors). Conversely, leaders who score high on conscientiousness might profit more from attending a development training program to improve individualized consideration behaviors (i.e., they will learn a lot since they are less likely to show these behaviors).

Limitations and future research

Despite the interesting findings, the present study is not without limitations. A meta-analysis is restricted by the number and quality of the available studies. As we aimed to contribute to the current debate on the relevance of distinguishing between the transformational leadership sub-dimensions (van Knippenberg & Sitkin, 2013), we were limited in respect of the number of studies we could incorporate into our meta-analysis.

The effect sizes of the Big 5 personality traits and the leadership behaviors were small (even smaller than those in Bono & Judge, 2004 meta-analysis). This is possibly due to other personality traits, or possible antecedents being stronger predictors of transformational leadership than the Big 5 traits. However, because the Big 5 traits have consistently been found to relate to transformational leadership – a trend which our findings also reflect – we are convinced that our research provides important insights into the question of how the Big 5 personality traits influence the different transformational leadership sub-dimensions.

Furthermore, although we could perform some moderation analyses of study characteristics, we did not have sufficient data to address a wide range of potential moderator variables. However, as mentioned above, it would be valuable to test how situational factors might influence our tested models. The way work is structured might be a relevant situational factor (Humphrey, Nahrgang, & Morgeson, 2007). For instance, leaders of assembly-line workers may not have to be especially visionary, or inspiring, to show high performance, whereas leaders of project teams dealing with innovation should be able to introduce divergent thinking as an asset for developing innovative and creative ideas. Other structural variables, which could be worthwhile investigating, are the specific job requirements, the time given to work on specific tasks, and the organizational structure, such as the hierarchical levels or power distance.

In this respect, it should be noted that transformational leadership research has often been criticized for the unreflective declaration of transformational leadership as being universally good. Conversely, transformational leadership might also foster negative outcomes such as narcissism or poor decision-making (Tourish, 2013, 2014). Another point of criticism is that most of the research does not consider contextual factors (Antonakis et al., 2003) and uses mainly US samples (e.g., Alban-Metcalfe & Alimo-Metcalfe, 2000; Alimo-Metcalfe & Alban-Metcalfe, 2010; Wright, 1996). As such, the generalizability of many previous findings to non-US countries is disputable (Hunt & Peterson, 1997). Studies within the UK support this critique by showing differences in the sub-dimensions found with the MLQ and the UK transformational leadership measurement instrument (TLQ-LGV, Alban-Metcalfe & Alimo-Metcalfe, 2000; Alimo-Metcalfe & Alban-Metcalfe, 2010), as well as a different understanding of leadership in the US and the UK (Edwards, Schyns, Gill, & Higgs, 2012). Even though the results of the present meta-analysis suggest that country effects are unsystematic, it is still relevant to test these ideas in future research.

Similarly, it might be interesting for future research to also consider contextual influences on whether overall transformational leadership, or its sub-dimensions, are more important for outcomes. For example, we could argue that the transformational leadership sub-dimensions are conceptually and/or theoretically distinct and might therefore be distinguished in well-controlled behavioral studies. However, most studies use questionnaire perceptual measures,⁹ in which the participants' beliefs about effective leadership might easily influence their perception of effective leadership aspects. Likewise, when discussing whether the sub-dimensions have shared or distinct antecedents, it seems likely that, depending on the leader's experiences, both could be possible. That is, there

⁹ 48 out of the 58 studies included in our meta-analysis used surveys to investigate their research questions.

could well be multiple paths to the development, or expression, of the various sub-dimensions, some of which might be common to some leaders, but distinct in respect of others.

Additionally, the intercorrelation between the transformational sub-dimensions was highly positive. This might play into the hands of researchers who argue that the sub-dimensions should not be conceptually distinguished (Yukl, 2013) and do not have satisfactory discriminant validity to warrant a separate examination (Bycio et al., 1995; Carless, 1998; Tejada et al., 2001; Tepper & Percy, 1994). However, we tested our hypotheses using MASEM, a technique that takes these intercorrelations into account and indicates the unique predictability of many of the subscales. Our research shows that the separate transformational leadership sub-dimensions explain the unique variance in leader performance over and above each other. Moreover, the personality antecedents also showed somewhat divergent relationships with the different sub-dimensions, which strengthens our focus on, and reasoning pertaining to, the multi-dimensionality of the transformational leadership construct.

