Voice and Cooperative Behavior as Contrasting Forms of Contextual Performance: Evidence of Differential Relationships With Big Five Personality Characteristics and Cognitive Ability

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The results of a laboratory study of 276 individuals replicate past findings for cooperative behavior as a form of contextual performance and extend past research by providing evidence that voice (constructive change-oriented communication) may be another form of contextual performance. Conscientiousness, extraversion, and agreeableness related more strongly to voice behavior and cooperative behavior than to task performance. Cognitive ability related more strongly to task performance than to voice behavior or cooperative behavior. Results also demonstrate contrasting relationships for agreeableness (positive with cooperative behavior and negative with voice behavior). This supports recent research suggesting the possibility of bidirectional relationships with personality characteristics across different dimensions of job performance.

For over 50 years, scholars have recognized the importance of behavior that is not strictly role prescribed but contributes to organizational effectiveness indirectly through the development and maintenance of the organization’s social and psychological context (e.g., Barnard, 1938; Katz & Kahn, 1978). Given the importance of team-based work structures (Howard, 1995; Ilgen & Pulakos, 1999), it is not surprising that scholars have focused primarily on cooperative forms of these behaviors, typically labeled organizational citizenship behavior or contextual performance (Borman & Motowidlo, 1993, 1997; Borman, Motowidlo, Rose, & Hansen, 1985; Organ, 1988, 1997; Smith, Organ, & Near, 1983). Recently, however, scholars have noted that the technological, economic, and business environments are changing at an increasingly rapid pace (e.g., Motowidlo & Schmit, 1999, p. 56). These trends highlight the need for flexibility and adaptability (Jelinek & Schoonhoven, 1993) because organizations must constantly improve their products and services to remain competitive (Kanter, Stein, & Jick, 1992). Accordingly, scholars have begun to recognize the importance of behaviors that emphasize employee initiative, such as making constructive suggestions for change (LePine & Van Dyne, 1998; Nemeth & Staw, 1989; Scott & Bruce, 1994; Staw & Boettger, 1990; Van Dyne & LePine, 1998).

Our purpose is to specify and test a predictive model of voice behavior (defined as constructive change-oriented communication intended to improve the situation) based on Motowidlo, Borman, and Schmit’s (1997) theory of individual differences in task and contextual performance. This theory is useful for these purposes not only because it suggests a set of possible antecedents of voice, but also because it suggests linkages within a broader nomological network. Specifically, this theory specifies the nature of relationships for predictors of voice (as a form of contextual performance) relative to those for task performance (behavior that directly transforms inputs into the organization’s outputs). We tested our model with a laboratory study designed to assess the relations between individual differences (personality and cognitive ability) and three outcomes: voice, cooperative behavior, and task performance.

In the next section, we provide a summary of Motowidlo and colleagues’ (1997) theory, including definitions of key constructs and results of prior empirical analyses. We then review the literature on the most popular form of contextual performance (cooperative behavior) and generate predictive hypotheses that replicate past research findings. We then discuss the characteristics of voice that fit the conceptualization of contextual performance. Extending the literature on contextual performance, we generate hypotheses linking voice to several individual differences. In the final sections of this article, we present our empirical findings and conclude with a discussion of the results and implications of our research.
A Theory of Individual Differences in Task and Contextual Performance

Borman and Motowidlo (1993) distinguished between two types of performance. Task performance focuses on activities that directly contribute to or support the transformation of inputs into outputs (i.e., the organization’s technical core). Examples of task performance include operating machinery in a factory, making decisions about investments in a brokerage house, purchasing raw materials, strategic planning, and supervising employees. Contextual performance contributes indirectly to organizational success by maintaining or improving the “organizational, social, or psychological environment necessary for the technical core to function effectively and efficiently” (Motowidlo et al., 1997, p. 76).

Contextual performance includes behaviors such as helping and cooperating with others, volunteering to do more than the minimum behaviors required by the job, persisting to accomplish tasks, following procedures even when personally inconvenient, and supporting and defending organizational objectives. Both types of performance contribute to overall organizational effectiveness. Task performance contributes directly through the production of goods and services, whereas contextual performance enhances the context or environment in which the technical core is embedded (Borman & Motowidlo, 1993; Katz, 1964; Katz & Kahn, 1978).

Building on this task versus contextual performance framework, Motowidlo and colleagues (1997) introduced a theory of individual differences in task and contextual performance. One of the key points of this theory is a comparison of the relative strength of the relations between individual differences and the two types of performance. Specifically, Motowidlo and associates specify a stronger link between personality characteristics and contextual performance than the link between personality characteristics and task performance. Similarly, they specify a stronger link between ability and task performance than between ability and contextual performance. To support this, their theory emphasizes the influence of personality characteristics on the habits, skills, and knowledge required for effectiveness in the social context (e.g., interpersonal knowledge and skills) and the influence of cognitive ability on the habits, skills, and knowledge required for effectiveness in the task context. Empirical findings generally support the prediction that individual differences in personality relate more strongly to contextual performance than to task performance. There is mixed support, however, for the assertion that individual differences in cognitive ability relate more strongly to task performance than to contextual performance (Borman & Motowidlo, 1993, 1997; Hattrup, O’Connell, & Wingate, 1998; Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996).

Cooperative Behavior and Individual Differences

The theory of individual differences in task and contextual performance and empirical research suggest that personality should be related to cooperative forms of contextual performance. However, although the theory is less clear about which specific personality characteristics should be considered, there are theoretical and empirical reasons to expect significant relations for several of the Big Five personality dimensions (conscientiousness, extraversion, neuroticism, and agreeableness).

