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To cite this article: Håvard R. Karlsen & Eva Langvik | (2021) Facet level effects of extraversion on leadership behaviours rated by subordinates, Cogent Psychology, 8:1, 1930712, DOI: [10.1080/23311908.2021.1930712](https://doi.org/10.1080/23311908.2021.1930712)

To link to this article: <https://doi.org/10.1080/23311908.2021.1930712>



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Published online: 01 Jun 2021.



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Received: 13 November 2020  
Accepted: 12 May 2021

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## WORK, INDUSTRIAL & ORGANISATIONAL PSYCHOLOGY | RESEARCH ARTICLE

# Facet level effects of extraversion on leadership behaviours rated by subordinates

Håvard R. Karlsen\* and Eva Langvik

**Abstract:** Several meta-analyses have shown extraversion to be an important predictor of leadership emergence, effectiveness, and behaviour. However, in recent years researchers have shown that in some settings, introverts are equal or even superior leaders. There have also been several calls for researchers to focus on narrower personality traits, as these might be more valid predictors than broader traits. For that reason, the relationship between facets of extraversion and leadership behaviour was investigated. In this study, both leaders and their subordinates ( $N = 234$ ) participated. Leaders completed the NEO personality inventory and the change, production, employee (CPE) leadership behaviour instrument, while subordinates rated their leader using CPE. Regression analyses showed that the domain extraversion mostly followed the same patterns as in previous studies, being positively related to change and production leadership behaviour. The facets were, however, differently related to leadership behaviours. Assertiveness was positively related to subordinate rated change and production, while excitement seeking was negatively related to self-rated production and subordinate rated employee focused behaviour. The negative relations of excitement seeking illustrates the value of facet-level analysis of personality.

**Subjects:** Personality; Leadership; Personality and Identity at Work; Personality Tests & Assessments

### ABOUT THE AUTHOR

Håvard Karlsen and Eva Langvik are part of the Occupational, Psychocardiology and Sleep research group (OPS) at the Norwegian University of Science and Technology. They both have expertise in personality psychology, vocational psychology, and psychometrics. OPS are involved in various multi-disciplinary projects, and they use a diverse set of methodologies, analyses and data sources, including large health studies, experimental designs, big data analysis and in-depth interviews. One of their research topics besides personality is the association between anxiety, depression and risk of cardiovascular disease.

### PUBLIC INTEREST STATEMENT

Many think of leaders as typically extraverted people, and that leaders must be extraverted to do a good job. Likewise, several researchers have found links between the personality trait extraversion and good leadership. Extraversion is made up of lower traits, like warmth, excitement seeking, assertiveness, and sociability. In this study, we asked leaders in various fields to take a personality test and evaluate themselves on leader qualities. Additionally, we asked their employees to describe them as leaders. We found that those leaders who were assertive were also considered to be engaged in more positive leader behaviour. However, those leaders who scored high on excitement seeking were less focused on the employees. This means that not all aspects of extraversion are positive in terms of leadership, and that for some aspects lower extraversion scores are better.

| **Keywords:** Leadership; CPE; Personality; Extraversion; Extraversion facets

## 1. Introduction

Leadership concerns the interaction process where subordinates are influenced to change their behaviour to accomplish organisational goals and leadership include both distinct leadership styles and various leadership behaviour (Andersen, 2006; Yukl, 2009). Extraversion has a prominent place in both lay perceptions and academic research concerning personality and leadership performance (Barrick & Mount, 1991; Bono & Judge, 2004; DeRue et al., 2011; Mann, 1959; Watson & Clark, 1997). Sociability is often considered the core tenet of extraversion (McCrae & Costa, 1987; Wilt & Revelle, 2008). In a systematic review, relational leadership style was associated with higher employee job satisfaction (Cummings et al., 2018), and hence, identifying those who have the right dispositions is of great interest for the organisations. People high in sociability, as well as other traits like assertiveness, are often perceived as the stereotypical leader-type, socially fluent and assertive. Indeed, extraversion has often implicitly and explicitly been linked to leadership: Extraverts often express confidence, assertiveness and enthusiasm, and they are attributed high status, especially in initial meetings (Bendersky & Shah, 2013). Consequently, they often emerge as leaders (C. Anderson et al., 2001; C. Anderson & Kilduff, 2009; Barry & Stewart, 1997; Hogan et al., 1994; Judge, Bono et al., 2002; Ones & Dilchert, 2009; Riggio et al., 2003; Spark & O'Connor, 2020; Zaccaro et al., 2004).

Executives differ from non-executives on the personality traits conscientiousness, emotional stability and Extraversion (Wille et al., 2018). Extraversion has also been linked to leadership effectiveness and performance (Barrick & Mount, 1991; Barrick et al., 2001; DeRue et al., 2011; Do & Minbashian, 2020; Hurtz & Donovan, 2000; Judge, Bono et al., 2002; Kornør & Nordvik, 2004; Mohammed et al., 2002; Oostrom et al., 2011; Silverthorne, 2001). As with the other traits in the FFM, extraversion has a bright side and a dark side, and the trait is associated with aspects of narcissism (Gruda et al., 2021). Watson et al. (2019) observed that while the social and positive aspect of extraversion was negatively associated with social dysfunction and pathology, the more agentic aspect (e.g like taking charge, excitement seeking) was associated with mania and narcissism, and that aspect-level analyses generated substantial increases in predictive power compared to domain-level use of extraversion.

Most studies investigate the relationship between leadership and personality at the domain level, and some have even argued that leadership performance is best predicted at even higher order-factor analysis, i.e. as a general factor of personality (Do & Minbashian, 2020). Before the 2000s, few studies included personality facets alongside the domains in their models (Judge, Bono et al., 2002). The Five Factor Model (FFM) has received criticism concerning its ability to predict leadership performance. More specifically, it is argued that the domains are too broad to be used to predict leadership criteria. Among others, Bono and Judge (2004) advocated the application of narrower personality traits. Specific facets might be more important than others in explaining the relationship between extraversion and leadership performance. Others have found that narrower personality dimensions explained more variance in leadership behaviour than the broad domains of the FFM (Bergman et al., 2014; Bergner et al., 2010). Despite the calls for an increased focus on facets or lower-level analysis for several years, both in health psychology (Watson et al., 2019) and in managerial settings (Chapman, 2007; Do & Minbashian, 2014; Judge, Piccolo, & Kosalka, 2009), few studies have investigated the relationship between extraversion and leadership at the facet level. In this study we therefore examine the effects of the six facets of extraversion on subordinate and self-rated leadership behaviour, in an attempt to forward our understanding of personality and leadership performance. We apply the Change, Production, Employee model (CPE) by Ekvall and Arvonen (1994) in this study, a behaviour-focused approach that makes a clear distinction among “employee-oriented”, “production-orientated” and “change-oriented” leadership behaviours.

### **1.1. Measuring leadership behaviour and efficiency**

A variety of measures exist when it comes to leadership efficiency (Madanchian et al., 2017). Leadership can be assessed through self-ratings or other-ratings: Self-ratings by leaders themselves are often more affordable and easier to collect, because researchers only need one observation per leader. Other-ratings constitute ratings from superiors, subordinates, or peers of the leader (Vecchio & Anderson, 2009). In the latter two cases, it is often necessary to collect several observations per leader from different subordinates/peers in order to achieve a more complete picture (Hensel et al., 2010). Both forms of ratings are associated with their respective set of biases and errors (e.g., Campbell & Sedikides, 1999; Ross et al., 1977).

Kim and Yukl (1995) found that subordinate ratings were more related to actual effectiveness than self-ratings were. They are, however, also subjective and influenced by several factors like the halo effect, selective recall, how well liked the leader is, and the implicit leadership theories inherent/embedded in those who rate (Lord et al., 1984; Sandal, 2002)—i.e. which traits they implicitly or unconsciously associate with leadership. Another potential bias in asking subordinates to rate their leaders on leadership behaviour as well as effectiveness is common method variance (Avolio et al., 1991; Binning et al., 1986). As the observations stem from the same source, they are not independent and may influence one another (Podsakoff et al., 2003). A subordinate who rates leadership behaviour favourably may therefore also rate the leader as effective regardless of actual effectiveness.

### **1.2. Extraversion and leadership performance**

Extraversion is characterised by sociability and positive emotions (Walker, 2020). Among the personality traits, extraversion has most frequently been found to be related to various leadership criteria (C. Anderson et al., 2001; C. Anderson & Kilduff, 2009; Barrick et al., 2001; Barry & Stewart, 1997; Hogan et al., 1994; Judge, Bono et al., 2002; Nicholson, 1998; Riggio et al., 2003; Silverthorne, 2001; Son Hing et al., 2007; Watson & Clark, 1997). For ease of flow, and in keeping with tradition, we use the description *extravert* for individuals scoring high on the extraversion scale, and *introvert* for individuals with a low score. In reality, people are scored along a continuum instead of categorically, and most people will be some degree of *ambivert*, meaning that they fall somewhere in the middle of the extraversion scale. Similarly, *leadership* can be thought of in many ways, for instance, as transformational, or as effectiveness or behaviour. Individual level of leadership activities includes behaviour like such as motivating, evaluating and inspiring others. Transformational leadership differ from basic goal-achievement, referred to as transactional leadership, as it refers to transforming the follower's mind-set and motivating others to achieve beyond what they are expected to (Bass, 1985).