Another limitation of the current study is that we limited our reasoning to transformational leadership and its sub-dimensions and not to the other elements of the full-range leadership theory (Bass, 1985; Burns, 1978). This choice was inspired by the popularity of transformational leadership, as well as the current literature debate on the need to distinguish the four transformational leadership sub-dimensions. Furthermore and interestingly, whereas transformational leadership is often still examined as one overarching construct, most researchers use the separation approach for transactional leadership (e.g., Hinkin & Schriesheim, 2008; Yammarino et al., 1993) and do not combine its sub-dimensions into an overall transactional leadership measure. As a result, examining this leadership behavior was less relevant in terms of our current approach and contribution to the transformational leadership debate.

Linked to the previous point, we also limited our research to the broad Big 5 personality traits and did not consider the different facets, or levels, of the Big 5 (Costa & McCrae, 1992; DeYoung et al., 2007; Saucier & Ostendorf, 1999). Research has shown that the Big 5 personality traits have different facets (Costa & McCrae, 1989; Saucier & Ostendorf, 1999), and even an intermediate level between these facets and the broad Big 5 personality traits (DeYoung et al., 2007). Using only the Big 5 personality traits might limit our understanding of personality traits, but also our comprehension of personality and its link to the transformational leadership sub-dimensions. For instance, Depue and Collins (1999) identified two dimensions into which extraversion can be divided: *agency* (dominance) and *sociability*. The *agency* part of extraversion might cause the negative link to individualized consideration, since highly extraverted people might care more about themselves than about others. The *sociability* part might foster idealized influence behavior, since these people like being a role model. Future research could also distinguish between the different personality trait sub-dimensions to obtain an even more fine-grained understanding of personality and its link to leadership behaviors.

Furthermore, we linked the Big 5 personality traits and transformational leadership to leader performance, because leaders with good performance have been found to promote effective organizational functioning (Dirks & Ferrin, 2002; House & Aditya, 1997). However, future research might include follower or team performance as additional outcomes in the model to examine whether leader performance indeed feeds into their performance. Similarly, future research might also examine whether different transformational leadership sub-dimensions feed differentially into, for instance, individual or team outcomes with regard to the extent to which these sub-dimensions are either more group focused, or more individual focused (e.g., Wang & Howell, 2012; Wu, Tsui, & Kinicki, 2010).

Notwithstanding these limitations, we hope that our findings motivate and inspire researchers to further explore the importance and distinctiveness of the transformational leadership sub-dimensions and, as such, enable the development of a novel theory of the antecedents of transformational leadership and their effects on leader performance.

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Appendix B. Studies and correlations included in the meta-analysis

Studies and correlations included in the meta-analysis.

