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Measurement Artifacts in the Assessment of Counterproductive Work Behavior and Organizational Citizenship Behavior: Do We Know What We Think We Know?

Paul E. Spector and Jeremy A. Bauer
University of South Florida

Suzy Fox
Loyola University Chicago

An experiment investigated whether measurement features affected observed relationships between counterproductive work behavior (CWB) and organizational citizenship behavior (OCB) and their relationships with other variables. As expected, correlations between CWB and OCB were significantly higher with ratings of agreement rather than frequency of behavior, when OCB scale content overlapped with CWB than when it did not, and with supervisor rather than self-ratings. Relationships with job satisfaction and job stressors were inconsistent across conditions. We concluded that CWB and OCB are likely unrelated and not necessarily oppositely related to other variables. Researchers should avoid overlapping content in CWB and OCB scales and should use frequency formats to assess how often individuals engage in each form of behavior.

Keywords: counterproductive work behavior, CWB, organizational citizenship behavior, OCB

Counterproductive work behavior (CWB; behavior that harms) and organizational citizenship behavior (OCB; behavior that helps) are performance-related behaviors that have often been considered opposites (e.g., Rotundo & Sackett, 2002; Sackett, 2002). Evidence for this idea includes both observed strong negative relationships between the two forms of behavior (Berry, Ones, & Sackett, 2007, who operationalized CWB as deviance; Sackett, 2002) and opposite relationships with other variables, such as justice (Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001), job satisfaction, and positive affect (Dalal, 2005; Miles, Borman, Spector, & Fox, 2002). A recent meta-analysis by Dalal (2005) showed that methodological features of studies affected the strength of relationship between CWB and OCB. If the strong negative relationship between CWB and OCB can be shown to be a methodological artifact, it would suggest that we need to reexamine this area and perhaps develop new theories and ways of thinking about the causes and consequences of these two forms of behavior. As noted by Weitz (1961) decades ago, the nature of the criterion matters, and in our field, perhaps nothing matters more than understanding the connections among various aspects of performance-related behavior and how they relate to other variables. We conducted an experimental study that extends Dalal's work concerning measurement features that potentially affect CWB–OCB relationships with one another, as well as other variables.

Paul E. Spector and Jeremy A. Bauer, Department of Psychology, University of South Florida; Suzy Fox, Institute of Human Resources and Employment Relations, Loyola University Chicago.

Correspondence concerning this article should be addressed to Paul E. Spector, Department of Psychology, PCD 4118, University of South Florida, Tampa, FL 33620. E-mail: pspector@usf.edu

Dalal's (2005) Measurement Features That Affect CWB–OCB Correlations

Agreement Versus Frequency

Some studies of CWB and OCB used scales that asked for ratings of agreement with statements about the target person's behavior, whereas others used scales that asked raters to indicate frequency of specific behaviors. Dalal's (2005) meta-analytic results showed that agreement ratings resulted in stronger negative relationships between CWB and OCB than frequency ratings (mean $r = -.54$ vs. $-.23$, respectively).

Frequency ratings require that individuals recall and mentally calculate how often the individual engages in each behavior (Schwarz & Oyserman, 2001). The rating task itself focuses attention on how often specific acts occur. Scales that ask for agreement focus attention on whether or not the individual is likely to engage in the behavior and may assess attitude toward the behavior rather than whether the behavior occurred (Dalal, 2005). Thus agreement scales tap into halo and schemas, asking whether the person is the sort who engages in the behavior, rather than recalling instances of the behavior itself. It is assumed that the agree–disagree continuum reflects how often the person engages in the behavior, such that strong agreement implies more OCB than slight agreement, but this may not be correct. A single salient act of a given behavior might well lead to strong agreement because the rater is certain that the person has engaged in the behavior in the past, even if just on one occasion. It has been argued that agreement scales are appropriate primarily for the assessment of feelings (Fowler, 1995), so they would not be the best choice for determining how often behaviors might occur.

CWB and OCB would not be the only domain in which it has been shown that asking about specific instances of behavior can produce different results from other approaches. Research on structured interviews has shown that asking questions about spe-

cific prior behaviors yields better predictive validity than asking questions about what the person is likely to do (Taylor & Small, 2002), and these two question types tend to produce scores for supposedly common traits that are unrelated (Huffcutt, Weekley, Wiesner, Degroot, & Jones, 2001).

