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The Effects of Organizational Citizenship Behavior and General Mental Ability on Task Performance

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Proponents of trait activation theory suggest that moderate levels of job demands result in the highest levels of performance. Accordingly, we investigated the joint effects of general mental ability (GMA) and organizational citizenship behavior (OCB) on task performance. We predicted a curvilinear relationship between OCB and task performance such that engaging in high levels of OCB overloads employees, resulting in lower task performance. Further, we hypothesized that this relationship would be strongest among low GMA employees. The results revealed that although there were no curvilinear main effects, there was a significant interaction between OCBO and GMA. Implications of the results and directions for future research are discussed.

Keywords: performance, GMA, organizational citizenship

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Bringing in a cake for the company lunchroom, never failing to give a sweet smile when crossed in the hallway, helping a coworker organize their office – nearly every workplace has an office do-gooder who, while widely regarded by all, never seems to be doing any real work. Organizational citizenship behaviors (OCB) are those extra acts that employees do to facilitate the work environment. While OCB are theoretically assumed to have a positive relationship with task performance, the empirical relationship is in fact tenuous (Turnipseed & Rassuli, 2005). We posited that the relationship between these two types of performance might, in fact, be curvilinear (i.e., inverted U) in nature. Specifically, we explored the possibility that job demands will begin to overload the employee at high levels of OCB, causing task performance quality to subsequently falter. This would result in the highest levels of task performance occurring at moderate, as opposed to high, levels of OCB. Additionally, we examined general mental ability (GMA) as a moderator of this relationship. We hypothesized that lower GMA employees would demonstrate a stronger curvilinear relationship when compared to higher GMA workers due to their reduced capacity to effectively deal with competing demands on their time.

Dimensionality of Job Performance

Overall job performance may be the most commonly studied criterion in organizational behavior research. Beginning with Taylor's scientific management and the Hawthorne studies in the early 20th century, thousands of studies have tried to answer the question of what makes a good performer (Katz & Kahn, 1966). Since its conception, overall performance has been separated into several different dimensions, such as adaptive performance (Pulakos, Arad, Donovan, & Plamondon, 2000) and counterproductive work behavior (Rotundo & Sackett, 2002). Perhaps the two most well known components, however, are contextual and core task performance (Borman & Motowidlo, 1997). Task performance refers to all those behaviors delineated by one's job description, whereas contextual performance refers to helping behaviors that facilitate smooth workplace functioning (Borman & Motowidlo, 1997; Motowidlo & Van Scotter, 1994). Contextual behaviors have also been identified in the literature as organizational citizenship behaviors, or OCB (Organ, 1988; Hoffman Blair, Meriac, & Woehr, 2007). In its infancy, theorists considered OCB to be conceptually distinct from contextual performance in that the former behaviors are positive, not rewarded by management, and completely separate from the central tasks of one's job (see Hanson & Borman, 2006). More recently, however, researchers are considering the two concepts as one and the same for practical purposes (Organ, 1997). Examples of task behavior for an office manager might be filing paperwork and writing letters, whereas OCB might include bringing a coworker a cup of coffee in the morning, volunteering for unwanted projects, or simply being cheerful and friendly towards others.

Task performance and OCB are both theoretically and empirically unique (Borman & Motowidlo, 1997). Though distinct, researchers have traditionally regarded them as working hand-in-hand, with OCB allowing the organization to better achieve its production goals. Understanding the true nature of the relationship between these two types of performance would not only benefit companies, but would also help employees manage priorities on the job.

Organizational Citizenship Behavior

Organizational citizenship behavior (OCB) is the type of "performance that supports the social and psychological environment in which task performance takes place"

(Organ, 1997, p. 95). Antecedents of OCB include both personality (Borman & Motowidlo, 1997) and cognitive factors (Viswesveran & Ones, 2000). Examples of dispositional factors that predict OCB include conscientiousness (Organ & Ryan, 1995), agreeableness, and positive affectivity (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Researchers have dissected OCB into different types, including the two dimensions proposed by Williams and Anderson (1991) – OCBO and OCBI. OCBO behaviors assist the organization itself, whereas OCBI behaviors are targeted at a specific person or group of people. Examples of the former include protecting organizational property and refraining from making personal calls at work. Examples of the latter include listening to coworker's worries and helping the boss without being asked.

