Extraversion and Adaptive Performance: Integrating Trait Activation and Socioanalytic
Personality Theories at Work

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Highlights

- We examined predictors of adaptive performance in jobs with changing and dynamic work demands
- We tested socioanalytic and trait activation theories with reference to extraversion
- The study comprised 247 nurse-supervisor dyads
- Interaction of context, personality, and social competency predicts adaptive performance
- Findings support the integration of socioanalytic and trait activation theories
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Abstract

Both trait activation and socioanalytic personality theories clarify the personality–performance relationship at work. We argue that extraversion needs to be interactively combined with both social competency (socioanalytic theory) and an activating context (trait activation theory) to demonstrate effects on a relevant type of work performance. Specifically, the aim of the present study was to examine extraversion’s association with adaptive performance when combined with social competency and context (i.e., climate for personal initiative). Our results demonstrate that the three-way interaction (i.e., extraversion x social competency x climate for initiative) has a significant relationship with adaptive performance, such that the extraversion–performance association is strengthened when both social competency and climate for initiative are heightened. Our findings suggest that personality scholars should consider both socioanalytic and trait activation perspectives when investigating performance prediction. We discuss implications, strengths, limitations, and directions for future research.

Keywords: extraversion, social competency, climate for personal initiative, adaptive performance, trait activation theory, socioanalytic theory

1. Introduction

Workplaces are becoming more and more dynamic, and employees need to manage uncertain and unpredictable work situations (Griffin, Neal, & Parker, 2007). Additionally, work routines and guidelines change nearly constantly (Bindl & Parker, 2011). Hence, the importance of employee adaptability is emphasized in our present research, because this is essential to meet the demands of a growing number of contemporary work environments (Parker, Bindl, & Strauss,
2010). Accordingly, research on the unique dimension of employee *adaptive* performance has become a valuable addition to the job performance literature (Jundt, Shoss, & Huang, 2015; Pulakos, Arad, Donovan, & Plamondon, 2000; Pulakos, Dorsey, & White, 2006).

Furthermore, being one of the five major traits of personality, extraversion has received attention in regards to work performance (Neal, Yeo, Koy, & Xiao, 2012; Penney, David, & Witt, 2011). In our study, given this changing nature of work, we indicate how extraversion relates to adaptive performance in a job involving interpersonal interactions and that faces changing and dynamic work conditions (i.e., nursing), expanding our understanding of the extraversion – performance relationship and enriching our understanding of how personality facilitates adaptability. Extraversion is particularly meaningful in the nursing context, since it has been related to elevated status in groups (Anderson, John, Keltner, & Kring, 2001), to performance in professions involving a substantial degree of interactions with others (Mount & Barrick, 1998), and to adaptivity in nursing (Ellershaw, Fullarton, Rodwell, & McWilliams, 2016). Beyond previous research (e.g., Huang, Ryan, Zabel, & Palmer, 2014), we provide an integrated theoretical perspective on individual differences and work context that links extraversion to adaptive performance.

Specifically, guided by trait activation and socioanalytic theories of personality, two leading theoretical perspectives in the study of personality at work (Christiansen & Tett, 2013), we interactively combine extraversion with climate for personal initiative and social competency in the prediction of adaptive performance (Chen & Firth, 2014). Trait activation theory (Tett & Burnett, 2003) states that relevant situations stimulate personality into actions, and socioanalytic theory (Hogan & Shelton, 1998) argues that social competency guides and directs personality into effective actions observed by others. Thus far, personality researchers have used socioanalytic (Hogan & Blickle, 2013) and trait activation (Tett, Simonet, Walser, & Brown,
2013) theories either exclusively or additively. However, a main contribution of our study is that, both conceptually and systematically, we interactively combine socioanalytic and trait activation theories in the prediction of adaptive work performance.