Item Overlap (Antithetical Items)

Many OCB instruments contain items that overlap with scales of CWB, either by including acts of CWB that are reversed scored (termed antithetical items by Dalal, 2005) or by including positively scored items that are the avoidance of CWB. Reverse-scored antithetical examples from established OCB scales include "Consumes a lot of time complaining about trivial matters" (Podsakoff, MacKenzie, Moorman, & Fetter, 1990), "takes undeserved breaks" (Smith, Organ, & Near, 1983), "conducts personal business on company time" (Farh, Earley, & Lin, 1997), and "takes undeserved work breaks" (L. J. Williams & Anderson, 1991). These items can be compared to items from scales that assess CWB or closely related behaviors, such as "Taken an additional or longer break than is acceptable in your workplace" (Bennett & Robinson, 2000), "taken a longer break than you were allowed to" (Spector et al., 2006), "Complained about insignificant things at work" (Fox & Spector, 1999), and "I used working time for private affairs" (Marcus, Schuler, Quell, & Humpfer, 2002). OCB items that reflect avoidance of CWB concern attendance, such as "rarely misses work even when he/she has a legitimate reason for doing so" (Moorman & Blakely, 1995) and "Does not take unnecessary time off work" (Smith et al., 1983), whereas others, such as "Does not abuse the rights of others" (Podsakoff et al., 1990), concern avoiding CWB directed toward people.

The problem that overlapping scale content presents for drawing inferences about construct relationships has been noted in a number of domains, including personality (Nicholls, Licht, & Pearl, 1982) and job stress (Fineman & Payne, 1981). Not surprisingly, Dalal (2005) found that the inclusion of antithetical items resulted in larger correlations between CWB and OCB (mean $r = -.54$) than did the exclusion of such items (mean $r = -.16$).

Supervisor Versus Self-Ratings

Dalal's (2005) meta-analysis showed that larger negative correlations between CWB and OCB occurred for supervisor ratings (mean $r = -.60$) than for self-ratings (mean $r = -.12$). He pointed out that the use of supervisors as raters may have produced inflated relationships due to halo, implicit theories, and other biases. Furthermore, it is in an employee's best interest to make OCB public and keep CWB hidden, so supervisors might not have equally accurate information about both forms of behavior. In contrast the individual employee is in the best position to know about all the CWB and OCB he or she has performed. This is particularly true for behaviors that are not done publicly, such as taking work home to finish it on one's own time (OCB) or purposely doing work incorrectly (CWB).

Vandenberg, Lance, and Taylor (2005) found, with regard to OCB, that supervisor ratings failed to fit the researchers' a priori dimensions that were well fit by the incumbent's own self-ratings. It may be a general phenomenon that incumbents show better discriminant validity (and perhaps better accuracy) among measures of different aspects of their jobs than do other sources, including supervisors (e.g., studies of job characteristics; Glick, Jenkins, & Gupta, 1986; Spector, Fox, & Van Katwyk, 1999).

Why CWB and OCB Might Not Be Strongly Related

A strong negative relationship between CWB and OCB implies that these behaviors are manifestations of personality and that individuals tend to be either harmful or helpful people. There are reasons to doubt this inference and to consider that the same person might engage in both forms of behavior. As Fleeson (2001, 2004) noted in his distribution of states principle, all people can exhibit manifestations of all personality traits, depending upon environmental demands. Trait activation theory similarly suggests that traits are expressed only in response to trait-relevant cues (Tett & Burnett, 2003; Tett & Guterman, 2000), such that exposure to a variety of cues might result in both forms of behavior in the same individuals over time. Spector and Fox (2010) presented an attribution theory of how CWB and OCB can occur together. They noted that OCB-eliciting situations, such as having to compensate for a low-performing coworker, can lead to subsequent CWB, such as being nasty to said coworker. This idea that the same individual might engage in both forms of behavior over relatively short periods of time has been demonstrated in both work settings (Dalal, Lam, Weiss, Welch, & Hulin, 2009) and nonwork settings (Venkataramani & Dalal, 2007).