Those who are high in conscientiousness tend to be dependable, careful, thorough, responsible, organized, and planful (Barrick & Mount, 1991). Because highly conscientious people are hardworking, achievement oriented, and perseverant, they tend to do what needs to be done to accomplish work. Accordingly, when success at work depends on interdependence and smooth interpersonal relationships, high conscientiousness individuals should tend to be more cooperative with others than those who have lower conscientiousness.

People who are extraverted are sociable, gregarious, assertive, talkative, and active (Barrick & Mount, 1991). Extraversion relates to individuals’ energy level, potency, and positive affectivity. These are traits that should promote positive and cooperative interactions with others in the course of accomplishing work.

People who score low in neuroticism are emotionally stable. They tend not to be anxious, depressed, angry, embarrassed, emotional, worried, or insecure (Barrick & Mount, 1991). People who score high in neuroticism tend to be uptight and often express negative attitudes toward coworkers. Given this description, it is likely that those scoring high in neuroticism would not be cooperative and would have lower quality interactions with others at work.

Finally, those who are agreeable are generally viewed as likeable, friendly, conforming to social conventions, compliant, courteous, flexible, trusting, good-natured, and tolerant (Barrick & Mount, 1991). Agreeable individuals tend to engage in more teamwork, are more cooperative, and have higher quality interpersonal interactions.

Three meta-analytic studies report significant relationships between these four personality characteristics (or facets of these personality characteristics) and criteria similar to cooperative contextual performance (i.e., teamwork, altruism, and quality of interpersonal interaction) that support the logic outlined in the previous paragraphs (Hough, 1992; Mount, Barrick, & Stewart, 1998; Organ & Ryan, 1995). Accordingly, we expected that

Hypothesis 1: Conscientiousness will be positively related to cooperative contextual performance.

Hypothesis 2: Extraversion will be positively related to cooperative contextual performance.

Hypothesis 3: Neuroticism will be negatively related to cooperative contextual performance.

Hypothesis 4: Agreeableness will be positively related to cooperative contextual performance.

Voice Behavior as a Form of Contextual Performance

Contextual performance research has focused primarily on conformist or cooperative behaviors and not on change-oriented behaviors such as voice (Speier & Frese, 1997). However, although not represented in the empirical literature (Coleman & Borman, 1999), conceptual descriptions of contextual performance include behaviors like voice. Examples include suggesting organizational improvements (Brief & Motowidlo, 1986; Motowidlo & Schmit, 1999); making constructive suggestions (George & Brief, 1992; Motowidlo & Schmit, 1999); suggesting ideas for how others in the unit should proceed; and persuading others to accept ideas, opinions, and directions (Borman & Motowidlo, 1993; Borman et al., 1985).

On the surface, change-oriented behaviors contrast with cooperative forms of contextual performance that directly and obvi-
uously support social relationships. This is because suggestions for change may alter the status quo and can upset interpersonal relationships. At the same time, however, change-oriented behavior like voice is consistent with the conceptualization of contextual performance because specific acts do not relate directly to the transformation of inputs into outputs, but should, in the aggregate, contribute to organizational effectiveness. Voice contributes to the viability of the social infrastructure in which task performance occurs because expression of constructive suggestions facilitates evolution of individuals' roles in response to environmental and competitive change (Frese, Kring, Soose, & Zempel, 1996; Van Dyne, Cummings, & McLean Parks, 1995). Timely establishment or reestablishment of a role structure increases individuals' confidence and comfort as well as the overall social and psychological well being of a group because overt competition and emotional disagreement about who does what, when, where, and how is lessened or avoided (Gersick & Hackman, 1990). Whereas it is easy to think of situations where making suggestions may be detrimental to a group (e.g., one reviewer suggested the example of a know-it-all with lots of suggestions about how everyone ought to do their work), voice is intended to be constructive, and over the long term, it should make a positive contribution to a group or organization.

The importance of voice in terms of making nontask contributions to the organization was supported indirectly by Van Dyne and LePine (1998). They found in a field study that peer-rated voice explained variance in supervisor ratings of overall performance effectiveness, over and above variance explained by ratings of task performance, and this effect was in the positive direction. Voice is also consistent with the definition of contextual performance because (in contrast to task performance) specific acts of voice are similar across most jobs, are difficult to require in advance, and therefore, tend to be discretionary or extra-role (Speier & Frese, 1997). Thus, even though the change-oriented nature of voice differs from the cooperative nature of other forms of contextual performance, we agree with Speier and Frese (1997) and others (e.g., Borman & Motowidlo, 1993; Borman et al., 1985) that voice behavior is an important form of contextual performance. A definitive position on this issue, however, requires empirical evidence (Coleman & Borman, 1999). We suggest that if voice behavior is a form of contextual performance, the relations between individual differences and voice should follow the pattern predicted by the theory of individual differences in task and contextual performance.

**Voice Behavior and Individual Differences**

Voice requires individuals to support overarching system-level goals, allocate cognitive resources to develop suggestions for change aimed at overcoming obstacles to system-level goals, and take initiative in expressing suggestions. Voice also requires individuals to believe in change as a potential way of coping with situational demands and requires them to express their ideas in interpersonal settings (Van Dyne, Graham, & DiNelles, 1994). Additionally, and in contrast to the requirements of cooperative forms of contextual performance, individuals who engage in voice must be change oriented and willing to risk upsetting the status quo and interpersonal relationships—at least in the short term.