Bono and Judge (2004) cite extraversion as the strongest and clearest correlate of transformational leadership. This is not unexpected, as several of the defining criteria of the transformational leader matches the behaviours of extraverts: the optimistic and enthusiastic nature of extraverts help them emerge as group leaders (Judge, Bono et al., 2002; Judge, Erez et al., 2002; Kickul & Neuman, 2000; Riggio et al., 2003; Taggar et al., 1999) and be perceived as leaderlike (Hogan et al., 1994). Extraversion has been significantly related to transformational leadership (Bono & Judge, 2004; D'Alessio, 2008; Lim & Ployhart, 2004), at both maximum and typical performance (Ployhart et al., 2001), and to charismatic, ethical and supportive leadership (De Vries, 2012). It has also been related to job performance for managers (Barrick & Mount, 1991; Barrick et al., 2001; Hertz & Donovan, 2000; Judge, Bono et al., 2002). In a cross-cultural study, Silverthorne (2001) found that effective leaders across the U.S., Taiwan and Thailand were more extraverted than ineffective leaders. Do and Minbashian (2014) found through meta-analysis that agentic aspect of extraversion was positively related to leadership, while the affiliative aspect was unrelated to transformational leadership and negatively associated with effectiveness.

Extraversion has been linked to a number of leadership roles (Watson & Clark, 1997), and especially to interpersonal leadership (Ostrom et al., 2011). Studies have found that the ideal leadership profile was the open and relations-oriented leader, characterised by being extraverted,

possessing good social skill, being change-oriented and being low in anxiety (Einarsen et al., 2002; Sandal, 2002). Kornør and Nordvik (2004) found that extraversion was significantly associated with self-rated change and employee leadership behaviour, as well as a total score of CPE leadership. However, when controlling for the other four traits, extraversion was only a significant predictor of production and total CPE leadership behaviour. Using factor analysis, they concluded that extraversion, alongside openness and neuroticism, comprised a factor with the change dimension of leadership. A recent study found that meeting interaction mode moderated the effect of extraversion on leadership emergence in team meetings: Extraversion was related to leadership emergence only in the face-to-face meetings and not in virtual meetings (Wilson et al., 2021).

On the other hand, some studies have found that extraversion was unrelated to management performance (Bommer et al., 2005; Rothmann & Coetzer, 2003) or that other personality traits were more helpful than extraversion in predicting the three CPE leadership styles (Bergman et al., 2014). Andersen (2006) concluded after a literature review that the research on leadership and personality was too inconsistent and often showed small effects. Several researchers (e.g., Atamanik, 2013; Judge & Zapata, 2015) have presented conflicting results concerning leader effectiveness for introverts and extraverts in competitive settings. Grant et al. (2011) found that extraversion was related to group effectiveness, but that this relationship was moderated by group members' proactivity. However, several large-scale meta-analyses have concluded that extraversion is linked to leadership (Barrick & Mount, 1991; Barrick et al., 2001; Bono & Judge, 2004; DeRue et al., 2011; Hurtz & Donovan, 2000; Judge, Bono et al., 2002), and extraversion continues to be perceived as important in leadership performance both in the research field and lay perceptions (Grant et al., 2011). Personality traits may be divided into subfacets. While facets of a trait are correlated, people may still show substantial divergence among their facet scores. Few studies include facet scores of personality, and it is reasonable to suggest that some of the inconsistencies in the research on extraversion and leadership performance are due to failure to incorporate analysis at the facet-level.

### **1.3. Extraversion at the facet level**

The bandwidth-fidelity dilemma (Chapman, 2007; Cronbach & Gleser, 1965; Judge et al., 2013) concerns whether a lower order (narrower) or higher order (broader) construct best predicts a criterion. Facet level analysis of extraversion has shown to be superior to dimension level concerning mental health (Watson et al., 2019) and physical functioning (Kekäläinen et al., 2020). Since facet scores on personality are summarised to compromise factor scores, the factor scores may mask differences at the level of individual traits. In spite of increased reliability due to the aggregation of inter-correlated facets, broader traits do not necessarily show better predictive power than narrower traits (Ashton, 1998; Chapman, 2007). Though one facet of the domain is related to a criterion, this may be overshadowed by the other facets that are not related to the criterion but still constitute the domain, causing the domain to show less predictive power than the individual facets (Ashton, 1998; Chapman, 2007; Weiss & Costa, 2005). Some have suggested a bandwidth effect, where the personality traits drive global performance while the facets drive specific performance (Ellershaw et al., 2016). These aspects of the bandwidth-fidelity dilemma illustrate the need to examine whether the facets of personality are related to leadership, in addition to the need to explore the level of the domain.

Research has indicated that narrow traits are equal or even superior to broad traits in predicting job performance and leadership (Do & Minbashian, 2014; Judge, Bono et al., 2002; Rothstein & Goffin, 2006). There is less agreement on how to divide traits into facets. In the NEO inventories, the extraversion domain in six facets: activity, assertiveness, excitement seeking, gregariousness, positive emotions and warmth (Costa & McCrae, 1995). While the facet-structure used by various researchers differ, they often contain similarities that allow for comparisons. Judge, Bono et al. (2002) found that the facets of sociability and dominance predicted leadership better than the overall measure of extraversion did—though they did not include other extraversion facets in their analysis. Kornør and Nordvik (2004) showed that the facets were significantly correlated with several aspects of self-rated CPE leadership behaviour.

Vickers (1995) argued that assertiveness and activity were positively related to leadership and that sociability was negatively related to advancement. He interpreted this alongside previous studies to indicate that the exhibitionistic elements of extraversion, exemplified by being noisy and showing off, were detrimental to leadership. Nicholson (1998) found that leaders were more active than the general population, but that they were not more excitement seeking. The Hogan Development Survey (Hogan & Hogan, 2001) includes excitability, related to excitement seeking, as one of the traits associated with destructive leadership. Gough (1990) found that sociability and dominance were linked to both peer and self-ratings of leadership. There is some evidence that charisma, a part of extraversion and also transformational leadership, is linked to compensation packages (salaries, bonuses, etc.) but not to organisational performance (Agle et al., 2006; Tosi et al., 2004). Rubin et al. (2005) found that positive affectivity was related to transformational leadership. In a study of U.S. presidents, positive emotions and activity were shown to be related to presidential greatness, though assertiveness was the strongest predictor (Rubenzer et al., 2000).

#### **1.4. Dominance/assertiveness and sociability/gregariousness**

High scores on assertiveness are associated with dominant, forceful and socially ascendant behaviour, and with speaking without reservation (McCrae & Costa, 2010). Extraverts prefer to gain influence through dominance over others rather than being receptive to their ideas (Peterson et al., 2003). Assertiveness/dominance has been linked to leadership (Judge, Bono et al., 2002; Nicholson, 1998; Vickers, 1995) and to leadership emergence (McCrae & Costa, 2010; Son Hing et al., 2007). Nicholson (1998) concluded that assertiveness was one of the strongest requirements for leaders. Dominance has been related to how leaders rate their own behaviour and effectiveness (Brutus et al., 1999). Bendersky and Shah (2013) showed that extraverts were initially attributed high status and expectations as a result of their dominance and assertiveness at the start of a team project, relating it to leadership emergence. As extraverts failed to live up to these expectations, their statuses were eventually reduced. Driskell et al. (2006) suggested that dominance might be related to leadership through the exertion of power and control, though they also noted the need to suppress the tendency for social dominance in order to be a good team player. Insofar as leadership concerns a mutual effort between leaders and subordinates—if one considers the leader as part of the team—leaders should not be overly assertive. This was supported by Ames and Flynn (2007), who found negative outcomes for leadership effectiveness when leaders scored both high and low on assertiveness, and that for ideal effectiveness, leaders should have an average score on assertiveness. Excessive assertiveness had adverse social outcomes, while insufficient assertiveness had adverse instrumental outcomes (Ames, 2008; Ames & Flynn, 2007). Hu et al. (2019) found that warmth and assertiveness had a curvilinear relationship to advice-seeking by peers and peer liking, and that this again was related to leadership emergence in self-managed teams. This implies that the ideal degree to which these traits are expressed is somewhere in the middle of the scale.