Whereas many researchers have studied the antecedents and facets of task performance and OCB, few studies have examined the relationship between the two. With this study we attempted to answer the call to identify "the pattern of relationships between OCB and task performance as well as potential moderators of this relationship" (Hoffman et. al, 2007, p. 562). Several studies have revealed that these two constructs are related (e.g., Hoffman et. al, 2007). However, the nature of this relationship remains to be definitively understood. Indeed, the existing literature examining the link between performance and OCB has produced mixed results and is generally inconclusive. Some studies have found positive (Bachrach, Powell, Collins, & Richey, 2006; Walz & Niehoff, 2000; Karambayya, 1990) while others have discovered negative relationships (Podsakoff & Mackenzie, 1994; Hunt, 2002). Turnipseed and Rassuli (2005) best summarized the collective conclusion of these studies (p. 232):

> The argument of the link between citizenship type behaviors and performance has been more logical than empirical. Results of the few empirical studies vary depending on the sample and the specific characteristics of the observation, and have not produced consistent support for the OCB-performance link.

A possibility that researchers appear to have often overlooked is that OCB may be nonlinearly related to task performance for many jobs (Avolio, 1990). We used activation theory as a foundation for this hypothesized relationship (Scott 1966; Gardner & Cummings, 1988). Advocates of activation theory posit that the highest levels of both job performance and job satisfaction will occur at moderate levels of job demands (Gardner & Cummings, 1988). Accordingly, we suggest that task performance will begin to decrease in quality past a certain point of OCB levels because the job demands have overloaded the employee. Because there are only so many resources available to complete the demands of a job, people must make choices about how to spend their time.

It is no secret that going above and beyond (at least around the boss) is usually rewarded by desirable outcomes. In fact, contextual performance makes up a unique part of overall performance appraisals (Johnson, 2001) and is often more salient to managers than actual task-related behavior (Whiting, 2006). Additionally, extra-role behaviors are considered when managers estimate the dollar value of an employee's contributions (Orr, Sackett, & Mercer, 1989). Promotions, pay increases, and recognition are usually based at least in part upon these performance appraisal scores. Given the high salience, social rewards, and perceived control associated with OCB (Mackenzie, Podsakoff, & Fetter, 1993; Mackenzie, Podsakoff, & Paine, 1999; Lowery & Krilowicz, 1994; Griffin, Neal, & Neale, 2000), one may choose to spend more resources to engage in such behavior. As people begin to engage in more and more OCB-type activities, however, they are adding to their list of job demands. Indeed, high levels of individual initiative, a type of OCB, were predictive of role overload, job stress, and even work-family conflict (Bolino & Turnley, 2005).

In the analysis, we used the two dimensions of OCB described by Williams and Anderson (1991): OCBO and OCBI. While the targets of the citizenship behavior differ between these two subtypes, both involve additional job responsibilities and behaviors, leading to overload at very high levels. Additionally, previous researchers have demonstrated that they have very similar relationships with task performance (Lepine, Erez, & Johnson, 2002; Hoffman et. al, 2007). We therefore expected to find that workers engaging in both low and very high levels of either OCBO or OCBI are viewed by their respective supervisors are less effective at core task performance than workers engaging in moderate levels of citizenship behavior.

> *Hypothesis 1*: OCBO has a curvilinear relationship with task performance, with the highest level of performance occurring at intermediate rather than high or low levels of OCBO.
>
> *Hypothesis 2*: OCBI has a curvilinear relationship with task performance, with the highest level of performance occurring at intermediate rather than high or low levels of OCBI.