Voice behavior requires that individuals expend effort speaking up and expressing suggestions they may have. Those who tend to be dependable feel responsible and are more likely to make this investment of effort. Those who are conscientious tend to be achievement oriented and are more willing to engage in conversations about ideas intended to improve the situation. They should also be persistent about making sure their ideas are understood. Thus,

**Hypothesis 5:** Conscientiousness will be positively related to voice behavior.

Extraversion should be important in facilitating the expression of change-oriented suggestions and ideas. Extraverts are sociable, gregarious, assertive, and talkative. Given this profile, it seems reasonable to expect that extraverts are more comfortable and skilled in communicating their thoughts. Voice behavior involves an element of risk taking because it can be viewed as an attempt to change the status quo. As such, it requires a willingness to speak up and be counted. We argue that extraverts will be less inhibited by conformity pressure and will be more willing to express change-oriented opinions. Accordingly, we hypothesized that

**Hypothesis 6:** Extraversion will be positively related to voice behavior.

When individuals engage in voice behavior, they draw attention to themselves. We suggest that this aspect of voice requires a stable disposition and a low level of insecurity. For example, we would argue that those who are insecure or easily embarrassed would hesitate to speak up and express ideas for change. We propose that those who are emotionally stable (low in neuroticism) will make suggestions for change because they do not feel helpless (i.e., they believe that they can influence the situation) and have higher levels of self-worth. This expectation is consistent with prior research that found a positive relationship between self-esteem and voice behavior (LePine & Van Dyne, 1998). Accordingly, we hypothesized that

**Hypothesis 7:** Neuroticism will be negatively related to voice behavior.

Individuals who are open to experience are generally imaginative, curious, original, broad minded, and intelligent (Barrick & Mount, 1991). Those high in openness should be willing to consider divergent opinions and different perspectives. They tend to enjoy new experiences and seek opportunities to learn new things; they value change. Voice behavior is fundamentally change oriented and thus places high value on new perspectives and innovations. Accordingly, we suggest that those who are high in openness will invest effort in considering a variety of alternatives rather than simply supporting the status quo. Therefore, we hypothesized:

**Hypothesis 8:** Openness will be positively related to voice behavior.

Because agreeable people value cooperation and conform to norms, they should not be inclined to make waves and upset interpersonal relationships. Instead, they should tend to go along with suggestions made by others and support the status quo. Accordingly, we hypothesized that
**Hypothesis 9**: Agreeableness will be negatively related to voice behavior.

**Contrasting Relations of Individual Differences With Task and Contextual Performance**

Thus far we have focused attention on simple predictor-criterion relations. A fundamental aspect of the theory of individual differences in task and contextual performance, however, is the comparison of relations between types of individual differences (personality characteristics and cognitive ability) and facets of performance. We now turn our attention to these comparisons.

**Contrasting relations for personality.** The theory of individual differences in task and contextual performance predicts weaker relations between aspects of personality and task performance compared to the relations between personality and contextual performance. Again, the reason for this is that personality is more relevant to the habits, skills, and knowledge needed for contextual performance than for task performance. Thus, consistent with the theory and recent empirical research on cooperative forms of contextual performance (i.e., Hattrup et al., 1998; Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996), we predicted that

**Hypothesis 10a**: Conscientiousness, extraversion, neuroticism, and agreeableness will be more strongly related to cooperative behavior than to task performance.

Similarly, we predict that if voice is a form of contextual performance, this same general pattern of relations should hold. Thus,

**Hypothesis 10b**: Conscientiousness, extraversion, openness, neuroticism, and agreeableness will be more strongly related to voice than to task performance.

**Contrasting relations for cognitive ability.** The theory of task and contextual performance predicts that cognitive ability will be more strongly related to task performance than to contextual performance. This is because cognitive ability should be especially salient to the habits, skills, and knowledge required for task effectiveness. There is clear evidence for a strong link between cognitive ability and task performance (Hunter, 1986). Research also supports the expectation that the relationship between cognitive ability and cooperative forms of contextual performance is weaker than that for task performance (e.g., Hattrup et al., 1998; McHenry, Hough, Toquam, Hanson, & Ashworth, 1990). We do acknowledge that there are studies that do not find differences in effects for cognitive ability on task and contextual performance (e.g., Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996). However, such findings can be attributed to effects for cognitive ability on task performance that are atypically weak (e.g., r's of −0.06, 0.05, and −0.01) rather than to strong effects on contextual performance. Thus, consistent with Motowidlo et al.'s (1997) theory and the majority of empirical research on task and cooperative forms of contextual performance, we predicted

**Hypothesis 11a**: Cognitive ability will be more strongly related to task performance than to cooperative behavior.

Furthermore, this pattern should hold if voice is a form of contextual performance. Thus:

**Hypothesis 11b**: Cognitive ability will be more strongly related to task performance than to voice.

**Method**

**Participants**

Our sample included 288 juniors and seniors enrolled in a multisection management course. Participants were recruited during the first class of the semester, when they were given an opportunity to sign up for the study as one of several options for earning course credit. At the same time, they also completed instruments to measure their cognitive ability and personality characteristics. Twelve students who participated in the study missed the first class. Because they did not complete the two instruments, we excluded them from our analyses. Thus, the effective sample size in this study, which was part of a larger study on team decision making, is 276.

**Task**

Our primary intent in this study was to assess theoretical predictions about voice in the context of the theory of individual differences in task and contextual performance. Most importantly, we wanted to examine whether voice fit in the pattern of relationships as suggested by the theory. Klinger (1986) and others (e.g., Berkowitz & Donnerstein, 1982; Mook, 1983) discuss the suitability of laboratory settings when the purpose of a study is to assess theoretical predictions and avoid possible contamination by extraneous variables. A laboratory design can help to control for the presence of strong norms or organizational cultures that might constrain individuals' behavior and prevent individual difference effects from emerging. The laboratory also ensured that participants had equal opportunities and reasons to engage in voice and cooperative behaviors because they were not biased by prior relationships.