Study	Sample		Trait	Trait					Pf
	N	Context		N	E	O	A	C	
Antonakis and House (2004)	33	Business	TFL ^a	.10	.40	.43	-.15	.02	.55
			II	.05	.42	.43	-.10	.02	.57
			IM	.16	.41	.32	-.13	.04	.58
			IS	.24	.18	.40	-.21	-.13	.58
			IC	.02	.06	.33	-.15	-.06	.44
Antonakis and House (2014)	171	Business	Pf	.16	.10	.16	.12	.29	-
			TFL ^a	-.04	.11	.09	.20	.03	-
			II	-.05	.07	.08	.22	.08	-
			IM	-.08	.23	.12	.17	.00	-
			IS	.03	.05	.09	.21	-.01	-
Awamleh and Gardner (1999)	304	University	IC	-.08	.13	.11	.21	.00	-
			TFL ^a	-	-	-	-	-	.84
Bergner, Neubauer, and Kreuzthaler (2010)*	130	University	Pf	-.14	-.09	-.13	.03	.25	-
Berry, Page, and Sackett (2007)	261	Business	Pf	-.19	.23	.17	.04	.13	-
Bing and Lounsbury (2000)	113	Business	Pf	-.26	.07	.36	-.04	.06	-
Bono and Ilies (2006)	71	University	TFL ^a	-	-	-	-	-	.34
Brown and Treviño (2009)	519	Business	TFL ^a	-	-	-.04	-	-	-
Brown, Treviño, and Harrison (2005)	183	Business	TFL ^a	-	-	-	-	-	.09
			II	-	-	-	-	-	.09
Cable and Judge (2003)*	189	Business	TFL ^a	.10	.07	.10	.16	-.07	-
			IM	.10	.07	.10	.16	-.07	-
Cavazotte et al. (2012)	134	Business	TFL	-.15	.22	.30	.05	.31	.63
			Pf	-.20	.30	.29	.13	.37	-
Chan and Chan (2005)	510	Business	TFL ^a	-	-	-	-	-	.70
			II	-	-	-	-	-	.72
			IM	-	-	-	-	-	.66
			IS	-	-	-	-	-	.70
			IC	-	-	-	-	-	.70
Clarke (2010)	67	Business	TFL ^a	.33	.39	.52	.27	.18	-
			II	.25	.38	.20	.24	.23	-
			IM	.20	.29	.46	.30	.11	-
			IS	.44	.34	.51	.08	.02	-
			IC	.12	.24	.46	.29	.25	-
Connelly and Ruark (2010)	288	University	TFL	-	-	-	-	-	.81
			TFL ^a	-.15	.17	.04	-.03	.10	.51
Crant and Bateman (2000)	156	Business	Pf	-.05	-.05	-.02	.15	.14	-
			TFL	-.21	.40	.20	.00	.42	-
D'Alessio (2008)	500	Business	TFL	-.21	.40	.20	.00	.42	-
De Hoogh et al. (2005)*	80	Business	TFL ^a	.18	-.05	-.08	.07	-.03	-.07

Appendix B (continued)