Sociability concerns the preference for social stimulation: High scorers enjoy and seek out the company of other people, whereas low scorers are less inclined to such behaviour (McCrae & Costa, 2010). Sociability has been offered as the core facet of extraversion (McCrae & Costa, 1987; Wilt & Revelle, 2008), and though this claim has been contested (cf. Ashton et al., 2002; Cunningham, 1988; Lucas et al., 2000; Watson & Clark, 1997), the perception of an extravert as a sociable and outgoing person seems firmly rooted in the minds of laypeople. There also seems to be a general perception of the leader as being sociable and outgoing (Ones & Dilchert, 2009; Zaccaro et al., 2004). Although sociable leaders may be perceived as friendly and caring to subordinates, they may also be disposed to spending time talking rather than working. Vickers (1995) therefore found that sociability was negatively related to leadership. Contrary to this, the results of a meta-analysis by Judge, Bono et al. (2002) showed that extraversion was positively related to leadership. Riggio et al. (2003) found that social skills were related to leadership effectiveness perceived by subordinates, but not to other measures of effectiveness.

However, a relational leadership style has been identified as important for outcome patterns of the workforce in other studies (Cunnings et al., 2018). Warmth (interest in and friendliness towards others), and gregariousness (preference for the company of others) can be thought to affect the compassion and consideration a leader shows her subordinates, thus being related to the employee dimension of leadership, which contains similar aspects (Arvonen, 2002). Indeed, friendliness has been found to be related to perceptions of leadership (Malloy & Janowski, 1992), and warmth was the strongest predictor of self-rated employee and total CPE in Kornør and Nordvik (2004) study. In summary, assertiveness and gregariousness are the facets that most often are associated with leadership in the literature. Depending on how sociability is operationalised, warmth and positive emotions may also be included. Activity has occasionally been referenced as an antecedent of leadership, while excitement seeking has been related to destructive leadership.

To sum up, it is evident that extraversion has an important role in terms of leadership. However, it is unclear whether this is due to the broader factor of extraversion or certain of the individual facets. If the facets diverge in effect from the factor, then future research and theory would be recommended to study extraversion facets instead of extraversion as a whole. Knowing that certain facets are more important to extraversion will allow organisations in search of a “perfect leader” to narrow their focus to these facets instead of the broader trait. Identifying aspects of extraversion in leadership that represent the dark side of leadership can facilitate better selection procedures, avoiding unnecessary economic and human costs. An investigation into this topic is therefore of practical and theoretical interest.

### **1.5. Summary and research questions**

Extraversion has consistently been related to various leadership criteria. Despite calls for the need to examine the narrower aspects or facets of personality (Do & Minbashian, 2014; Judge et al., 2013), there are to our knowledge no studies linking the facets of extraversion to leadership behaviour dimensions assessed both with self- and other reports. The literature suggests that some facets are more strongly related to various leadership domains than others (cf. Watson et al., 2019). As extraversion in general is usually positively related to leadership (cf. Do & Minbashian, 2020; Wille et al., 2018), it is of interest to see if this applies to all of its facets as well. Some studies have documented negative effects of extraversion, which could potentially be manifested at the facet level (cf. Ames & Flynn, 2007; Vickers, 1995). Specifically, we are interested in these research questions: Is the domain of extraversion positively related to the leadership behaviours? Do the facets of extraversion follow the same pattern across the domain? How is the relationship between extraversion and leadership behaviour influenced by the source (i.e. self or other) of leadership evaluation?

## **2. METHOD**

### **2.1. Sample and procedure**

The sample consisted of leaders, as well as their subordinates, in various locations and enterprises in Norway. Potential respondents were contacted either through social media or via e-mail with a request to participate. If they agreed, they then received an e-mail explaining that the purpose of the study was to examine the relation between leaders and their subordinates with respect to the former's personality. They also received instructions for how to participate, and a link to the online survey. The e-mail also contained instructions for their subordinates and a link to a special survey designed for them. Leaders who participated were asked to forward the e-mail to all their subordinates, with instructions that at least five had to answer. In return for their participation, the leaders were offered the results of their personality scores along with an explanation of the Five-Factor Model, which 89% accepted. The recruitment phase lasted from October to December 2015. This study was approved by the NSD (Norwegian Center for Research Data).

The businesses the invitees hailed from ranged across various fields like health care, consulting, education, student organisations, and building maintenance and were located all over Norway. As the invitation to participate was sent to several large firms with an undisclosed number of leaders,

it is difficult to calculate exactly how many leaders received the invitation and therefore the response rate. Forty-seven leaders responded to the survey, though one was disqualified for not completing the personality inventory. Of those 46 that remained, 37 also had one or more subordinates who completed the subordinate survey. Nineteen (41%) of the 46 leaders were female. The average age of the leaders was 41 ( $SD = 13$ ), and their average tenure as leader was 10 years ( $SD = 9$ ). Fifteen percent had seven or fewer subordinates, 61% had 8–20 subordinates, 11% had 21–50 subordinates and 13% had more than 50 subordinates. A total of 188 subordinates participated, 59% were female, and their mean age was 38 ( $SD = 13$ ). The average amount of years spent working with a leader was 2.7 ( $SD = 3.2$ ). For the 37 leaders with responding subordinates, the mean number of subordinates was 3.9 ( $SD = 2.9$ ).

## 2.2. Instruments

*The NEO PI-R.* The extraversion domain and its facets were measured using the NEO PI-R (McCrae & Costa, 2010). The other four personality domains were also measured to be able to control for their effect on leadership behaviours. In order to make the survey less time-consuming and increase the completion rate, the short form NEO-FFI was used for these domains. For both of these, Norwegian translations were used. The total number of NEO items was 96 (48 from each version of the instrument). Only the leaders were asked to fill out the NEO inventory, assessing their own personality. *T*-scores for the NEO traits were calculated on the basis of the Norwegian norm scores (Martinsen et al., 2011).

Cronbach's alpha for the scales on NEO domains and extraversion facets is presented in Table 1. Alpha values were generally high. Agreeableness had the smallest alpha of the personality domains, at  $\alpha = .69$ , while the other domains had alpha values well above .70. Among the extraversion facets, most had  $\alpha$  values above .70, with the exception of excitement seeking ( $\alpha = .60$ ) and warmth ( $\alpha = .54$ ).

*The CPE Instrument.* The Change, Production, Employee Instrument was developed by Arvonen and Ekvall and has been validated in Nordic samples (Ekvall & Arvonen, 1994; Kornør & Nordvik, 2004; Skogstad, 1997). It is used to measure leadership behaviour across three dimensions: change, production and employee. The three domain scores were also combined into a total CPE score, representing the “complete manager” (in accordance with Arvonen, 1995). Leadership behaviour is thought to affect organisational outcomes indirectly, through other organisational and psychological processes (Arvonen & Pettersson, 2002; Yukl, 2009). The 15-item version of the CPE (Arvonen & Pettersson, 2002; Ekvall & Arvonen, 1994; Sverke et al., 1999) was used. The original instrument used other-ratings, which were adapted to self-ratings for the leadership questionnaire. Both leaders and subordinates were asked to rate the leaders on the CPE scales. For leaders whose subordinates rated them on CPE, the subordinate ratings were aggregated, which can attenuate the standard deviations and amplify coefficients calculated from these scores (Scullen, 1997). This is discussed in more detail in the *limitations* section. Alpha values are shown in Table 1. They were acceptable, above .80 for the subordinate ratings, and above .70 for the self-ratings. Before aggregation of the subordinate ratings, intra-class correlations were calculated to check the inter-rater reliability. According to the classifications of McGraw and Wong (1996), ICC(1,k) were calculated for absolute agreement among the raters. Average measures were used because the CPE dimensions were averaged scores from multiple items. The ICC for both change and production was 0.44, and for employee it was 0.35.

The structure of the CPE Instrument was tested using factor analysis, and it was found to replicate the structure of earlier studies.

## 2.3. Analysis

In the analysis of subordinate rated leadership, all leaders with responding subordinates were included. Correlation analysis of all personality variables as well as subordinate and self-rated leadership variables was performed. Multiple linear regression analysis of domain and facet scores was applied in order to control for the effect of the other personality variables.