2. Socioanalytic Theory & Trait Activation of Extraversion

Socioanalytic theory argues that extravert individuals have a propensity to strive for status and recognition (Hogan & Blickle, 2013). Consequently, this goal motivates people to translate this tendency into behaviors observed by others, and those with heightened social competency are better at this personality trait–other-observed behavior transfer (Hogan & Shelton, 1998). In addition, social competency has been argued to be important to personal adaptability (Pulakos, Dorsey, & White, 2006). However, the situational context and the relevance of the criterion to extraversion are also crucial for its expression (Paunonen & Nicol, 2001), as indicated by trait activation theory (Tett & Burnett, 2003).

Trait activation theory argues that situations stimulate personality into action (Tett & Burnett, 2003), and Judge and Zapata (2015) showed that, in relevant contexts, the validities of extraversion roughly doubled. Context is vital to understanding organizational behavior (Johns, 2006) and to the activation of personality (e.g., extraversion; Tett & Burnett, 2003). Context is also highly relevant to adaptive performance (Jundt et al., 2015), and empirical studies have demonstrated situations to be important to the effects of individual differences on adaptive performance (e.g., Charbonnier-Voirin, Akremi, & Vandenberghe, 2010; Shoss, Witt, & Vera, 2012). Therefore, we contend that heightened extraversion needs not only enhanced social competency but also a relevant situation (i.e., three-way interaction) to demonstrate effects on performance.

Specific to our study, a climate for initiative, when combined with social competency, should activate extraversion’s impact on adaptive performance. Climate describes the
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organizational context for employees’ actions (Glick, 1985) that primarily concerns formal and informal interpersonal practices (Schneider, 1985). In a climate for personal initiative, the organization’s practices support and assist employees in taking a proactive approach to work (Baer & Frese, 2003), and research has shown social competency to be important to personal initiative and proactivity at work (e.g., Grant, Parker, & Collins, 2009; Wihler, Blickle, Ellen, Hochwarter, & Ferris, 2017). Clearly, a climate for initiative will help employees to be more likely to innovate and better manage unanticipated situations at work, actions that are essential to adaptive performance.

Regarding our outcome, adaptive performance concerns the behaviors employees enact in response to or anticipation of changes relevant to their job (Jundt et al., 2015), and it has been operationalized as either adaptation within a specific domain or as “domain-general” adaptability (Baard et al., 2014). Given the rising importance of adaptive performance across many contemporary work contexts (e.g., nursing), to improve the generalizability of our research, we investigated general adaptivity, rather than “domain-specific” or one of the eight adaptive performance dimensions (see Pulakos et al., 2000).

In sum, we believe that only when extraversion, social competency, and perceived climate for initiative are interactively combined are they highly relevant to adaptive performance in the nursing context. Consequently, our study responds to earlier calls (Chen & Firth, 2014) by examining how climate for initiative, as joined with social competency and extraversion, will result in effective adaptive performance. Perceptions of the work context (climate for initiative) ignite extraversion (trait activation theory), while social competency (socioanalytic theory) gives direction to extraverted behavior, with their three-way interaction leading to effective adaptive performance.
**Hypothesis:** The relationship between extraversion and adaptive performance will be jointly moderated by employee social competency and perceived climate for personal initiative, such that adaptive performance will be highest when all three (i.e., extraversion, social competency, and climate for personal initiative) are high.

### 3. Method

#### 3.1 Participants and Procedure

Our study took place in the western part of Germany and focused on nurses in organizations specialized in taking care of people with physical or psychological handicaps and disabilities. We chose these organizations because they have come under large economic pressures and are required to work cost efficiently (Dulal, 2016). Further, nursing requires constant learning and adapting to changing medical care guidelines, health care demands, and administrative work environments (Amthor, 2003). Recent research has investigated personality as a predictor of nurse work performance (Ellershaw et al., 2016), albeit without advanced theoretical background, nor considering situational context.

We sampled employees that provide direct daily assistance to clients in caretaking facilities. Nursing occupations are a growing part of Germany’s labor market (Allmendinger & Ebner, 2006), and, currently, a substantial part of the German work force (i.e., 14.5 percent) is employed in medical/healthcare occupations (Statistisches Bundesamt, 2016). These occupations are one of the fastest growing work fields in both Germany (Federal Ministry of Health, 2015) and the United States (U.S. Department of Labor, 2015).