To study voice behavior in a laboratory, we needed a task where individuals worked together to achieve a group-level objective. We also needed a task where the path to success was not so obvious as to negate the need for change-oriented communication. On the basis of these requirements and the idea that cognitive work is becoming increasingly important relative to physical work (Howard, 1995), we used a computerized decision-making simulation called Team Interactive Decision Exercise for Teams Incorporating Distributed Expertise (TIDE); see Hollenbeck et al., 1995 for details). The task simulates decision-making environments where roles are interdependent and group members must exchange information before they can make decisions. As in other research using the TIDE software, decisions involved classifying a series of aircraft on a continuum from nonthreatening to threatening and determining the appropriate responses (e.g., Hollenbeck, Colquitt, Ilgen, LePine, & Hedland, 1998; Hollenbeck, Ilgen, LePine, Colquitt, & Hedlund, 1998; LePine, Hollenbeck, Ilgen, & Hedlund, 1997).

Participants were randomly assigned to groups of four that competed for cash awards based on group performance during a 3-hour study on team decision making. Awards ranged from $10 to $20 and were designed to stimulate active involvement in the task and give group members a common goal. At the beginning of the session, group members introduced themselves to each other. Group members worked in separate cubicles, and each member had a personal networked computer. Each group contained three staff members and a leader. Staff members measured aircraft attributes (e.g., speed, altitude, and range), communicated this information to other group members, interpreted the attribute information, made judgments based on their interpretations, and forwarded their recommendations to the leader. Leaders finalized the group's decision based on the information they had accumulated personally, supplemented by the recommendations made by their staff members. All communication was computer mediated. Members could transmit information directly and could also type sentence-length text messages.
During the first part of the study, group members were trained to operate the simulation, learned the decision rules, and practiced applying these rules to various scenarios involving incoming aircraft. Participants made 48 judgments and decisions on a 7-point continuum. Correct decisions were based on an equation that translated the decision rules into a linear combination of the attributes that was then applied to the attributes of a specific target aircraft. Each group member received performance feedback on the outcome of each decision trial (e.g., each member’s decision and the correct decision) as well as a summary of all past outcomes.

The task allowed group members to express change-oriented constructive communication (voice behavior) if they so chose. For example, although the distribution of information did not change during the simulation, group members were not trained to know the best way to get the information they needed to fulfill their specified role responsibilities. As a result, inefficient communication structures could develop and interfere with task performance. This is because group members had to obtain information from each other to make their decisions. Group members would have less time to evaluate information and make judgments and decisions if they distributed the information inefficiently.

This task design allowed group members to engage in two forms of voice. Participants could contribute constructive suggestions or opinions on how to transfer information more efficiently, how to combine the attributes more effectively, or how to weigh each member’s information and recommendations more effectively. For example, “We need to listen to Charlie more often” or “We should all send information without being asked first.” Participants could also make declarative statements describing how they would transfer, combine, and interpret information differently in the future. For example, “I will send you the speed information first thing each day” and “From now on, I’ll make recommendations using all available sources.”

Because of the interdependence of roles, participants needed to interact and exchange information with one another. Thus, the task was structured such that members could engage in two forms of cooperative behavior. First, they could compliment other members. For example, “You’re doing a good job!” or “Keep up the good work.” Second, they could also engage in courteous communication including appreciation, apologies, and checking. For example, “Thank you,” “I’m sorry about that last one,” or “I hope you are getting my data on time.”

**Measures**

**Voice behavior.** Group members communicated with each other throughout the study by typing messages on their keyboards and sending the messages over the network. The software recorded all of these communications, which were later transcribed (we note that the sample originally included 8 additional teams; however, computer malfunctions resulted in the loss of communications data between members). We developed a coding scheme that included change-oriented, constructive communications representing voice as noted above. After agreeing on the coding scheme, we made two copies of the communication transcripts and coded them independently for voice behavior. We assigned scores to individual group members representing their total number of voice communications during the study. Interrater reliability was high (intraclass correlation coefficient [ICC] 2, 2 = .97); so we used the mean score from the two raters as our measure of voice. The odd–even trial split half reliability of the voice measure was .73.

**Cooperative behavior.** We also independently coded the transcripts for communications reflecting cooperative communication as noted above. As with voice behavior, our measure of cooperative behavior had high interrater reliability (ICC 2, 2 = .97). The odd–even trial split-half reliability of the cooperative behavior measure was .77.

**Task performance.** We used decision-making accuracy (the mean absolute difference between the correct decision and the individual’s judgment on each target) as our measure of task performance. This raw metric ranged from 0 to 6, with lower scores reflecting greater accuracy. To facilitate interpretation, we reversed this measure, and therefore, higher scores indicate higher performance. The odd–even trial split-half reliability of this measure was .82.

**General cognitive ability.** Participants completed questionnaires that assessed general cognitive ability and personality when they signed up for the study during the first day of the semester. We assessed cognitive ability with the Wonderlic Personnel Test (WPT, Wonderlic & Associates, 1983). This test required 12 minutes and has been used in educational, psychological, and applied business contexts as a reliable measure of the verbal, quantitative, and spatial abilities that underlie general cognitive ability. The odd–even split-half reliability was .90.

**Personality.** We measured personality using Costa and McCrae’s (1992) Revised NEO Personality Inventory. This instrument includes five 48-item scales that measure the six dimensions underlying each of the Big Five personality characteristics: conscientiousness, extraversion, openness, neuroticism and agreeableness. Internal consistency reliabilities for the Big Five characteristics ranged from .86 to .90.

**Results**

Table 1 contains correlations and descriptive statistics for the variables measured in this study, and Table 2 provides information that specifically addresses our hypotheses.