**Table 1. Descriptive statistics, Cronbach's alpha and correlation coefficients for personality traits and leadership behaviour**

Production	Subordinate ratings				Self-ratings				α	M	SD	α	M	SD	α
	Change	Total	Change	Total	Change	Total	Change	Total							
	Employee	Employee	Employee	Employee	Employee	Employee	Employee	Employee							
Neuroticism	-.14	-.12	.07	-.08	-.20	-.13	-.25	-.26	43.93	13.48	.83				
Extraversion	.51**	.33*	.08	.39*	.57***	.16	.43**	.53***	50.22	8.59	.87				
Openness	.26	-.16	.17	.09	.32*	-.25	.40**	.17	55.03	13.90	.81				
Agreeableness	.10	.23	.21	.23	.06	.21	.46**	.30*	56.54	13.28	.69				
Conscientiousness	.23	.23	-.08	.17	.46**	.56***	.40**	.68***	54.24	12.80	.78				
E1: Activity	.43**	.13	.00	.23	.48**	.19	.20	.42**	50.45	10.82	.80				
E2: Assertiveness	.48**	.53**	-.10	.41**	.36*	.38*	.13	.43**	53.45	7.70	.72				
E3: Excitement seeking	-.03	-.18	-.37*	-.25	.27	-.23	-.16	-.04	49.09	8.79	.60				
E4: Gregariousness	.29	.28	.08	.28	.44**	.19	.39*	.46**	47.65	8.43	.71				
E5: Positive emotions	.43**	.26	.32	.42**	.39**	.03	.55***	.41**	49.99	9.61	.77				
E6: Warmth	.48**	.34	.40*	.51**	.28	.15	.62***	.44**	50.12	9.08	.54				
Subordinate ratings															
Change		.56**	.38*	.81**	.35*	-.01	.42**	.33*	3.86	.52	.82				
Production	.56**		.29	.83**	.17	.33*	.21	.34*	3.48	.68	.84				
Employee	.38*	.29		.69**	-.13	-.06	.55**	.10	4.41	.53	.89				
Total	.81**	.83**	.69**		.17	.14	.48**	.34*	3.91	.45					

(Continued)

**Table 1. (Continued)**

	Subordinate ratings				Self-ratings							
	Change	Total	Change	Total	M	SD	$\alpha$					
	Employee	Employee	Employee	Employee								
Self-ratings												
Change	.35*	.17	-.13	.17			.29*	.32*	.78**	4.13	.62	.79
Production	-.01	.33*	-.06	.14		.29*		.15	.74**	3.53	.64	.76
Employee	.42**	.21	.55**	.48**		.32*	.15		.60**	4.52	.43	.72
Total	.33*	.34*	.10	.34*		.78**	.74**	.60**		4.06	.52	

Note. \*p < .05, \*\*p < .01, \*\*\*p < .001. N = 37-46. CPE is scored 1-5, personality traits use T-scores

### 3. RESULTS

Descriptive statistics and correlations between personality domains, extraversion facets and leadership behaviour are shown in Table 1, alongside Cronbach’s alpha for the NEO and CPE instruments. The mean *T*-scores of the personality traits show how the sample differed from the population. Among the personality domains, only extraversion seemed to match the Martinsen et al. study, with a mean *T*-score of 50.2. The leaders in the current sample scored higher on openness, agreeableness and conscientiousness and lower on neuroticism. Intercorrelations among the three CPE dimensions were small to moderate in size, and the subordinate and self-ratings of respective CPE dimensions were small to moderately correlated with each other.

Regression analyses were performed with the three domains of CPE regressed on the five personality traits. Additionally, a sum score of CPE, indicating total CPE, was calculated and included as a dependent variable. A total of eight regression models were tested, for both subordinate and self-ratings of CPE, and the results are displayed in Table 2. The Durbin-Watson statistic was within acceptable range (Durbin & Watson, 1951), ranging from 1.7–2.3 for the analyses. VIF and tolerance were also within acceptable ranges. None of the models with subordinate ratings as the dependent variables had significant *F* values, despite some of the predictors having significant and large  $\beta$  coefficients. In contrast, all the models with self-ratings were significant. All the models had moderate to large amounts of explained variance (i.e.  $R^2$ ), ranging from .10 for subordinate rated employee, to .52 for self-rated total CPE. Extraversion predicted subordinate and self-rated change, subordinate rated production and subordinate rated total CPE. Openness was negatively related to production for both ratings of production, and positively to self-rated employee. Conscientiousness was related to self-ratings of change, production and total CPE, but not to any of the subordinate rated CPE. Agreeableness was significant in predicting self-rated employee, while neuroticism had no significant effects.

A series of regression analyses were performed on the effect of the personality domains and extraversion facets on CPE dimensions. Due to the limited statistical power, and to adhere to keeping the predictors in the regression model to a minimum, only facets that were significant in the correlation analysis were included. The personality domains that were significant in previous correlation analyses were controlled for (not listed in the table). These were openness and conscientiousness for change; conscientiousness for production; openness, agreeableness and conscientiousness for employee; and agreeableness and conscientiousness for total CPE. Only self-rated CPE had significant correlations with personality domains other than extraversion. The results are shown in Table 3. The Durbin-Watson statistic ranged from 1.7 to 2.4, which is within the acceptable values. VIF and tolerance were also within acceptable ranges for the predictors in the analyses. Assertiveness was significantly related to subordinate rated change and production. Excitement seeking had a negative effect on subordinate rated employee and self-rated production.

**Table 2. Standardised regression coefficients of personality domains CPE**

	Subordinate ratings <sup>a</sup>				Self-ratings <sup>b</sup>			
	Change	Production	Employee	Total	Change	Production	Employee	Total
Neuroticism	.17	.26	.11	.24	.07	.11	-.16	.03
Extraversion	.62*	.58*	.11	.57*	.44*	.04	-.02	.24
Openness	.00	-.43*	.10	-.17	.15	-.31*	.39*	.05
Agreeableness	-.05	.16	.24	.16	-.17	.09	.31*	.07
Conscientiousness	-.01	-.01	-.18	-.08	.31*	.56***	.26	.55***
<i>F</i>	2.51	2.19	0.66	1.64	5.76***	5.41**	6.23***	8.51***
<i>df</i>	5, 31	5, 31	5, 31	5, 31	5, 40	5, 40	5, 40	5, 40
$R^2$ (adjusted)	.29 (.17)	.26 (.14)	.01 (-.05)	.21 (.08)	.42 (.35)	.40 (.33)	.44 (.37)	.52 (.46)

Note. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001. <sup>a</sup>*N* = 37, <sup>b</sup>*N* = 46.

**Table 3. Standardised regression coefficients of extraversion facets on CPE**

Subordinate ratings <sup>a</sup>		Self-ratings <sup>b</sup>	
Change			
Activity	.08	Activity	.23
Assertiveness	.36*	Assertiveness	.08
Gregariousness	-.07	Gregariousness	.21
Positive emotions	.19	Positive emotions	.00
Warmth	.23		
F (df)	3.75** (5, 31)	F (df)	4.71** (6, 39)
R <sup>2</sup> (adjusted R <sup>2</sup> )	.38 (.28)	R <sup>2</sup> (adjusted R <sup>2</sup> )	.42 (.33)
Production			
Assertiveness	.56***	Assertiveness	.22
Excitement seeking	-.25	Excitement seeking	-0.31*
F (df)	8.81** (2, 34)	F (df)	10.93***
R <sup>2</sup> (adjusted R <sup>2</sup> )	.34 (.30)	R <sup>2</sup> (adjusted R <sup>2</sup> )	.44 (.40)
Employee			
Excitement seeking	-.35*	Gregariousness	.08
Positive emotions	.13	Positive emotions	.14
Warmth	.28	Warmth	.22
F (df)	4.36* (3, 33)	F (df)	6.02*** (6, 39)
R <sup>2</sup> (adjusted R <sup>2</sup> )	.28 (.22)	R <sup>2</sup> (adjusted R <sup>2</sup> )	.48 (.40)
Total CPE			
Assertiveness	.28	Activity	-.05
Excitement seeking	.12	Assertiveness	.14
Gregariousness	.34	Gregariousness	.17
		Positive emotions	.31
		Warmth	-.16
F (df)	5.60** (3, 33)	F (df)	7.35*** (7, 38)
R <sup>2</sup> (adjusted R <sup>2</sup> )	.34 (.28)	R <sup>2</sup> (adjusted R <sup>2</sup> )	.58 (.50)

Note. \*p < .05, \*\*p < .01, \*\*\*p < .001. <sup>a</sup>N = 37, <sup>b</sup>N = 46.

#### 4. DISCUSSION

Despite the popularity of the trait theory of leadership and the emerging evidence that narrower facets are important in explaining job and leader performance, few studies have investigated the effects of the NEO facets on leadership. In order to examine the effects of the personality trait extraversion and its facets on leadership behaviour, correlation and regression analyses were performed using observations from both the leaders themselves and their subordinates. The results emphasised the benefit of examining the narrower facets of personality domains.

##### 4.1. Self- and other ratings of leadership performance

The results differed depending on who did the rating, as has been observed in similar studies using the same measures of leadership (Bergman et al., 2014). At the domain level, we observed a stronger relationship between the leaders score on extraversion and leadership behaviour rated by the subordinate ratings than self-ratings, which was reflected in smaller  $\beta$  values in the models with self-rated CPE as dependent variables. Contrary, conscientiousness was strongly related to several of the self-rated CPE dimensions. An explanation for this may be that extraversion is a more interpersonally focused personality trait, marked by sociability and positive affectivity. Conscientiousness, on the other hand, has a more internal orientation, characterised by orderliness, self-discipline and deliberation (Langvik & Martinsen, 2015; McCrae & Costa, 2010). It

could be easier for subordinates to observe leaders' extraversion rather than leaders' conscientiousness. This might explain why conscientiousness did not predict subordinate rated leadership behaviour, while extraversion did.