Relationships of CWB and OCB With Other Variables

Many studies have shown that CWB and OCB correlate oppositely with other variables. Such results can be seen by combining results across various meta-analyses of CWB and related constructs (e.g., Dalal, 2005; Hershcovis et al., 2007) and OCB (Dalal, 2005; LePine, Erez, & Johnson, 2002; Organ & Ryan, 1995). Although opposite patterns of relationships may be consistent with some variables, such as job satisfaction, a careful examination of the literature suggests that the contrast between CWB and OCB relationships with other variables may not be consistent. There are at least two studies that found similar correlations of CWB and OCB with job stressors of interpersonal conflict, organizational constraints (Fox, Spector, Bruursema, Kessler, & Goh, 2007; Miles et al., 2002) and workload (Miles et al., 2002). Both studies used frequency response, no antithetical items, and self-reports, thus making it impossible to know if it was the variables chosen or measurement features that produced these unexpected results.

The Current Study

The results of Dalal's (2005) meta-analysis clearly suggest that assumptions about CWB and OCB need reexamination. Our purpose was to replicate his results while addressing two limitations that were inherent in the meta-analytic method and to extend his findings. As Dalal noted, his three measurement features tended to be confounded across studies. For example, studies that used the popular Podsakoff et al. (1990) OCB scale in its original form would have included antithetical items with agreement format. Thus there were not enough available studies that had all possible combinations of the three features for Dalal to investigate their independent effects (Dalal, 2005). Second, a limitation of meta-

analysis is that a given variable of interest can be confounded with a host of other differences across studies, including the industries and occupations sampled and the procedures used. An experimental study could isolate the effects of each of the measurement features, while controlling the population sampled.

We conducted just such an experimental study in which the three measurement features of response format (agreement or frequency), antithetical and overlapping items (with or without), and rater source (self or supervisor) were independent variables. The eight possible combinations of the three independent variables were produced. A questionnaire was developed that contained one measure of CWB and two measures of OCB, one with antithetical items and one without. We also examined subscales of an established OCB scale that varied in content overlap with CWB. To address the response format feature, we had one form of the questionnaire use agreement format for all three CWB and OCB scales and the other use frequency format, with the form being randomly assigned to respondents. Parallel instruments were completed independently by employees and their supervisors.

Given Dalal's (2005) findings, we hypothesized that each of the three features would affect the size of correlation between CWB and OCB. In particular,

> *Hypothesis 1:* Agreement format will result in a stronger negative correlation between CWB and OCB than will frequency format.
>
> *Hypothesis 2:* The OCB scale with antithetical items will have a stronger negative correlation with CWB than will the OCB scale without antithetical items.
>
> *Hypothesis 3:* Supervisors will have stronger negative CWB–OCB correlations than will employees.

We extended Dalal's (2005) study by including four potential antecedents of CWB and OCB: job satisfaction and three job stressors (interpersonal conflict, organizational constraints, and workload). Although there have been empirical studies relating all four variables to CWB and OCB, there is no solid basis for hypotheses across our eight measurement conditions. Therefore, we included as a research question whether or not we would find differences across conditions in the relative relationships of CWB and OCB with these four variables.

> *Research question:* Will CWB and OCB have opposite relationships with each of the four potential antecedents (job satisfaction, interpersonal conflict, organizational constraints, and workload) across all eight measurement conditions?

Method

Participants

Participants were 259 employees and their supervisors recruited from classes at a large public university in the southeastern United States. This university is located in an urban setting; the student population is employed, with many students in full-time permanent positions, and is older than traditional college age. The mean age of those sampled was 21.9 years ($SD = 5.6$, range 18–48). The majority (73%) of the employees were female. Participants were recruited from classes in a wide range of disciplines (i.e., psychology, business, public health, engineering, and computer sciences). A total of 274 employee–supervisor dyads returned questionnaires, but 15 of these were discarded due to missing data.

Measures

CWB. A 10-item version (5 items targeting the organization and 5 targeting people) of the Counterproductive Work Behavior Checklist (CWB-C; Spector et al., 2006) measured CWB. A total score was computed for our purposes. The internal consistency (coefficient alpha) of the CWB-C in the current sample averaged .78 for the two employee forms (agreement and frequency) and averaged .89 for the two supervisor forms.