**Assessing the Hypotheses**

**Cooperative behavior.** The first column of Table 2 summarizes the correlations between cooperative behavior and the per-

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**Table 1**

**Descriptive Statistics and Correlations**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cooperative behavior</td>
<td>1.14</td>
<td>1.79</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Voice behavior</td>
<td>1.30</td>
<td>2.15</td>
<td>.32*</td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Task performance</td>
<td>4.85</td>
<td>3.32</td>
<td>.00</td>
<td>-.13*</td>
<td>.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. General cognitive ability</td>
<td>25.15</td>
<td>5.43</td>
<td>.06</td>
<td>.01</td>
<td>.23*</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Conscientiousness</td>
<td>3.48</td>
<td>4.37</td>
<td>.17*</td>
<td>.26*</td>
<td>-.05</td>
<td>-.09</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Extraversion</td>
<td>3.50</td>
<td>4.09</td>
<td>.14*</td>
<td>.30*</td>
<td>-.07</td>
<td>.00</td>
<td>.19*</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Neuroticism</td>
<td>2.84</td>
<td>3.59</td>
<td>-.11*</td>
<td>-.12*</td>
<td>-.07</td>
<td>-.03</td>
<td>-.40*</td>
<td>-.19*</td>
<td>.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Openness</td>
<td>3.36</td>
<td>3.06</td>
<td>.05</td>
<td>.09</td>
<td>.02</td>
<td>.18*</td>
<td>.06</td>
<td>.36*</td>
<td>.01</td>
<td>.87</td>
<td></td>
</tr>
<tr>
<td>9. Agreeableness</td>
<td>3.29</td>
<td>3.34</td>
<td>.18*</td>
<td>.16*</td>
<td>.03</td>
<td>-.11*</td>
<td>.14*</td>
<td>.02</td>
<td>-.22*</td>
<td>.05</td>
<td>.86</td>
</tr>
</tbody>
</table>

*Note. n = 276. Internal consistency reliabilities in the diagonal. *p < .05, one-tailed.
Table 2
Comparisons of Correlations for Voice Behavior, Cooperative Behavior, and Task Performance

<table>
<thead>
<tr>
<th>Individual difference</th>
<th>(1) Cooperative behavior</th>
<th>(2) Voice behavior</th>
<th>(3) Task performance</th>
<th>Significantly different ( r^* ) (1) vs. (3)</th>
<th>Significantly different ( r^* ) (2) vs. (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscientiousness</td>
<td>.17* (.20)</td>
<td>.26* (.32)</td>
<td>-.05 (-.06)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.14* (.17)</td>
<td>.30* (.37)</td>
<td>-.07 (-.08)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-.11* (-.13)</td>
<td>-.12* (-.15)</td>
<td>-.07 (-.08)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Openness</td>
<td>.05 (.06)</td>
<td>.09 (.11)</td>
<td>.02 (.02)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.18* (.22)</td>
<td>-.16* (-.20)</td>
<td>.03 (.04)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>General cognitive ability</td>
<td>.06 (.07)</td>
<td>.01 (.01)</td>
<td>.23* (.27)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note. \( n = 276 \). Correlations in parentheses are corrected for attenuation because of unreliability of predictor and criterion measures.

* Differences significant at \( p < .05 \), one-tailed.

* \( p < .05 \), one-tailed.

Sonality traits. One-tailed tests for the directional hypotheses indicate support for Hypothesis 1 (conscientiousness: \( r = .17, p < .05 \)), Hypothesis 2 (extraversion: \( r = .14, p < .05 \)), Hypothesis 3 (neuroticism: \( r = -.11, p < .05 \)), and Hypothesis 4 (agreeableness: \( r = .18, p < .05 \)). Thus, as expected and consistent with past research, cooperative behavior was higher for those with high conscientiousness, high extraversion, high agreeableness, or low neuroticism.

Voice behavior. As shown in the second column of Table 2, Hypotheses 5, 6, 7, and 9 were supported. The correlations for voice behavior and conscientiousness \( (r = .26, p < .05) \), extraversion \( (r = .30, p < .05) \), neuroticism \( (r = -.12, p < .05) \), and agreeableness \( (r = -.16, p < .05) \) were statistically significant and in the predicted directions. Voice behavior was higher for those who were more conscientious, more extraverted, less neurotic, or less agreeable. Although the direction of the correlation for openness \( (r = .09, p > .05) \) was in the expected direction, it was not statistically significant. Therefore, Hypothesis 8 was not supported.

Contrasting relations. Hypothesis 10a proposed that conscientiousness, extraversion, neuroticism, and agreeableness would be more highly related to cooperative behavior than to task performance; and Hypothesis 10b proposed that conscientiousness, extraversion, neuroticism, openness, and agreeableness would be more highly related to voice than to task performance. To assess these hypotheses, we computed Steiger’s (1980) z tests for dependent correlations. The results, shown in the fourth and fifth columns of Table 2 in rows 1, 2, and 5 show support when the comparisons involve conscientiousness, extraversion, and agreeableness. As shown in the fourth column of Table 2, the correlations between cooperative behavior and conscientiousness \( (r = .17) \), extraversion \( (r = .14) \), and agreeableness \( (r = .18) \) were more positive (stronger) than were the correlations between these three personality characteristics and task performance \( (r = -.05, -.07, and .03) \). However, the correlation between neuroticism and cooperative behavior was not significantly higher than the correlation between neuroticism and task performance. The fifth column of Table 2 indicates that the correlations for voice with conscientiousness \( (r = .26) \) and extraversion \( (r = .30) \) were significantly more positive (stronger) than were the correlations for task performance. In addition, the correlation for voice and agreeableness \( (r = -.16) \) was significantly more negative (stronger) than was the correlation for task performance. The direction of the differences in the correlations for neuroticism (more negative with voice than with task performance) and openness (more positive with voice than with task performance) were consistent with expectations; however, the differences were not significant.