#### **4.2. Extraversion and leadership behaviour**

Various studies have related extraversion to transformational leadership (Bono & Judge, 2004; Lanaj et al., 2016), to leadership emergence (Judge, Bono et al., 2002; Kickul & Neuman, 2000; Ng et al., 2008; Taggar et al., 1999; Wille et al., 2018), and to leadership effectiveness (Barrick & Mount, 1991; Barrick et al., 2001; DeRue et al., 2011; Do & Minbashian, 2014; Judge, Bono et al., 2002). In this study, comparatively, our focus was on leadership behaviour. The regression analyses of personality domains and CPE showed that self-ratings explained more variance than subordinate ratings, in line with previous studies (Bergman et al., 2014), though this may be partly explained by common method variance. Extraversion predicted change-oriented leadership behaviour for both self-ratings and subordinate ratings, in line with Kornør and Nordvik (2004). However, when looking at the facets of extraversion, the results were ambiguous: Assertiveness was positively related to subordinate rated change and production. Excitement seeking was negatively related to self-rated production, and to subordinate rated employee.

A skewed power balance characterises the relationship between leaders and subordinates, as the former holds formal power over the latter. Popular leadership theories like the CPE model of leadership and transformational leadership emphasise that leaders inspire and empower their subordinates, contrary to dominating and outright controlling them (Arvonen, 2002; Men & Stacks, 2013; Yukl et al., 2002). Despite this, the current results indicate that the leader's assertive personality positively influences the degree to which subordinates see them as engaging in change and production oriented leadership behaviour. As assertiveness/dominance often has been shown in research to be related to leadership, this is not too surprising. More surprising is the fact that sociability did not show any significant relations in the regression analyses, despite also frequently being shown in research to relate to leadership (Judge, Bono et al., 2002).

Excitement seeking was negatively related to subordinate rated employee and self-rated production in the regression analyses. Interestingly, excitement seeking was the only facet that was negatively related to any of the leadership dimensions. Excitement seeking is related to risk-taking and risky behaviour (Horvath & Zuckerman, 1993) and also mania and narcissism (Gruda et al., 2021; Watson et al., 2019). It might therefore be related to poor employee relations as leaders might engage in risky behaviours that cause them harm in some way. An alternative scale for excitement seeking found that high scores were related to aggressive behaviour (Arnett, 1994). Moreover, excitement seeking might be detrimental to production as it may make leaders less motivated to engage in the normal day-to-day maintenance. In the current study, only self-rated production was related to excitement seeking. This negative relationship might therefore be reflected in a level of detail in production behaviour that goes unnoticed by employees, but not by the leaders themselves.

Beauducel et al. (2006) showed that extraverts had poorer performance than introverts during monotonous tasks, and also that they had to invest more effort into it. The excitement seeking extravert might struggle to maintain her enthusiasm for the more mundane tasks and interactions with her subordinates. Extraversion and the other facets had only positive associations with leadership variables, which is to be expected from earlier studies that mainly reported positive relationships. High scores on excitement seeking will contribute to a high score on the extraversion domain, and while the latter is usually considered to benefit employees, effectiveness and the organisation in general, the former may actually be detrimental to employee relations and production leadership. In this case, the positive effect of the domain may mask the negative effect of a facet. This demonstrates the benefits of studying personality at the facet level in organisations.

## 5. Implications and future research

This study builds upon previous results (Kornør & Nordvik, 2004) by showing that analysing personality at the facet level yields different relationships to leadership compared to analyses at the domain level. In relation to the bandwidth-fidelity dilemma, this study shows that by focusing on the broad-band traits (domain), effects of the narrow-band traits (facets) may be masked.

### 5.1. Theoretical implications

A recurring topic in personality trait theories is the discussion of the number of traits a model, and the search for broader dimensions like the general factor of personality (Do & Minbashian, 2020). In terms of extraversion, taking the results of this study alongside the results from earlier studies (Bergner et al., 2010; Judge, Bono et al., 2002), there is evidence that the facets explain unique variance in leadership criteria. Hence, people investigating leadership and extraversion should try to measure facets if possible. Further studies might show that only a few of the facets are strong predictors of leadership, and that the others are unrelated. In that case, only the strong predictors need to be assessed, which removes unnecessary items and makes for a shorter questionnaire. This study further demonstrates the need to focus on both self- and other rating when it comes to personality and leadership behaviour. The results from Wilson et al. (2021) findings that meeting interaction mode affects the relationship between extraversion and leadership emergence indicate that future studies should also examine possible moderating or mediating effects of personality on leadership behaviour. Similarly, Hu et al. (2019) findings of the curvilinear and moderated effects of warmth and assertiveness on leadership emergence also support this.

### 5.2. Managerial implications

Extraverted leaders are often selected with the assumption that they are better at people management. However, in this study extraversion was unrelated to subordinate rated employee-orientated behaviour, and the facet excitement seeking was negatively related to this dimension of behaviour when rated by subordinates. One area that will benefit from this knowledge is personnel selection. A candidate for a managerial position might have a very high score on excitement seeking, positive emotions and warmth, and thereby have an overall high score on extraversion. Despite not having high scores on the facets that were shown to be relevant for change leadership (assertiveness, activity and gregariousness), employers might get the impression that the candidate is a good fit based solely on the domain score.

The extent to which extraversion is valued as a dispositional feature varies among cultures (cf. Kim et al., 2018). Especially for cultures that value extraversion more highly, the results of the current study show that specific aspects of extraversion seem more important for good leadership than others. Thus, it could help leaders and organisations realise that other traits and qualities are equally, or more, important in determining great leadership. Further, this study draws attention to possible dark sides of commonly portrayed bright sides of personality when it comes to leadership behaviour.

## 6. Limitations

There are some limitations associated with this study: First, though a truly random sample is difficult to achieve in studies of specific groups such as this one, there are some issues related to self-selection. Nevertheless, the design is suitable for a preliminary study like this one. Secondly, the low number of leaders participating limits the statistical power of the analyses (Aiken & West, 1991; Cohen, 1992). Thirdly, individual subordinate scores were aggregated to form a composite mean score for each leader. There are methodological issues related to this, as described by Scullen (1997), due to attenuation of standard deviations. Consequently, the subordinate ratings have higher reliabilities and stronger relationships to outcome variables. To examine the effect of the single-aggregate approach, separate analyses were performed on a dataset in which individual scores of the subordinates were used, with each leader's individual scores appearing once for each subordinate. These analyses showed roughly the same pattern of relationships, though the coefficients were weaker. The standard deviations of the single-aggregate approach were only slightly smaller than for the individual subordinate scores. For

these reasons, the original analyses based on the initial single-aggregate approach were used. The ICCs showed low to moderate agreement between the subordinates in their ratings of the leaders' behaviours. This could mean that the CPE instrument is not a reliable instrument to measure leadership behaviour, though it could also be an indication of how challenging it is to determine whether a leader is engaged in good or bad leadership behaviour, and the importance of not relying on self-report only.

Two of the extraversion facets, excitement seeking and warmth, had low reliability coefficients, so care should be taken when interpreting the results. Despite this, the scales have shown good cross-cultural reliability and validity (McCrae & Costa, 2010).

## 7. Conclusion

In closing, the results demonstrate the value of analysing personality traits in relation to leadership at the facet level, as this may reveal patterns invisible at the domain level. The extraversion domain was positively related to change behaviour, and unrelated to employee and production orientation. Although most facets were positively related to leadership behaviours in the correlation and regression analyses, excitement seeking showed a pattern of negative relations to production- and employee-oriented behaviour. This has important implications for personality research, as it has usually been shown that extraversion is positively related to leadership variables. Due to the limitations of the study, the results must be considered as preliminary. Nevertheless, the findings support the importance of narrower facets in understanding the relationship between extraversion and leadership behaviour.

### Funding

The authors received no financial support for this work that could have influenced its outcome.

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### COMPETING INTEREST

The authors declare no competing interest.

### Citation information

Cite this article as: Facet level effects of extraversion on leadership behaviours rated by subordinates, Håvard R. Karlsen & Eva Langvik, *Cogent Psychology* (2021), 8: 1930712.