General Mental Ability

General mental ability (GMA) denotes simply the ability to learn (Schmidt, 2002). Some have expanded this definition to include "the capacity to understand complex ideas, learn from experience, reason, problem solve, and adapt" (Devine & Philips, 2001, p. 507). Antecedents of GMA include parents' socioeconomic status (SES; White, 1982), genetic disposition, and years of education (Neisser, et. al, 1996).

GMA has found considerable support as a predictor of job performance. Hunter (1986) provided evidence that GMA is highly predictive of both supervisor-rated and objective measures of job performance. Still today GMA accounts for more variance in job performance than any other individual differences predictor alone (Schmidt & Hunter, 2004; Huffcutt, Roth, & McDaniel, 1996; Hattrup, O'Connell, & Wingate, 1998). Also, meta-analyses have confirmed GMA's position as a very strong predictor of job performance and training success in the U.S. (Hunter & Hunter, 1984), the UK (Bertua, Anderson, & Salgado, 2005), Germany (Hülsheger, Maier, & Stumpp, 2007), and the entire European Community (Salgado, Anderson, Moscoso, Bertua, & de Fruyt, 2003). We expected to reproduce this consistent relationship in our study.

> *Hypothesis 3:* GMA is positively related to task performance

OCB x GMA

We believe that GMA will affect the predicted curvilinear relationships between OCBI and OCBO and task performance such that the relationship will be stronger

(i.e., more curvilinear) among lower GMA employees. Higher GMA employees are more adept at pattern recognition as well as possess higher levels of job knowledge (Schmidt & Hunter, 1993). They will quickly realize that engaging in excess OCB, while important, is cutting into their primary task responsibilities. They will, therefore, take steps to ensure that this does not occur. High GMA employees may perhaps use their stores of task knowledge to do the job more quickly or even make it appear as though they are doing more work than they actually are. For this reason, task performance will not drop at the highest levels of OCBI or OCBO for high GMA workers.

Hypothesis 4: OCBO is more strongly (curvilinearly) related to task performance among workers with low rather than high levels of GMA.

Hypothesis 5: OCBI is more strongly (curvilinearly) related to task performance among workers with low rather than high levels of GMA.

Method

Sample and Procedure

We tested the hypotheses using data previously recorded by Ferris, Witt, and Hochwarter (2001). Nonsupervisory software engineers employed at a systems development firm were informed about the research effort and were asked to request that their subordinates participate in the data collection. One hundred and twenty six workers voluntarily attended information meetings about the original study, were provided a chance to ask questions, and were given a chance to decline participation. Supervisor-rated data was also collected on those who chose to participate. The supervisors were properly trained and instructed to avoid the impact of rating errors (Cooper, 1981). Additionally, the researchers explained that the performance data would be used for research purposes only.

In total the dataset included information collected on 106 software engineers (70% male), corresponding to 30% of the available population. The participants averaged 3.79 years (SD = 2.29 years) of higher education, 5.03 years (SD = 5.71 years) of organizational tenure, and $46,922 (SD = $10,279) in annual salary.

Measures

Core-task performance. First-line supervisors rated subordinates using a 5-item core task performance scale developed by Ferris, Witt, and Hochwarter (2001). An example of the items is "The employee proposes superior technical solutions to accomplish business objectives". The possible ratings were: 1 (weak/bottom 10%), 2 (fair/next 20%), 3 (good/next 40%), 4 (very good/next 20%), or 5 (best/top 10%).

Organizational Citizenship Behavior. Supervisors also rated subordinates on OCB using a 14-item scale developed by Williams and Anderson (1991). This scale included two subscales comprising of 7 items for each OCBI items (i.e., the employee "helps others who have been absent") and OCBO items (i.e., the employee "conserves and protects organizational property"). Item responses ranged from 1, "strongly disagree," to 7, "strongly agree." Each participant's responses were summed and averaged, resulting in composite scores for OCBO and OCBI.