We invited participants via email, describing the study and providing information about how to contact the researchers. Study participation was voluntary. When the employees consented to participate, we sent them an access code to the online survey. After completion, the
program tool asked employees to invite their immediate supervisor to participate in a short online survey as well. We matched both surveys with a pseudonymized code.

We contacted 535 employees. Of these, 337 followed the link to our survey and 306 completed it. Of the invited supervisors, 295 provided complete information. Thus, we were able to match 295 employee-supervisor dyads. However, we had to eliminate 6 other-ratings because raters indicated a role other than supervisor. 42 dyads had to be excluded because employees did not work in direct social contact with disabled individuals but rather in non-direct-care roles (e.g., kitchen or administrative work). Thus, our dataset consisted of 247 employee-supervisor dyads in social occupations equaling a response rate of 46.2%. Overall, performance ratings were provided by 48 supervisors rating an average of 5 employees ($SD = 4.61$).

Of the 247 employees in our sample, most were female (72.1%, $N = 178$). On average, participants were 43 years old ($SD = 10.75$) and had worked for 20 years ($SD = 10.87$). They held their current position for 8.49 years ($SD = 6.89$) and worked 33 hours/week ($SD = 7.71$).

3.2 Measures

Extraversion. To assess targets’ extraversion, we applied the short version of the Big Five inventory (BFI-K; Rammstedt & John, 2005). The BFI-K was developed as a quick to answer questionnaire, measuring extraversion with 4 items answered on a 5-point Likert scale from very inaccurate to very accurate. Rammstedt & John (2005) established validity between the BFI-K and the NEO-PI-R (Costa & McCrae, 1992). The author’s results show that correlational patterns between the extraversion dimension of the BFI-K and the NEO-PI-R were comparable to the patterns between the Big Five Inventory (BFI; John, Naumann, & Soto, 2008) and the NEO-PI-R. Thus, although shortened, the extraversion dimension of the BFI-K assesses comparable content to the BFI. Sample items for extraversion are “I generate a lot of enthusiasm” and “I am outgoing, sociable”. Cronbach’s alpha was $\alpha = .80$. 
To assess social competency, we applied the (German) four items by Ferris et al. (2008) of the interpersonal influence dimension of the political skill inventory (PSI; Ferris et al., 2005). Prior research (i.e., Wihler et al., 2017) used these German items across three studies. Items are answered on a 7-point Likert scale ranging from strongly disagree to strongly agree. A sample item is “I am able to communicate easily and effectively with others”. Cross-cultural studies in China, Germany, Russia, Turkey, and the USA established and replicated the validity of the PSI (Lvina et al., 2012). Cronbach’s alpha was $\alpha = .77$.

Climate for personal initiative. Climate for initiative perceptions were assessed via the seven items by Baer and Frese (2003). Employees answered the items on a 5-point Likert-type scale ranging from “does not apply at all” to “applies completely.” Sample items are “people in our organization actively attack problems” and “people in our organization usually do more than they are asked to do.” Cronbach alpha reliability of climate for personal initiative perceptions in the present study was $\alpha = .89$.

Adaptive performance. Supervisors rated their employee’s adaptive performance with five items developed by Blickle et al. (2011; see Jundt et al., 2015). The items read “This person handles successfully emergencies, interruptions, and losses at work”; “This person handles successfully unforeseen events and crises situations at work”; “This person adapts successfully to changes and innovations in her job”; “This person is very adaptable”; and, “This person actively strives for innovation.” Supervisors rated their employees on a 5-point scale ranging from much worse than other persons in a comparable position to a great deal better than other persons in a comparable position. Cronbach’s alpha was $\alpha = .90$.

Control variables. We included neuroticism and conscientiousness as control variables because a recent review showed that both are linked to adaptive performance (Jundt et al., 2015). We used the BFI-K (Rammstedt & John, 2005) to assess employee’s neuroticism and
conscientiousness with four items each, answered on the same Likert scale as extraversion. Cronbach Alpha internal consistencies were $\alpha = .70$ for neuroticism and $\alpha = .50$ for conscientiousness, which are comparable to previous studies (Kovaleva, Beierlein, Kemper, & Rammstedt, 2013; Rammstedt & John, 2005).