### References

- Agle, B. R., Nagarajan, N. J., Sonnenfeld, J. A., & Srinivasan, D. (2006). Does CEO charisma matter? an empirical analysis of the relationships among organizational performance, environmental uncertainty, and top management team perceptions of CEO charisma. *The Academy of Management Journal*, 49(1), 161–174. <https://doi.org/10.5465/amj.2006.20785800>
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. SAGE Publications.
- Ames, D. R. (2008). Assertiveness expectancies: how hard people push depends on the consequences they predict. *Journal of Personality and Social Psychology*, 95(6), 1541–1557. <https://doi.org/10.1037/a0013334>
- Ames, D. R., & Flynn, F. J. (2007). What breaks a leader: the curvilinear relation between assertiveness and leadership. *Journal of Personality and Social Psychology*, 92(2), 307–324. <https://doi.org/10.1037/0022-3514.92.2.307>
- Andersen, J. A. (2006). Leadership, personality and effectiveness. *Journal of Socio-Economics*, 35(6), 1078–1091. <https://doi.org/10.1016/j.socsec.2005.11.066>
- Anderson, C., John, O. P., Keltner, D., & Krings, A. M. (2001). Who attains social status? effects of personality and physical attractiveness in social groups. *Journal of Personality and Social Psychology*, 81(1), 116–132. <https://doi.org/10.1037/0022-3514.81.1.116>
- Anderson, C., & Kilduff, G. J. (2009). Why do dominant personalities attain influence in face-to-face groups? the competence-signaling effects of trait dominance. *Journal of Personality and Social Psychology*, 96(2), 491–503. <https://doi.org/10.1037/a0014201>
- Arnett, J. (1994). Sensation seeking: A new conceptualization and a new scale. *Personality and Individual Differences*, 16(2), 289–296. [https://doi.org/10.1016/0191-8869\(94\)90165-1](https://doi.org/10.1016/0191-8869(94)90165-1)
- Arvonen, J. (1995). *Leadership behavior and coworker health: A study in process industry* (Report No. 801). Department of Psychology, Stockholm University.
- Arvonen, J. (2002). *Change, Production and Employees: An Integrated Model of Leadership* (Doctoral dissertation). Stockholm University.
- Arvonen, J., & Pettersson, P. (2002). Leadership behaviours as predictors of cost and change effectiveness. *Scandinavian Journal of Management*, 18(1), 101–112. [https://doi.org/10.1016/S0956-5221\(00\)00009-9](https://doi.org/10.1016/S0956-5221(00)00009-9)
- Ashton, M. C. (1998). Personality and job performance: the importance of narrow traits. *Journal of Organizational Behavior*, 19(3), 289–303. [https://doi.org/10.1002/\(SICI\)1099-1379\(199805\)19:3<289::AID-JOB841>3.0.CO;2-C](https://doi.org/10.1002/(SICI)1099-1379(199805)19:3<289::AID-JOB841>3.0.CO;2-C)
- Ashton, M. C., Lee, K., & Paunonen, S. V. (2002). What is the central feature of extraversion? social attention versus reward sensitivity. *Journal of Personality and Social Psychology*, 83(1), 245–252. <https://doi.org/10.1037/0022-3514.83.1.245>
- Atamanik, C. (2013). The introverted leader: Examining the role of personality and environment. *Center for Leadership Current Research*. Retrieved from [https://digitalcommons.fiu.edu/lead\\_research/2](https://digitalcommons.fiu.edu/lead_research/2)

- Avolio, B. J., Yammarino, F. J., & Bass, B. M. (1991). Identifying common methods variance with data collected from a single source: an unresolved sticky issue. *Journal of Management*, 17(3), 571–587. <https://doi.org/10.1177/014920639101700303>
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44(1), 1–26. <https://doi.org/10.1111/j.1744-6570.1991.tb00688.x>
- Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: what do we know and where do we go next?. *International Journal of Selection and Assessment*, 9(1&2), 9–30. <https://doi.org/10.1111/1468-2389.00160>
- Barry, B., & Stewart, G. L. (1997). Composition, process, and performance in self-managed groups: the role of personality. *Journal of Applied Psychology*, 82(1), 62–78. <https://doi.org/10.1037/0021-9010.82.1.62>
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.
- Beauducel, A., Brocke, B., & Leue, A. (2006). Energetical bases of extraversion: effort, arousal, EEG, and performance. *International Journal of Psychophysiology*, 62(2), 212–223. <https://doi.org/10.1016/j.ijpsycho.2005.12.001>
- Bendersky, C., & Shah, N. P. (2013). The downfall of extraverts and rise of neurotics: the dynamic process of status allocation in task groups. *Academy of Management Journal*, 56(2), 387–406. <https://doi.org/10.5465/amj.2011.0316>
- Bergman, D., Lornudd, C., Sjöberg, L., & Von Thiele Schwarz, U. (2014). Leader personality and 360-degree assessments of leader behavior. *Scandinavian Journal of Psychology*, 55(4), 389–397. <https://doi.org/10.1111/sjop.12130>
- Bergner, S., Neubauer, A. C., & Kreuzthaler, A. (2010). Broad and narrow personality traits for predicting managerial success. *European Journal of Work and Organizational Psychology*, 19(2), 177–199. <https://doi.org/10.1080/13594320902819728>
- Binning, J. F., Zaba, A. J., & Whattam, J. C. (1986). Explaining the biasing effects of performance cues in terms of cognitive categorization. *The Academy of Management Journal*, 29(3), 521–535. [https://doi.org/10.1016/S1048-9843\(96\)90027-2](https://doi.org/10.1016/S1048-9843(96)90027-2)
- Bommer, W. H., Rich, G. A., & Rubin, R. S. (2005). Changing attitudes about change: longitudinal effects of transformational leader behavior on employee cynicism about organizational change. *Journal of Organizational Behavior*, 26(7), 733–753. <https://doi.org/10.1002/job.342>
- Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *The Journal of Applied Psychology*, 89(5), 901–910. <https://doi.org/10.1037/0021-9010.89.5.901>
- Brutus, S., Fleenor, J. W., & McCauley, C. D. (1999). Demographic and personality predictors of congruence in multi-source ratings. *Journal of Management Development*, 18(5), 417–435. <https://doi.org/10.1108/02621719910273569>
- Campbell, W. K., & Sedikides, C. (1999). Self-threat magnifies the self-serving bias: A meta-analytic integration. *Review of General Psychology*, 3(1), 23–43. <https://doi.org/10.1037/1089-2680.3.1.23>
- Chapman, B. P. (2007). Bandwidth and fidelity on the NEO-five factor inventory: replicability and reliability of Saucier's (1998) item cluster subcomponents. *Journal of Personality Assessment*, 88(2), 220–234. <https://doi.org/10.1080/00223890701268082>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1038/141613a0>
- Costa, P. T. J., & McCrae, R. R. (1995). Domains and facets: hierarchical personality assessment using the revised NEO personality inventory. *Journal of Personality Assessment*, 64(1), 21–50. [https://doi.org/10.1207/s15327752jpa6401\\_2](https://doi.org/10.1207/s15327752jpa6401_2)
- Cronbach, L. J., & Gleser, G. C. (1965). *Psychological tests and personnel decisions* (2nd ed.). University of Illinois Press.
- Cummings, G. G., Tate, K., Lee, S., Wong, C. A., Paananen, T., Micaroni, S. P. M., & Chatterjee, G. E. (2018). Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review. *International Journal of Nursing Studies*, 85, 19–60. <https://doi.org/10.1016/j.ijnurstu.2018.04.016>
- Cunningham, M. R. (1988). What do you do when you're happy or blue? mood, expectancies, and behavioral interest. *Motivation and Emotion*, 12(4), 309–331. <https://doi.org/10.1007/BF00992357>
- D'Alessio, F. (2008). The influence of personality domains and working experience in peruvian managers' leadership styles: an initial study. *Journal of CENTRUM Cathedra*, 1(1), 12–32. Retrieved from <http://papers.ssrn.com/abstract=1479672>.
- De Vries, R. E. (2012). Personality predictors of leadership styles and the self-other agreement problem. *Leadership Quarterly*, 23(5), 809–821. <https://doi.org/10.1016/j.leafqua.2012.03.002>
- DeRue, D. S., Nahrgang, J. D., Wellman, N., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: an integration and meta-analytic test of their relative validity. *Personnel Psychology*, 64(1), 7–52. <https://doi.org/10.1111/j.1744-6570.2010.01201.x>
- Do, M. H., & Minbashian, A. (2014). A meta-analytic examination of the effects of the agentic and affiliative aspects of extraversion on leadership outcomes. *Leadership Quarterly*, 25(5), 1040–1053. <https://doi.org/10.1016/j.leafqua.2014.04.004>
- Do, M. H., & Minbashian, A. (2020). Higher-order personality factors and leadership outcomes: A meta-analysis. *Personality and Individual Differences*, 163. <https://doi.org/10.1016/j.paid.2020.110058>
- Driskell, J. E., Goodwin, G. F., Salas, E., & O'Shea, P. G. (2006). What makes a good team player? personality and team effectiveness. *Group Dynamics: Theory, Research, and Practice*, 10(4), 249–271. <https://doi.org/10.1037/1089-2699.10.4.249>
- Durbin, J., & Watson, G. S. (1951). Testing for serial correlation in least squares regression. II. *Biometrika*, 38(1–2), 159–177. <https://doi.org/10.2307/2332325>
- Einarsen, S., Skogstad, A., Aasland, M. S., & Løstleth, A. M. S. B. (2002). Destruktivt lederskap: Årsaker og konsekvenser. In A. Skogstad & S. Einarsen (Eds.), *Ledelse på godt og vondt. Effektivitet og trivsel* (pp. 233–254). Fagbokforlaget.
- Ekvall, G., & Arvonen, J. (1994). Leadership profiles, situation and effectiveness. *Creativity and Innovation Management*, 3(3), 139–161. <https://doi.org/10.1111/j.1467-8691.1994.tb00168.x>
- Ellershaw, J., Fullarton, C., Rodwell, J., & McWilliams, J. (2016). Conscientiousness, openness to experience and extraversion as predictors of nursing work performance: A facet-level analysis. *Journal of Nursing Management*, 24(2), 244–252. <https://doi.org/10.1111/jonm.12306>
- Gough, H. G. (1990). Testing for leadership with the California Psychological Inventory. In K. E. Clark & M. B. Clark (Eds.), *Measures of Leadership* (pp. pp. 355–379). Leadership Library of America.