GMA. GMA was assessed using the Wonderlic Personnel Test, Form 5 (Wonderlic Personnel Test, 1992). This commonly used 50-item, 12-minute measure includes assessments of vocabulary, spatial relations, and arithmetic reasoning.

Results

Due to the fact that both the predictor and criterion are supervisor-rated, we used hierarchical linear modeling (HLM) techniques to assess the interactive effects of GMA and OCB on task performance (Hofmann, 1997). We ran two separate analyses for OCBO and OCBI. For each of these, we entered variables in three steps to test the interactions. In the first model, only the intercept was entered, which is akin to a one-way analysis of variance. The second model included the intercept and both the linear and curvilinear main effects of OCBI/OCBO and GMA. The third and final model included the intercept, the main effects, and either the $OCBO^2$ x GMA or $OCBI^2$ x GMA cross-product term.

In Table 1, we present the descriptive statistics and intercorrelation matrix. As shown there, OCBO (r = .39, p < .01), OCBI (r = .33, p < .01), and GMA (r = .21, p < .05) scores were all significantly related to task performance.

Table 1. Descriptive Statistics and Intercorrelation Matrix

Variable	1	2	3
1. Core Task Performance			
2. $OCBO^2$	.39**		
3. $OCBI^2$	.33**	.52**	
4. GMA	.21*	.03	-.01

Notes: $^{*}p < .05$; $^{**}p < .01$.

We first tested the effects of OCBO. The results of the first model show that the grand mean of task performance pooled across subordinates and supervisors was 3.39 (t = 34.72, p < .0001). The within supervisor (or subordinate level) variance on performance was .14, while the between supervisor variance was .61. The χ^2 test indicated that the between supervisor variance was not significant, χ^2 = 3.44, *ns*. The second model added in the main effects, explaining 9% of the variance in core task performance. These results indicate that whereas the main effect of GMA was significant (γ = 0.03, t = 2.38, p < .05), the linear (γ = 0.19, t = 0.19, *ns)* and curvilinear (γ = 0.02, t = 0.20, *ns)* main effects of OCBO did not contribute significance variance. Table 2 presents the results for third model, which shows that the addition of the $OCBO^2$ x GMA cross-product term was significant (γ = -0.004, t = -2.33, p < .05), explaining 5% additional variance.

Table 2. Results of Hierarchical Linear Modeling Analysis

Variables	γ	Standard Error	t
Intercept	4.53	5.64	0.80
OCBO	-0.19	0.96	-0.20
$OCBO^2$	0.05	0.09	0.59
GMA	0.03	0.01	2.00*
$OCBO^2$ x GMA	-0.004	0.002	-2.33*

Notes: $^{*}p < .05$; $^{**}p < .01$.

Next, I tested the influence of OCBI. The results of the first model were identical to the first model for OCBO, as the same supervisors rated OCBO and OCBI. The second model added in the main effects, accounting for 12% additional variance. These results indicate that

whereas the main effect of GMA was significant ($\gamma = 0.04$, $t = 2.76$, $p < .01$), the linear ($\gamma = 0.44$, $t = 0.80$, *ns*) and curvilinear ($\gamma = -0.01$, $t = -0.22$, *ns*) main effects of OCBI did not contribute significance variance. As shown in Table 3, the results of the third model demonstrate that the addition of the $OCBI^2$ x GMA cross-product term was insignificant and contributed no unique variance ($\gamma = -0.002$, $t = -1.13$, *ns*).

For purposes of graphically displaying the significant interaction, I present in Figure 1 a plot of the $OCBO^2$ equation at low and high levels (-1 and 1 standard deviations from the mean) of GMA scores. In order to better see the curvilinear nature of the line at low GMA the graph was extended to + and – 2 SD of $OCBO^2$. As shown here, OCBO demonstrates a slightly negative relationship with core task performance in general. When broken down by GMA, the high-GMA employees demonstrated a negative linear relationship between OCBO and task performance, whereas low GMA workers exhibited a somewhat U-shaped relationship, with decreases in task performance leveling off at the highest levels of OCBO.