Study	Sample		Trait	Trait					Pf
	N	Context		N	E	O	A	C	
Detert and Burris (2007)*	223	Business	Pf	.11	-.05	.06	-.24	-.03	-
			TFL	-	-	.75	-	-	.38
			Pf	-	-	.38	-	-	-
De Vries (2008)	152	University	TFL ^a	-.21	.47	.35	.51	.47	-
De Vries (2012)	81	Business	TFL ^a	-.33	.63	.22	.02	.06	-
De Vries, Bakker-Pieper, and Oostenveld (2010)	279	Business	TFL ^a	-	-	-	-	-	.72
Gardner (2003)	145	University	TFL ^a	-	-	-	-	-	.69
Hetland and Sandal (2003)	100	Business	TFL	-	-	.16	-	-	.16
			Pf	-	-	.07	-	-	-
House, Spangler, and Woycke (1991)	31	Business	TFL ^a	-	-	-	-	-	.40
Howell and Avolio (1993)	78		TFL ^a	-	-	-	-	-	.32
			IS	-	-	-	-	-	.26
			IC	-	-	-	-	-	.36
Judge and Bono (2000)	161	Business	TFL ^a	.02	.18	.18	.24	-.05	.18
			II	.01	.22	.18	.28	-.04	.23
			IM	-.03	.24	.22	.21	-.06	.24
			IS	.07	.14	.10	.24	-.10	.11
			IC	.01	.19	.21	.23	.01	.15
			Pf	-.16	.19	.27	.03	-.04	-
Jung and Sosik (2006)*	218	Business	TFL ^a	-	-	.11	-	-	.43
			Pf	-	-	.04	-	-	-
Jung, Yammarino, and Lee (2009) (1)	103	Business	TFL	-	-	-	-	-	.68
Jung, Yammarino, and Lee (2009) (2)	108	Business	TFL	-	-	-	-	-	.58
Lim and Ployhart (2004)	39	Army	TFL	-.39	.31	-.08	-.29	-.09	-
Langford (2003)	122	Business	TFL ^a	.00	.01	.00	-.11	.16	-
			IS	.00	.00	-.01	-.19	.04	-
McNeese-Smith (1999)	19	Business	TFL ^a	-	-	-	-	-	.31
Nahrgang, Morgeson, and Ilies (2009)*	294	University	Pf	-	.03	-	.14	-	-
Naidoo, Kohari, Lord, and DuBois (2010)	117	University	TFL ^a	-	-	-	-	-	.68
Neufeld, Wan, and Fang (2010)	138	Business	TFL	-	-	-	-	-	.76
Piccolo et al. (2012) (1)	355	Business	TFL	-	-	-	-	-	.79
Piccolo et al. (2012) (2)	1269	Business	TFL	-	-	-	-	-	.86
Ployhart, Lim, and Chan (2001)	1259	Army	Pf	.17	.22	.09	.09	.13	-
Reichard, Riggio, Guerin, Oliver, Gottfried, and Gottfried (2011)*	100	Business	TFL	-.27	.34	.09	.30	.30	-
Ross and Offermann (1997)	40	Army	TFL	-	-	-	-	-	-.02
Rubin et al. (2009)	106	Business	TFL	-	-	-	-	-	.21
Rubin, Munz, and Bommer (2005)	145	Business	TFL	-	.07	-	.30	-	-
Shao and Webber (2006)	191	Business	TFL ^a	-.08	-.05	.04	.05	-.02	-
			II	-.10	.05	.09	.08	.04	-
			IM	-.07	.02	.13	.05	.03	-
			IS	-.09	-.11	-.04	.03	-.07	-
			IC	-.07	-.14	-.03	.03	-.07	-
			TFL ^a	-	-	-	-	-	.17
Sosik (2001)	83	Business	TFL ^a	-	-	.07	-	-	.26
Sosik (2005)*	218	Business	TFL ^a	-	-	.07	-	-	.26
			Pf	-	-	.04	-	-	-
Sosik, Avolio, and Jung (2002)	83	Business	TFL ^a	-	-	-	-	-	.16
Sosik, Juzbasich, and Chun (2011)	377	Business	TFL ^a	-	-	-	-	-	.62
Spangler, Dubinsky, Yammarino, and Jolson (1997)	34	Business	TFL ^a	-.34	-.43	-	-	-	-
Strang and Kuhnert (2009)	67	Business	Pf	.07	-.02	.09	.17	.09	-
Van Iddekinge, Ferris, and Heffner (2009)	471	Army	Pf	-.11	.21	-	-	.39	-
van Knippenberg and van Knippenberg (2005)	154	Business	TFL ^a	-	-	-	-	-	.73
Van Woerkom and De Reuver (2009)	138	Business	TFL ^a	-.33	-	.66	-	-	.20
			Pf	.01	-	.09	-	-	-
Von Wittich and Antonakis (2011)	53	University	TFL	-.01	-.05	.07	-.03	.10	-
Walumbwa and Schaubroeck (2009)*	222	Business	TFL ^a	-.18	-	-	.28	.17	-
			II	-.18	-	-	.28	.17	-
			TFL	-	-	-	-	-	.65
Wofford, Goodwin, and Whittington (1998)	89	Business	TFL	-	-	-	-	-	.09
			II	-	-	-	-	-	.61
			IM	-	-	-	-	-	.57
			IS	-	-	-	-	-	.65
			IC	-	-	-	-	-	.65
Yammarino, Dubinsky, Comer, and Jolson (1997)	15	Business	TFL	-	-	-	-	-	.84
Yammarino et al. (1993)*	186	Army	TFL ^a	-	-	-	-	-	.64
			IM	-	-	-	-	-	.64
			IS	-	-	-	-	-	.50
			IC	-	-	-	-	-	.50
Zopiatis and Constanti (2012)	131	Business	TFL	-.35	.55	.43	.25	.62	-

Note. N = sample size of studies; N = neuroticism; E = extraversion; O = openness to experience; A = agreeableness, C = conscientiousness; TFL = transformational leadership; II = idealized influence; IM = inspirational motivation; IS = intellectual stimulation; IC = individualized consideration; Pf = performance. ^aTransformational leadership is calculated over different sub-dimensions. *Longitudinal design. Full references for all papers are provided in Appendix A.

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