- Grant, A. M., Gino, F., & Hofmann, D. A. (2011). Reversing the extraverted leadership advantage: the role of employee proactivity. *Academy of Management Journal*, 54(3), 528–550. <https://doi.org/10.5465/amj.2011.61968043>
- Gruda, D., McCleskey, J., Karanatsiou, D., & Vakali, A. (2021). I'm simply the best, better than all the rest: narcissistic leaders and corporate fundraising success. *Personality and Individual Differences*, 168. <https://doi.org/10.1016/j.paid.2020.110317>
- Hensel, R., Meijers, F., Van Der Leeden, R., & Kessels, J. (2010). 360 degree feedback: how many raters are needed for reliable ratings on the capacity to develop competences, with personal qualities as developmental goals?. *The International Journal of Human Resource Management*, 21(15), 2813–2830. <https://doi.org/10.1080/09585192.2010.528664>
- Hogan, R., Curphy, G. J., & Hogan, J. (1994). What we know about leadership: effectiveness and personality. *The American Psychologist*, 49(6), 493–504. <https://doi.org/10.1037/0003-066X.49.6.493>
- Hogan, R., & Hogan, J. (2001). Assessing leadership: A view from the dark side. *International Journal of Selection and Assessment*, 9(1&2), 40–51. <https://doi.org/10.1111/1468-2389.00162>
- Horvath, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal, and risky behavior. *Personality and Individual Differences*, 14(1), 41–52. [https://doi.org/10.1016/0191-8869\(93\)90173-Z](https://doi.org/10.1016/0191-8869(93)90173-Z)
- Hu, J., Zhang, Z., Jiang, K., & Chen, W. (2019). Getting ahead, getting along, and getting prosocial: examining extraversion facets, peer reactions, and leadership emergence. *Journal of Applied Psychology*, 104(11), 1369–1386. <https://doi.org/10.1037/apl0000413>
- Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: the big five revisited. *Journal of Applied Psychology*, 85(6), 869–879. <https://doi.org/10.1037//0021-9010.85.6.869>
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *The Journal of Applied Psychology*, 87(4), 765–780. <https://doi.org/10.1037/0021-9010.87.4.765>
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct?. *Journal of Personality and Social Psychology*, 83(3), 693–710. <https://doi.org/10.1037/0022-3514.83.3.693>
- Judge, T. A., Piccolo, R. F., & Kosalka, T. (2009). The bright and dark sides of leader traits: A review and theoretical extension of the leader trait paradigm. *Leadership Quarterly*, 20(6), 855–875. <https://doi.org/10.1016/j.leaqua.2009.09.004>
- Judge, T. A., Rodell, J. B., Klinger, R. L., Simon, L. S., & Crawford, E. R. (2013). Hierarchical representations of the five-factor model of personality in predicting job performance: integrating three organizing frameworks with two theoretical perspectives. *The Journal of Applied Psychology*, 98(6), 875–925. <https://doi.org/10.1037/a0033901>
- Judge, T. A., & Zapata, C. P. (2015). The person–situation debate revisited: effect of situation strength and trait activation on the validity of the big five personality traits in predicting job performance. *Academy of Management Journal*, 58(4), 1149–1179. <https://doi.org/10.5465/amj.2010.0837>
- Kekäläinen, T., Terracciano, A., Sipilä, S., & Kokko, K. (2020). Personality traits and physical functioning: A cross-sectional multimethod facet-level analysis. *European Review of Aging and Physical Activity*, 17(1). <https://doi.org/10.1186/s11556-020-00251-9>
- Kickul, J., & Neuman, G. (2000). Emergent leadership behaviors: the function of personality and cognitive ability in determining teamwork performance and KSAs. *Journal of Business and Psychology*, 15(1), 27–52. <https://doi.org/10.1023/A:1007714801558>
- Kim, H., Schimmack, U., Oishi, S., & Tsutsui, Y. (2018). Extraversion and life satisfaction: A cross-cultural examination of student and nationally representative samples. *Journal of Personality*, 86(4), 604–618. <https://doi.org/10.1111/jopy.12339>
- Kim, H., & Yukl, G. (1995). Relationships of managerial effectiveness and advancement to self-reported and subordinate-reported leadership behaviors from the multiple-linkage mode. *The Leadership Quarterly*, 6(3), 361–377. [https://doi.org/10.1016/1048-9843\(95\)90014-4](https://doi.org/10.1016/1048-9843(95)90014-4)
- Kornør, H., & Nordvik, H. (2004). Personality traits in leadership behavior. *Scandinavian Journal of Psychology*, 45(1), 49–54. <https://doi.org/10.1111/j.1467-9450.2004.00377.x>
- Lanaj, K., Johnson, R. E., & Lee, S. M. (2016). Benefits of transformational behaviors for leaders: A daily investigation of leader behaviors and need fulfillment. *Journal of Applied Psychology*, 101(2), 237–251. <https://doi.org/10.1037/apl0000052>
- Langvik, E., & Martinsen, Ø. L. (2015). En trekkteoretisk tilnærming til personlighet. In L. E. O. Kennair & R. Hagen (Eds.), *Personlighetspsykologi* (pp. 101–128). Fagbokforlaget.
- Lim, B.-C., & Ployhart, R. E. (2004). Transformational leadership: relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology*, 89(4), 610–621. <https://doi.org/10.1037/0021-9010.89.4.610>
- Lord, R. G., Foti, R. J., & De Vader, C. L. (1984). A test of leadership categorization theory: internal structure, information processing, and leadership perceptions. *Organizational Behavior and Human Performance*, 34(3), 343–378. [https://doi.org/10.1016/0030-5073\(84\)90043-6](https://doi.org/10.1016/0030-5073(84)90043-6)
- Lucas, R. E., Diener, E., Grob, A., Suh, E. M., & Shao, L. (2000). Cross-cultural evidence for the fundamental features of extraversion. *Journal of Personality and Social Psychology*, 79(3), 452–468. <https://doi.org/10.1037/0022-3514.79.3.452>
- Madanchian, M., Hussein, N., Noordin, F., & Taherdoost, H. (2017). Leadership effectiveness measurement and its effect on organization outcomes. *Procedia Engineering*, 181, 1043–1048. <https://doi.org/10.1016/j.proeng.2017.02.505>
- Malloy, T. E., & Janowski, C. L. (1992). Perceptions and metaperceptions of leadership: components, accuracy, and dispositional correlates. *Personality and Social Psychology*, 18(6), 700–708. <https://doi.org/10.1177/0146167292186006>
- Mann, R. D. (1959). A review of the relationships between personality and performance in small groups. *Psychological Bulletin*, 56(4), 241–270. <https://doi.org/10.1037/h0021468>
- Martinsen, Ø. L., Nordvik, H., & Østbø, L. E. (2011). The NEO PI-R in a North European context. *Scandinavian Journal of Organizational Psychology*, 3(1), 58–75. Retrieved from <https://biopen.bi.no/bi-xmlui/handle/11250/93444>.