Table 3. Results of Hierarchical Linear Modeling Analysis

Variables	γ	Standard Error	t
Intercept	1.32	2.63	0.50
OCBI	0.44	0.56	0.78
$OCBI^2$	-0.01	0.06	-0.22
GMA	0.03	0.01	2.42*
$OCBO^2$ x GMA	-0.002	0.002	-1.13

Notes: $^{*}p < .05$; $^{**}p < .01$.

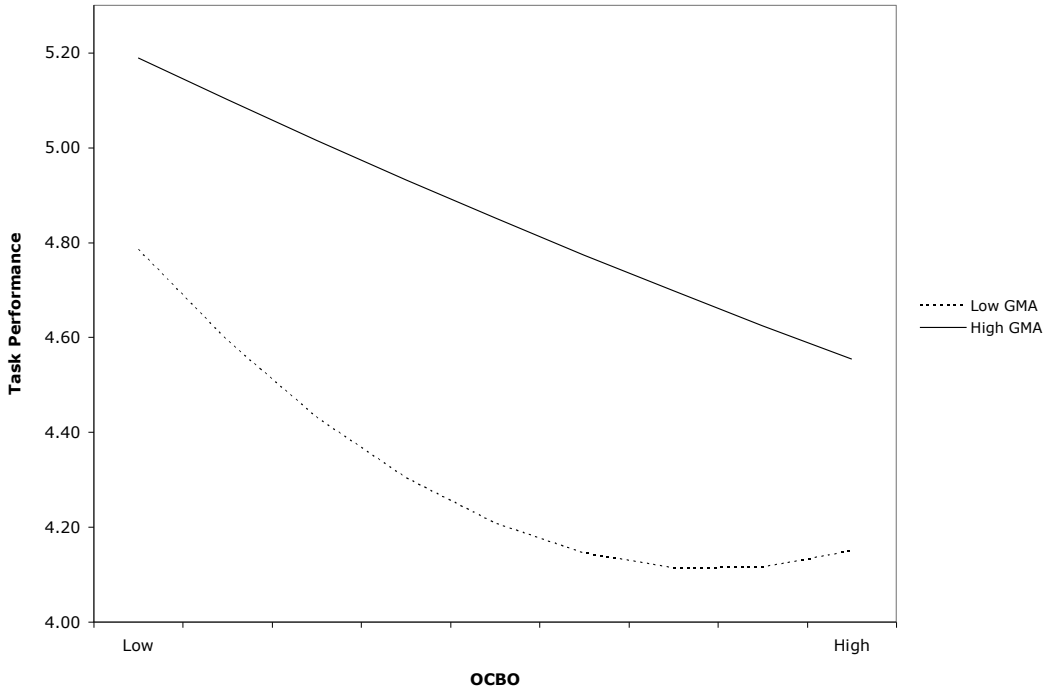

Figure 1. Interaction between OCBO and GMA in the prediction of task performance

Discussion

The HLM results revealed that neither OCBO nor OCBI had significant curvilinear main effects on task performance, failing to support hypotheses 1 and 2. Partially consistent with the 3rd hypothesis, the results demonstrated that the joint effects of GMA with OCBO were interactive, with low-GMA workers demonstrating a more curvilinear relationship with task performance than high-GMA workers. The directions of the effects, however, were opposite of the predicted direction. Additionally, the data failed to provide evidence for the 4th hypothesis, as the interaction between OCBI and GMA was not significant.