3.3 Data Analysis

Because our dependent variable (i.e. adaptive performance) was nested within supervisors (supervisors rated multiple employees), we evaluated the $ICC(1)$ of adaptive performance. The value ($ICC = .09$) indicated a moderate degree of non-independence across ratings. Thus, we used hierarchical moderated multilevel analyses (Hox, 2010) to test our hypotheses. Additionally, because we test interaction hypotheses with correlated variables, we included the quadratic effects of our predictors to account for the correlations (Cortina, 1993).

In the first model, we included the linear and quadratic effects of our predictors (i.e., extraversion, social competency, and climate for personal initiative; Cortina, 1993), the three 2-way interactions between our predictors, and our control variables (i.e., conscientiousness and neuroticism) in our multilevel model. In the second model, we included our hypothesized three-way-interaction. Our research hypothesis would be supported if the three-way interaction term of extraversion x social competency x climate is significant. Significant interactions would be plotted following Dawson (2014).

4. Results

Table 1 presents the means, standard deviations, correlations, and internal consistency reliability estimates for all variables. In line with previous research on adaptive performance (Jundt et al., 2015) and personality (Ellershaw et al, 2016), adaptive performance correlated significantly with extraversion ($r = .22, p < .01$), neuroticism ($r = -.16, p < .05$), and conscientiousness ($r = .15, p < .05$). Additionally, climate for personal initiative was positively
related to adaptive performance ($r = .17, p < .01$).

*** Insert Tables 1 and 2 about here ***

We present the results of the hypothesis testing in Table 2. Our hypothesis suggested a three-way-interaction between extraversion, social competency, and climate for personal initiative. As Table 2 shows, this interaction became significant in Model 1b ($\gamma = .15, p < .05$), supporting our hypothesis. However, neither the interaction suggested by socioanalytic theory (extraversion x social competency) nor the interaction suggested by trait activation theory (extraversion x climate for initiative) were consistently supported across the statistical models in Table 2.

Next, we focus on the slopes of extraversion on adaptive performance. Figure 1 shows the form of the extraversion x social competency interaction at different levels (i.e., 1 SD below the mean, at the mean, 1 SD above the mean) of climate for personal initiative. When climate for initiative is low (Figure 1a), the relationship between extraversion and adaptive performance is not significant at both high ($B = .12, ns.$) and low ($B = -.01, ns.$) levels of social competency.

Figure 1b shows the relationship between extraversion and adaptive performance when social competency is high and low, at a medium level of climate for initiative. The slope of extraversion on performance is significant when social competency is high ($B = .29, p < .05$), but is not significant when social competency is low ($B = -.01, ns.$).

The form of the interaction between extraversion and social competency on adaptive performance at high levels of climate for initiative is shown in Figure 1c. There is a significant positive relationship between extraversion and adaptive performance at high values of social competency ($B = .46, p < .01$), but no relationship between these variables exists when social competency is low ($B = .00, ns.$).

*** Insert Figures 1 and 2 about here ***
Figure 2 shows the form of the extraversion x climate for personal initiative interaction at different levels of social competency. Figure 2a shows the relationship between extraversion and adaptive performance when climate for initiative is high and low, at low levels of social competency. This relationship is not significant at both high ($B = .00, ns.$) and low ($B = -.01, ns.$) levels of climate for initiative.

At medium levels of climate for initiative (Figure 2b), the relationship between extraversion and adaptive performance is significantly positive at high values of climate for initiative ($B = .23, p < .01$). But, there is no significant relationship at low levels of climate for initiative ($B = .05, ns.$).

Figure 2c shows the form of the interaction of extraversion x climate for initiative on adaptive performance at high levels of social competency. There is a significant positive relationship between extraversion and adaptive performance at high values of climate for initiative ($B = .46, p < .01$), but there is no relationship between these variables when climate for initiative is low ($B = .12, ns.$).