- McCrae, R. R., & Costa, P. T. J. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52(1), 81–90. <https://doi.org/10.1037/0022-3514.52.1.81>
- McCrae, R. R., & Costa, P. T. J. (2010). *NEO Inventories for the NEO Personality Inventory-3 (NEO-PI-3), NEO Five-Factor Inventory-3 (NEO-FFI-3), NEO Personality Inventory-Revised (NEO PI-R) Professional Manual*. PAR.
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, 1(1), 30–46. <https://doi.org/10.1037/1082-989X.1.1.30>
- Men, L. R., & Stacks, D. W. (2013). The impact of leadership style and employee empowerment on perceived organizational reputation. *Journal of Communication Management*, 17(2), 171–192. <https://doi.org/10.1108/13632541311318765>
- Mohammed, S., Mathieu, J. E., & Bartlett, A. L. (2002). Technical-administrative task performance, leadership task performance, and contextual performance: considering the influence of team- and task-related composition variables. *Journal of Organizational Behavior*, 23(7), 795–814. <https://doi.org/10.1002/job.169>
- Ng, K.-Y., Ang, S., & Chan, K.-Y. (2008). Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy. *The Journal of Applied Psychology*, 93(4), 733–743. <https://doi.org/10.1037/0021-9010.93.4.733>
- Nicholson, N. (1998). Personality and entrepreneurial leadership: A study of the heads of the UK's most successful independent companies. *European Management Journal*, 16(5), 529–539. [https://doi.org/10.1016/S0263-2373\(98\)00030-9](https://doi.org/10.1016/S0263-2373(98)00030-9)
- Ones, D. S., & Dilchert, S. (2009). How special are executives? how special should executive selection be? observations and recommendations. *Industrial and Organizational Psychology*, 2(2), 163–170. <https://doi.org/10.1111/j.1754-9434.2009.01127.x>
- Oostrom, J. K., Born, M. P., Serlie, A. W., & Van Der Molen, H. T. (2011). A multimedia situational test with a constructed-response format: its relationship with personality, cognitive ability, job experience, and academic performance. *Journal of Personnel Psychology*, 10(2), 78–88. <https://doi.org/10.1027/1866-5888/a000035>
- Peterson, R. S., Smith, D. B., Martorana, P. V., & Owens, P. D. (2003). The impact of chief executive officer personality on top management team dynamics: one mechanism by which leadership affects organizational performance. *The Journal of Applied Psychology*, 88(5), 795–808. <https://doi.org/10.1037/0021-9010.88.5.795>
- Ployhart, R. E., Lim, B.-C., & Chan, K.-Y. (2001). Exploring relations between typical and maximum performance ratings and the five factor model of personality. *Personnel Psychology*, 54(4), 809–843. <https://doi.org/10.1111/j.1744-6570.2001.tb00233.x>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Riggio, R. E., Riggio, H. R., Salinas, C., & Cole, E. J. (2003). The role of social and emotional communication skills in leader emergence and effectiveness. *Group Dynamics: Theory, Research, and Practice*, 7(2), 83–103. <https://doi.org/10.1037/1089-2699.7.2.83>
- Ross, L. D., Amabile, T. M., & Steinmetz, J. L. (1977). Social roles, social control, and biases in social-perception processes. *Journal of Personality and Social Psychology*, 35(7), 485–494. <https://doi.org/10.1037/0022-3514.35.7.485>
- Rothmann, S., & Coetzer, E. P. (2003). The big five personality dimensions and job performance. *SA Journal of Industrial Psychology*, 29(1), 68–74. <https://doi.org/10.4102/sajip.v29i1.88>
- Rothstein, M. G., & Goffin, R. D. (2006). The use of personality measures in personnel selection: what does current research support?. *Human Resource Management Review*, 16(2), 155–180. <https://doi.org/10.1016/j.hrmr.2006.03.004>
- Rubenzon, S. J., Faschingbauer, T. R., & Ones, D. S. (2000). Assessing the U.S. presidents using the revised NEO personality inventory. *Assessment*, 7(4), 403–420. <https://doi.org/10.1177/107319110000700408>
- Rubin, R. S., Munz, D. C., & Bommer, W. H. (2005). Leading from within: the effects of emotion recognition and personality on transformational leadership behavior. *Academy of Management Journal*, 48(5), 845–858. <https://doi.org/10.5465/amj.2005.18803926>
- Sandal, G. M. (2002). Personlighet som suksessfaktor blant norske ledere. In A. Skogstad & S. Einarsen (Eds.), *Ledelse på godt og vondt. Effektivitet og trivsel* (pp. 79–98). Fagbokforlaget.
- Scullen, S. E. (1997). When ratings from one source have been averaged, but ratings from another source have not: problems and solutions. *Journal of Applied Psychology*, 82(6), 880–888. <https://doi.org/10.1037/0021-9010.82.6.880>
- Silverthorne, C. (2001). Leadership effectiveness and personality: A cross cultural evaluation. *Personality and Individual Differences*, 30(2), 303–309. [https://doi.org/10.1016/S0191-8869\(00\)00047-7](https://doi.org/10.1016/S0191-8869(00)00047-7)
- Skogstad, A. (1997). *Effects of leadership behaviour on job satisfaction, health and efficiency*. (Doctoral dissertation). University of Bergen.
- Son Hing, L. S., Bobocel, D. R., Zanna, M. P., & McBride, M. V. (2007). Authoritarian dynamics and unethical decision making: high social dominance orientation leaders and high right-wing authoritarianism followers. *Journal of Personality and Social Psychology*, 92(1), 67–81. <https://doi.org/10.1037/0022-3514.92.1.67>
- Spark, A., & O'Connor, P. J. (2020). State extraversion and emergent leadership: do introverts emerge as leaders when they act like extraverts?. *Leadership Quarterly*. <https://doi.org/10.1016/j.leaqua.2020.101474>
- Sverke, M., Arvonen, J., & Lindell, M. (1999). *Assessing change-, production-, and employee-oriented leadership: Cross-cultural comparison of measurement properties* (Report No. 861). Department of Psychology, Stockholm University.
- Taggar, S., Hackett, R., & Saha, S. (1999). Leadership emergence in autonomous work groups: antecedents and outcomes. *Personnel Psychology*, 52(4), 899–926. <https://doi.org/10.1111/j.1744-6570.1999.tb00184.x>
- Tosi, H. L., Misangyi, V. F., Fanelli, A., Waldman, D. A., & Yammarino, F. J. (2004). CEO charisma, compensation, and firm performance. *The Leadership Quarterly*, 15(3), 405–420. <https://doi.org/10.1016/j.leaqua.2004.02.010>
- Vecchio, R. P., & Anderson, R. J. (2009). Agreement in self-other ratings of leader effectiveness: the role of demographics and personality. *International*

- Journal of Selection and Assessment*, 17(2), 165–179. <https://doi.org/10.1111/j.1468-2389.2009.00460.x>
- Vickers, R. R. J. (1995). Using personality assessment for leadership selection. Assessment. San Diego, CA, US: Naval Health Research Center. Retrieved from: <https://apps.dtic.mil/sti/citations/ADA308094>
- Walker, D. L. (2020). Extraversion – Introversion. In B. J. Carducci & C. S. Nave (Eds.), *The Wiley Encyclopedia of Personality and Individual Differences: Models and Theories* (pp. 159–163). Wiley. <https://doi.org/10.1002/9781118970843.ch28>
- Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of Personality Psychology* (pp. 767–793). Academic Press. <https://doi.org/10.1016/B978-012134645-4/50030-5>
- Watson, D., Ellickson-Larew, S., Stanton, K., Levin-Aspenson, H. F., Khoo, S., Stasik-O'Brien, S. M., & Clark, L. A. (2019). Aspects of extraversion and their associations with psychopathology. *Journal of Abnormal Psychology*, 128(8), 777–794. <https://doi.org/10.1037/abn0000459>
- Weiss, A., & Costa, P. T. J. (2005). Domain and facet personality predictors of all-cause mortality among medicare patients aged 65 to 100. *Psychosomatic Medicine*, 67(5), 724–733. <https://doi.org/10.1097/01.psy.0000181272.58103.18>
- Wille, B., Wiernik, B. M., Vergauwe, J., Vrijdags, A., & Trbovic, N. (2018). Personality characteristics of male and female executives: distinct pathways to success?. *Journal of Vocational Behavior*, 106, 220–235. <https://doi.org/10.1016/j.jvb.2018.02.005>
- Wilson, J. M., Fletcher, T. D., Pescosolido, T., & Major, D. A. (2021). Extraversion and leadership emergence: differences in virtual and face-to-face teams. *Small Group Research*, 1–30. <https://doi.org/10.1177/1046496420986620>
- Wilt, J., & Revelle, W. (2008). Extraversion. *Handbook of Individual Differences in Social Behavior*, 111(1), 1–28. <https://doi.org/10.1037/a0022884>
- Yukl, G. (2009). *Leadership in Organizations* (7th ed.). Pearson Education.
- Yukl, G., Gordon, A., & Taber, T. (2002). A taxonomy of leadership behavior: integrating a half century of behavior research. *Journal of Leadership and Organizational Studies*, 9(1), 15–32. <https://doi.org/10.1177/107179190200900102>
- Zaccaro, S. J., Kemp, C., & Bader, P. (2004). Leader traits and attributes. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The Nature of Leadership* (pp. 101–124). SAGE Publications.



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