Upon examining Figure 1, it becomes apparent that the general relationship between OCBO and task performance was negative and slightly U-shaped, inconsistent with my expectations. This implies that high-GMA employees decreased in task performance as the level of OCBO increases. In contrast, low-GMA workers demonstrated a similar negative relationship when engaging in low to average levels of OCBO, but the negative effects tended to level off and even change directions at the highest levels of OCBO. Although my initial interpretation of this interaction was that OCBO simply had more of a detrimental effect on task performance than we initially expected, a closer examination of the measures used to test the hypotheses shed some light on the curious results.

Specifically, the measures we used were not reflective of the types of behaviors we were trying to capture. The criterion problem, as it is known, refers to the "difficulties involved in the process of conceptualizing and measuring performance constructs that are multidimensional and appropriate for different purposes" (Austin & Villanova, 1992, p. 836). The majority, if not all, of the items we used to measure core task performance reflect the application of cognitive ability and creativity rather than capturing the amount of tasks being completed or more

conscientious aspects of task performance. As noted previously, the scarcity of time was the primary reason that we predicted that high levels of OCB would interfere with task performance. Specifically, we hypothesized that engaging in high levels of OCB would take time away from engaging in the more core aspects of one's job. Because the task performance items do not capture this time element and instead focus on the quality of work produced, it is not surprising that no significant main effects were found. Perhaps a scale that reflects more consciousness-related task items would more closely capture the types of behaviors we envisioned. An example of such an item might be "the employee fully completes the assigned duties described by his or her job description." More importantly, this criterion problem may explain why no main effects or interactions emerged for OCBI, which presumably would be more time consuming than OCBO. This may also explain why the main effect of GMA was particularly strong, as cognitive ability is likely to be the primary predictor for such outcome facets as creativity and technical skill.

In addition to criterion issues, the predictor measures may also benefit from additional clarity. The OCB scales by Williams and Anderson (1991), although adequately tapping the constructs we envisioned, do not capture the time component of OCB. In other words, there is a difference between being effective at OCB and doing a lot of them. The measures we used simply did not address this discrepancy. By not asking specifically about the frequencies of these behaviors, the true time trade off between engaging in OCB and engaging in task performance may have been masked.

Further exacerbating the criterion problem, many researchers have pointed out that the line distinguishing task performance and OCB has been consistently blurring in recent years (see Van Dyne, Cummings, & McLean Parks, 1995). For example, Morrison (1994) found that employees' perceptions of whether a behavior was considered to be contextual or core task were influenced by both their commitment to the organization and by social cues. In a similar vein, today's jobs are becoming increasingly more service oriented and global. This implies that social interactions are becoming a requirement for nearly every job. With new positions continuously being created and "service with a smile" signs becoming more ubiquitous, it is less and less clear what constitutes extra-role behaviors. Such trends are also evidenced by the rise in importance of constructs like adaptive performance and social skill, which deal primarily with proficiency in managing this ambiguity.

If the curvilinear relationship between task and contextual behavior does exist as we predicted, it is most likely confined to employees who engage in a large amount of time consuming and non-work-related OCB. Such behaviors may best be captured in the distinction between interpersonal citizenship behaviors (ICB) made by Settoon and Mossholder (2002): person-focused and task-focused. Task-focused ICB are those acts that are instrumental and directly related to helping others be more effective in their work roles. Examples may include mentoring a younger employee or helping an overloaded coworker with their tasks. Person-focused ICB, on the other hand, are more personal in nature and fall naturally into the realms of friendship and social support. These behaviors include things like talking about the weekend with your subordinate and helping your coworker pick out a wedding dress while at work. These are the types of behaviors that we believe would be most detrimental to task performance at high levels. Because person-focused ICB are un-related to work and time-consuming, they may be most likely to interfere with the core tasks of one's job (Settoon & Mossholder, 2002).

Another example of OCB expected to decrease task performance at high levels is noncompliant extra-role behavior (Puffer, 1987). Specifically, these behaviors are defined by ultimately having negative implications for the organization. These acts include such things as making unrealistic promises about delivery dates to customers. Clearly, very high levels of such acts may also negatively impact task performance (Puffer, 1987).