5. Discussion

We examined the three-way interaction of personality, social competency, and context in nursing jobs. These positions are an important segment of the labor market, and they are characterized by changing and dynamic work demands. We found that extraversion positively associates with adaptive performance at medium and higher levels of both perceived climate for personal initiative and social competency. The results support our hypothesis that scholars of personality at work should jointly investigate both socioanalytic theory and trait-activation theory, taking into consideration the moderating effects of both theories. We show that the interpersonally competent extravert who works in a high climate for personal initiative is better able to adapt performance to unforeseen events, crises, and demands for innovation that are
present in nursing jobs. In line with socioanalytic theory (Hogan & Blickle, 2013), the results suggest that such individuals use this context (i.e., a climate high on personal initiative) to get ahead of others at work via their adaptive performance.

5.1 Implications

Our findings support both trait activation (Tett & Burnett, 2003) and socioanalytic (Hogan & Shelton, 1998) theories, by highlighting the roles of perceived climate for initiative and social competency in the extraversion – adaptive performance relationship. Additionally, our results indicate that scholars should consider combining personality with both context and social competency in performance prediction. An important theoretical implication of our research is that, perhaps, a new comprehensive theory regarding the personality – performance relationship should be developed that includes both context and social skill as important determinants of personality expression.

Also, the results shed light on the nature of extraversion. Our study informs research regarding how to relate extraversion to adaptive performance (i.e., by combining it with social competency and relevant context). Our predictors explained 11% of the (adjusted) variance, which is an increase of more than 300% compared to 3% (unadjusted) found by Huang et al. (2014, p. 170, Table 6, column “Employees”).

5.2 Strengths and Limitations

Our research has both strengths and limitations. Concerning strengths, since our adaptive performance criterion is domain-general (Baard et al., 2014), greater confidence can be placed in the generalizability of our results to other occupations. Next, our integration of and testing multiple theories in one model likely provides a more accurate reflection of the complexities of behavior than if we had examined one theoretical framework (Johns, 2006). Lastly, the study used a multisource design, thereby, excluding common source and method bias. Regarding
limitations, although theoretically and empirically distinct, our predictors were measured via the target individual. Additionally, causal inference is limited, because the study was cross-sectional and not predictive. Lastly, conscientiousness had a rather low internal consistency. But, since there is strong theoretical (Jundt et al., 2015) and empirical ($r = .15, p < .05$; see also Ellershaw et al. 2016) evidence highlighting the importance of conscientiousness to adaptability, it yet seemed necessary to control for conscientiousness in our model.

5.3 Conclusion

We jointly examined socioanalytic and trait activation theories, which are two leading theoretical perspectives in the study of personality at work. The extraversion – adaptive performance relation was strengthened when interactively combining trait activation and socioanalytic personality theories, in a relevant and specific job context. We hope that scholars consider the benefits of integrating these two frameworks on the personality – job performance relationship in future theoretical and empirical research. Our results suggest that there is some practical utility for theory driven personality research.
References


Table 1

<table>
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<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
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<td>Conscientiousness</td>
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<td>.32**</td>
<td>-.17**</td>
<td>(.50)</td>
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<td>-.14*</td>
<td>.22**</td>
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<td>.24**</td>
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<td>.15*</td>
<td>.11</td>
<td>.17**</td>
<td>(.90)</td>
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Note. N = 247 target-supervisor dyads;

*p < .05; **p < .01.
Table 2

*Multilevel Regression Analyses of Supervisor-Rated Adaptive Performance*

<table>
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<td></td>
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\[ Adj.R^2 \]  
\[ Adj. ΔR^2 \]  
\[ AIC \]  

516.32 514.40

*Note. N = 247 target-supervisors-dyads; γ = standardized parameter estimates in the multilevel regression model; *p < .05; **p < .01.*
Figure 1

*Interaction of Extraversion and Social Competency at Levels of Climate for Personal Initiative*

*Note. N = 247; *p < .05; **p < .01.*
Figure 2

Interaction of Extraversion and Climate for Initiative at Levels of Social Competency

Note. N = 247; **p < .01.