Hypothesis 11a proposed that cognitive ability would be more highly related to task performance than to cooperative behavior, and Hypothesis 11b proposed that cognitive ability would be more highly related to task performance than to voice behavior. Both of these hypotheses were supported. The correlation between general cognitive ability and task performance \( (r = .23) \) was significantly more positive (stronger) than were the correlations between general cognitive ability and cooperative behavior \( (r = .06) \) and voice behavior \( (r = .01) \).

Finally, we corrected each correlation for unreliability of the predictor and criterion to more fairly assess the comparisons (Hypotheses 10 and 11). These correlations appear in parentheses in Table 2 next to the relevant uncorrected correlations. Overall, the pattern remains consistent.

Post Hoc Analyses

In an effort to gain additional insights into the relationship between individual differences and contextual performance, we conducted three post hoc analyses. First, we conducted an analysis to gain a better appreciation of the practical effects of the individual differences on cooperative behavior and voice behavior. Second, we examined the relative contributions of ability and personality characteristics in explaining variance in cooperative behavior, voice behavior, and task performance. Finally, to gain a better understanding for the reasons underlying the observed effects, we examined relationships between the narrower, more behaviorally specific dimensions of personality and the contextual performance criteria.

Practical effects. Most of the effect sizes in this study fell in between what Cohen (1988) would refer to as small \( (r = .10) \) and moderate \( (r = .30) \). Even though these effect sizes are consistent with those reported in other studies on individual differences, there is a potential issue related to their practical significance. However, as Rosenthal and Rosnow (1991) point out, correlations do not
directly convey practical meaning. To develop a better appreciation for the practical links between personality and cooperative behavior, we compared the number of cooperative communications for those with the theoretically best personality profile in terms of promoting cooperative communication (those scoring above the mean in conscientiousness, extraversion, and agreeableness and below the mean in neuroticism) to those with the theoretically worst profile for promoting cooperative behavior (those scoring below the mean in conscientiousness, extraversion, and agreeableness and above the mean in neuroticism). Although cooperative behavior had a low base rate, it was four times more likely for those with the theoretically best profile (2.19) relative to individuals with the worst profile (0.55). We conducted another analysis for voice using the relevant predictors and found that voice was 10 times more likely for those with the theoretically best profile (1.82) relative to individuals with the theoretically worst profile (0.18). Thus, despite modest correlations, the practical relationship between the set of personality traits and acts reflecting cooperation and voice is not trivial.

Relative contribution of ability and personality. We also conducted analyses with hierarchical regression to develop a better understanding of the relative contributions of ability and personality characteristics toward explaining variance in cooperative behavior, voice behavior, and task performance (Darlington, 1968). In Step 1, we controlled for participant sex and role (leader vs. staff member). We then compared the incremental variance explained by cognitive ability (over and above the set of personality variables) with the variance explained by the set of personality characteristics (over and above cognitive ability). For cooperative behavior, the set of personality variables explained 8% of the variance \( (p < .05) \) and cognitive ability explained 0%, regardless of the order of entry. For voice behavior, the set of personality characteristics explained 17\% \( (p < .05) \) of the variance and cognitive ability explained 0%, regardless of the order of entry. In these regressions, the beta weights for conscientiousness, extraversion, and agreeableness reached significance and were in the same direction as the zero-order correlations. The beta weights for neuroticism were not statistically significant, however, and this can most likely be attributed to the relatively strong relations with conscientiousness \( (r = -0.40) \). For task performance, cognitive ability explained 3\% of the variance \( (p < .05) \), and the personality characteristics explained 1\% (nonsignificant and nonsignificant beta weights), regardless of the order of entry.

Considering narrower personality dimensions. Some scholars have suggested that a better understanding of predictor-criterion relationships can be obtained by considering dimensions of personality that are narrower in scope than the Big Five personality dimensions (e.g., Schneider, Hough, & Dunnette, 1996). For example, Mount and Barrick (1995) demonstrated somewhat better predictions for the narrower dimensions when the predictor was a close conceptual match to the criterion (e.g., predicting employee reliability on the basis of dependability). Thus, in the hope of gaining insight into the reasons underlying the observed predictor-criterion relationships, we calculated scores for the six dimensions underlying each of the Big Five characteristics and correlated these scores with the two contextual performance criteria. The magnitude of the internal consistency reliabilities for the narrower dimensions averaged .67 for conscientiousness, .69 for extraversion, .68 for neuroticism, .65 for openness, and .64 for agreeableness.

As shown in column 1 of Table 3, three facets of conscientiousness (competence, achievement striving, and self-discipline) related to cooperative behavior. It is interesting to note that these three dimensions reflect the motivational aspect of conscientiousness rather than the dependability aspect of conscientiousness. That is, even though cooperation was higher for those who tend to be highly efficacious and driven to get things done, cooperation was not higher for those who tend to carry out assigned tasks in an orderly, methodical, and deliberate fashion. Three facets of agreeableness (trust, straightforwardness, and altruism) also were related to cooperative behavior. Whereas it makes sense that cooperative behavior would be higher for those who assume the best of others and who tend to go out of their way to help others, it is not clear why preference for cooperation and social harmony (as captured by compliance and tender-mindedness dimensions) would not be related to cooperative behavior. Cooperative behavior was also related to two dimensions of extraversion (warmth and activity). Those who tend to be energetic and take a personal interest in coworkers were more cooperative than are those who tend to be more lethargic and cold. Finally, cooperative behavior was lower for those who tend to be resentful and get angry and