Additionally, OCB that cause stress may subsequently affect creativity and other cognitive processes. This, in turn, may have an impact on more GMA-related task behaviors such as the ones included in my study. Examples of such OCB may include voluntarily taking on the most difficult assignments or perhaps empathically helping a coworker work through the loss of a child. Ultimately, we believe that the reason the hypotheses failed to find support is that although the central tenet of a time tradeoff was incorporated into the theoretical development of the study, we failed to ensure that the measures also incorporated this aspect in order to properly test the hypotheses. The important lesson to take away from this pattern of results is that measures should be carefully selected, as different criteria can reflect very different behaviors. we invite future researchers to test the relationship between these various facets of OCB with both conscientiousness and GMA related measures of task performance.

In addition to measurement issues, we think that my sample may have contributed to the unexpected results. Engineers, like salesmen, contribute directly to the technical core of the organization. Therefore it is likely that they may be more closely rewarded for their final outputs. Managers, alternatively, may have less specifically defined tasks and therefore performance ratings may focus more on the process of how they do their jobs (i.e., OCB; Mackenzie, Podsakoff, & Paine, 1999). This may explain why the interactive relationship between OCBO and GMA with task performance tended to be more negative than curvilinear or positive.

One possible explanation for the insignificant relationship between OCBI and task performance involves the reciprocation aspect of OCBI. Whereas some of the OCBI items, even if reciprocated, may not impact the organization (i.e., takes time to listen to co-workers problems and worries), others may induce reciprocity and therefore positively impact task performance (i.e., helps others who have heavy work loads). This inconsistency with regards to reciprocity may also have contributed to the failure to find significant relationships between OCBI and task performance.

Strengths

Although most of the hypotheses were not supported, this study does boast several strengths. First, higher GMA employees demonstrated higher levels of task performance regardless of the type of OCB being investigated. This supports the use of GMA in selection procedures as these employees consistently proved to be better task performers. Another important contribution of this study is that it is among the few examining the effects of OCBO and OCBI separately. Although we already know that both OCB and task performance contribute to overall performance and

subsequently to other important outcomes, it is not fully understood how these two interact, particularly when contextual behaviors are broken down into subcomponents. Although my hypotheses were only partially supported, they still revealed important differences in the relationship between different types of OCB behaviors and task performance. Finally, this study tested a relatively understudied phenomenon of curvilinear relationships using activation theory as a conceptual foundation.

Limitations and Directions for Future Research

When interpreting the results of this study several weaknesses should be kept in mind. First, this study was conducted on cross-sectional data. Without longitudinal observations, it is impossible to draw conclusive causal inferences. Second, both task performance and OCB were supervisor-rated, leading to concerns of mono-method bias. The effects of this were reduced because we used HLM in the analysis to identify and discount any inter-correlation introduced by the supervisor rating both constructs. Additionally, as addressed in the previous section, my measures may have not been ideal for testing my hypotheses as stated. Finally, our study only included data for white-collar employees, and there may be important differences in results when replicated on other samples.

With regard to future research, the relationship between OCB and task performance clearly warrants more clarification. Perhaps isolating task performance into categories more related to conscientiousness or time-specific factors may be appropriate. Similarly, breaking down OCB into different levels of time commitment may shed light concerning which behaviors detract more or less from task performance.

Finally, we believe that continuing to identify moderators of this complex relationship will help to paint a clearer picture of how these performance facets affect one another. Such moderators may include personality characteristics such as conscientiousness and extraversion or job characteristics such as autonomy and supervisory span. Following Bergeron (2007), aspects of the organization such as reward structure and whether the work must be done in a set number of hours may also be potent moderators. Also, longitudinal and multi-level research is needed to parse out the short and long-term effects of OCB on task performance at the individual, group, and organizational levels. In sum, this area appears to be ripe for future research, both because of its intriguing ambiguity and its clear impact on many types of organizations.

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