<table>
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<th>Table 3</th>
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<tr>
<td>Facets of the Big Five characteristics</td>
<td>Cooperative behavior</td>
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<tr>
<td>Conscientiousness</td>
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<td>Competence</td>
<td>.14</td>
</tr>
<tr>
<td>Order</td>
<td>.10</td>
</tr>
<tr>
<td>Dutifulness</td>
<td>.08</td>
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<tr>
<td>Achievement striving</td>
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<tr>
<td>Warmth</td>
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<td>Positive emotions</td>
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<td>Neuroticism</td>
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<tr>
<td>Anxiety</td>
<td>-.03</td>
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<td>Angry hostility</td>
<td>-.15</td>
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<tr>
<td>Depression</td>
<td>-.08</td>
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<td>Self-consciousness</td>
<td>-.06</td>
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<tr>
<td>Impulsiveness</td>
<td>-.07</td>
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<tr>
<td>Vulnerability</td>
<td>-.09</td>
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<tr>
<td>Openness</td>
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<tr>
<td>Fantasy</td>
<td>-.05</td>
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<tr>
<td>Aesthetics</td>
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<tr>
<td>Feelings</td>
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<td>Actions</td>
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<td>Ideas</td>
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<tr>
<td>Values</td>
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<td>Agreeableness</td>
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<td>Trust</td>
<td>.18</td>
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<tr>
<td>Straightforwardness</td>
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<td>Altruism</td>
<td>.13</td>
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<tr>
<td>Compliance</td>
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<tr>
<td>Modesty</td>
<td>.08</td>
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<tr>
<td>Tender-mindedness</td>
<td>.09</td>
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Note. \( n = 276, \text{ } r_s \geq .12; \text{ } p < .05, \text{ } \text{two-tailed.} \)
disgusted with people they have to deal with (i.e., the angry hostility dimension of neuroticism).

In column 2 of Table 3, we show that voice was related to five of the six conscientiousness dimensions (competence, order, achievement striving, self-discipline, and deliberation) and all six of the extraversion dimensions (warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions). Thus, it appears that very little can be gained in understanding by considering the narrower facets of conscientiousness and extraversion when the criterion is voice. However, only two agreeableness dimensions and only one neuroticism dimension related to voice. The negative relationship between the compliance dimension of agreeableness and voice makes sense because compliance relates to following rules, being flexible, and not arguing with others. The negative relationships with the tender-mindedness dimension of agreeableness also makes sense because tender-minded people are more concerned about maintenance of social harmony than they are with maximizing task performance and economic outcomes. Finally, there is a negative relationship between the vulnerability dimension of neuroticism and voice that is consistent with the notion that voice is more likely for individuals who are decisive and cool headed and do not feel helpless and incapable of dealing with problems when they arise.

Finally, consistent with our general expectation for a relatively weak link between personality and task performance, column 3 of Table 2 shows that only two facets of personality were significantly related to task performance (order and angry hostility).

Discussion

Empirical research on contextual performance has focused primarily on cooperative behaviors such as interpersonal facilitation (Coleman & Borman, 1999). Original theoretical descriptions of contextual performance, however, covered a broader array of behaviors, including behaviors similar to voice. The results of our study not only replicate past research on cooperative forms of contextual performance, they also extend it by showing that voice should be included in the domain of behaviors studied by contextual performance researchers.

Effects of Personality Characteristics on Dimensions of Performance: Evidence of Bidirectionality

In our study, four of the Big Five personality variables were related to voice. As expected, conscientiousness and extraversion were positively related to voice, and neuroticism and agreeableness were negatively related to voice. This is consistent with Motorwido and colleagues’ theorizing because they specifically mentioned conscientiousness, extraversion, and agreeableness as three variables they presumed to be predictors of contextual performance (1997). Our results are also consistent with prior research reporting relations between these characteristics and cooperative forms of contextual performance (e.g., Hough, 1992; Mount et al., 1998; Organ & Ryan, 1995). A difference in our research on voice as a change-oriented form of contextual performance, however, is the negative relation with agreeableness.

The bidirectionality of agreeableness in terms of predicting cooperative and voice behaviors (a positive link between agreeableness and cooperative behavior and a negative link with voice behavior) has theoretical and practical relevance. The pattern of relationships not only helps distinguish cooperative behavior from voice behavior, it also supports arguments presented by Tett and associates (Tett, Jackson, Rothstein, & Reddon, 1999) that a trait can have a positive relation with some aspects of performance and a negative relation with other aspects of performance. Potential bidirectionality of personality traits (where a dimension of personality promotes one aspect of performance and, at the same time, detracts from another aspect of performance) is important because the contribution of different behaviors or dimensions of performance to overall performance varies from one context to another (Murphy & Shiarella, 1997). In some jobs (e.g., being a change agent or assuming responsibility for a reorganization), voice may be a key dimension of overall performance. In other jobs (e.g., highly interdependent jobs with emphasis on conformity to standards), cooperative behavior may be a key dimension of overall performance. Our results tentatively suggest that agreeableness may be equally important for predicting performance in both of these types of jobs, but that the direction of the effect may differ in a conceptually meaningful way. We note that this finding should be replicated in more naturalistic settings before it is used to influence managerial decisions.

In a more general sense, and consistent with the notion that performance is multidimensional, our results highlight the need to focus research attention on specific behaviors that contribute to organizational effectiveness in particular jobs, work groups, and organizations. We suggest that research on nontraditional or underrepresented behaviors (those that are different from conventional norms) is especially needed. For example, there is some evidence that behavior needed for effective decision-making performance in a rapidly changing task environment may be negatively related to conscientiousness (LePine, Colquitt, & Erez, 2000). Research of this type may facilitate identification of bidirectional effects while at the same time enriching our models of individual differences in personality characteristics and job performance. This does not imply that we recommend extreme situational specificity. Instead, we suggest that predictor-criterion relations depend on an understanding of the criterion of interest and the demands of the job. We view this as research with exciting potential because it suggests more complex predictive models that would enrich our view of individual differences in personality and various aspects of job performance.

Level of Breadth in the Measures of Personality

A priori, we felt that the breadth or bandwidth of the Big Five dimensions was consistent with the nature of the criteria. We based this on our understanding of the criteria and the predictors as well as past research linking personality characteristics at this general level of breadth to dimensions of contextual performance or citizenship behavior (Mount et al., 1998; Organ & Ryan, 1995). Although there is debate about this point (Hogan & Roberts, 1996), consideration of facets or narrower traits can lead to greater understanding of predictor-criterion relationships (Schneider et al., 1996). Our post hoc analysis suggested that most of the conscientiousness and extraversion facets predicted voice. For neuroticism and agreeableness, however, voice was predicted by a smaller number of facets. For cooperative behavior, the story was a bit different. Cooperative behavior was predicted by three dimensions
of conscientiousness (i.e., those related to dependability, but not achievement), three dimensions of agreeableness, two facets of extraversion, and one dimension of neuroticism. Overall, the results of this analysis suggest that it may be worthwhile to conduct future research focusing specifically on relationships between the narrower dimensions of the Big Five characteristics and some specific dimensions of contextual performance.

However, although the relationships noted above have the potential to provide insight into the mechanism by which the broader traits influence the criteria, three issues need to be kept in mind. First, this was an exploratory analysis, and therefore these results need to be confirmed using a study with a priori hypotheses that have a chance of being disconfirmed. Second, in almost all cases, the magnitudes of the statistically significant correlations were not much different from the magnitudes of the correlations that failed to reach significance. Thus, interpreting differences in relationships among facets of a broader trait should be done with great caution. Third, there were only a few cases where the magnitude of the correlation with a narrow facet was greater than the magnitude of the correlation with the broad trait. Certainly, lower reliability of the facets may stand as an explanation for this general pattern. However, researchers should carefully consider the merits of using narrower traits when a broader trait may be just as good relative to predicting a criterion. When there are likely to be differential relationships among the narrow facets across a number of important focal criteria (as there are in our data), parsimony may dictate the use of broad traits.

Limitations

The present research has limitations that need to be addressed by future studies. First, even though the laboratory allowed us to examine theoretical relationships in a controlled environment to see what can happen, it places limits on the generalizability of our findings in terms of what does happen in real work organizations (Mook, 1983). We note, however, that effect sizes are generally comparable for laboratory and field research designs across a broad range of psychological domains, including aggression, helping, leadership style, social loafing, self-efficacy, and depression (Anderson, Lindsay, & Bushman, 1999). Our laboratory study was no exception in that we found relationships for cooperative contextual performance similar in size to those found in field studies (e.g., Hough, 1992; Mount et al., 1998; Organ & Ryan, 1995). Nevertheless, we recommend additional research to develop an understanding of the generalizability of our results. As in most research in applied psychology, generalizability of results only becomes evident over replications with different subjects, settings, and time (Cook & Campbell, 1979; Dipboye & Flanagan, 1979).

Another limitation of our study is that, as in most studies where comparisons of relationships are made, we do not have norms regarding the distribution of the criteria in the population. Accordingly, we cannot assess the fairness of our comparisons with complete confidence (i.e., Hypotheses 10 and 11). We note, however, that the comparisons with correlations corrected for unreliability demonstrated the same pattern of relationships as the uncorrected correlations. Furthermore, even if there were distributional or procedural differences that disadvantaged one relationship relative to another, the general pattern of relationships would not change. This is because several of the comparisons consisted of correlations in the opposite direction and correcting for range restriction would only make the differences greater.

The short-term and temporary nature of the task and the groups is a boundary condition that may limit the generalizability of our findings. Over longer periods of time, individuals within groups may become more comfortable making suggestions to each other. Alternatively, over longer periods of time, routines may become so institutionalized that members are less likely to make suggestions for change. These are interesting issues for future research. Regarding the present study, however, there are many situations where groups of unfamiliar people come together as a temporary task force to make decisions over a relatively short span of time (e.g., juries, emergency task forces, special project groups, and military command and control teams).

Also, because our participants used computer-mediated communications, we do not know if the effects would be the same when communication is verbal and face to face. It is possible, for example, that certain types of individuals were not comfortable using computers to communicate, and thus did not engage in voice. It also is possible that other individuals felt more anonymous because of the computer communication and were more comfortable engaging in voice. Given the increasing use of internets and intranets in organizations, future research aimed at uncovering media effects on voice behavior might be worthwhile—as well as interesting.

Finally, given the nature of our study, we did not assess outcomes associated with voice in terms of long term contributions to group and organizational effectiveness. Whereas voice does appear to be of value to the group and organization, at least through the eyes of supervisors (Van Dyne & LePine, 1998), several factors may influence the ultimate effectiveness of voice. For example, voice effectiveness is likely to be influenced by an individual’s skill in executing voice behavior (i.e., timing, quality, and clarity) as well as their reputation, power, hierarchical position, and relationships with others in the group. Similarly, just as with cooperative behavior (e.g., Newsom & Schultz’s (1998) work on negative reactions to help), there may be situations where there are unintended negative consequences of voice. Future research is needed to identify these consequences and assess factors that influence the relationship between voice behavior and its effect on the group and organization.

Conclusion

Given the presence of interdependent work and dynamic pressures for change in organizations, employee initiative in contributing contextual performance is increasingly important to overall organizational effectiveness (Motowidlo & Schmit, 1999). We recommend that future research continue our efforts to examine potentially important but underrepresented forms of contextual performance such as voice.

References


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