OCB. Two scales measured OCB. One was a 10-item version of the Organizational Citizenship Behavior Checklist (OCB-C; Fox et al., 2007), a scale specifically designed to avoid antithetical items. The items were based on critical incidents of OCB provided by employed individuals who were given a definition of OCB and then were asked to generate examples. The OCB-C had a mean coefficient alpha of .80 for the two employee forms and of .86 for the supervisor forms. The other OCB scale consisted of the five-item Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) OCB scale (OCB-Pods). The Altruism scale contains items that clearly do not overlap with CWB, such as "Helps others who have heavy workloads" and "Helps others who have been absent." Sportsmanship consists entirely of antithetical items that are reverse scored, such as "Is the classic 'squeaky wheel' that always needs greasing" and "Consumes a lot of time complaining about trivial matters." The remaining subscales contain content that is stated in a positive direction but that overlaps with CWB (e.g., "Does not take extra breaks," from the Conscientiousness subscale, and "Does not abuse the rights of others," from the Courtesy subscale). The four-item Civic Virtue subscale was not included because some of the items might not be relevant to some of the entry-level jobs of our sample. The total 20-item measure yielded a mean coefficient alpha of .83 for employees and of .91 for supervisors.

All of the scales we used to measure CWB and OCB used 5-point summated rating scales, regardless of specific response choices. Depending on the condition, participants received either a frequency response format ranging from "Never" to "Every day" or an agree/disagree response format ranging from "Strongly disagree" to "Strongly agree." Higher scores on all of the scales indicate higher ratings on the behavior of interest.

Job satisfaction. Job satisfaction was assessed with the three-item General Satisfaction scale from the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1979). The scale contains two positively worded items and one negatively worded, reverse scaled item. Response choices ranged from 1 (*strongly disagree*) to 6 (*strongly agree*), with high scores indicating high satisfaction. The coefficient alpha for the scale was .88.

Job stressors. Three scales assessed the job stressors of organizational constraints (Organizational Constraints Scale), interpersonal conflict (Interpersonal Conflict at Work Scale), and workload (Quantitative Workload Scale; Spector & Jex, 1998). The 11 items of the Organizational Constraints Scale each refer to an aspect of the workplace that would interfere with job performance,

such as inadequate materials and supplies. Respondents are asked to indicate how often they have difficulty doing their jobs because of each constraint. The coefficient alpha in the current study was .89. The Interpersonal Conflict at Work Scale consists of four items that ask how often the respondent has had conflicts with others at work. The coefficient alpha in the current study was .77. The Quantitative Workload Scale contains five items that ask about the frequency of heavy workload demands on the job. Coefficient alpha was .79. All three stressor scales use the same 5-point frequency response choices as do the CWB and OCB scales. High scores in all cases indicate high levels of stressors.

Procedure

To recruit participants, the second author visited university classes and gave a short presentation about the study's purpose, requirement of employment, and instructions. Potential participants received an employee survey for themselves, one for their supervisor, and two self-addressed permit-return envelopes. All surveys contained both OCB scales, so that the antithetical conditions (had antitheticals vs. did not have antitheticals) were within subjects. We chose within subjects so that we could compute correlations among the various OCB scales that varied in overlapping content. The type of survey response format (agreement vs. frequency) was randomly assigned to the participants. There were 119 completed pairs in the agreement condition and 140 in the frequency condition. The supervisor surveys contained the same CWB and OCB scales as did the employee surveys, but instructions indicated that responses were about their subordinate. The wording of some OCB items was slightly different between the employee and supervisor versions in terms of the reference being self or subordinate. The cover letter of the surveys instructed participants to write the same secret code in a space on both survey forms to allow later matching and maintain anonymity. Employees were to complete their own survey and give the supervisor survey to their supervisors. The employee questionnaire required approximately ten minutes to complete, and the supervisor questionnaire required approximately five minutes to complete. The surveys were shipped back separately to the second author through regular postal mail to minimize the possibility of collaboration.

Results

Descriptive statistics (means, standard deviations, observed and possible ranges) and coefficient alphas as measures of internal consistency reliability are given in Table 1. The variables are listed separately for the agreement (top) and frequency (bottom) format conditions. One finding of note is that the reliabilities for the supervisor ratings were higher than those for the employee ratings in all but one (frequency ratings of Courtesy) of 28 cases.

Convergence Between Employee and Supervisor Ratings

Table 2 contains the correlations among the CWB and OCB measures. The bolded entries are correlations between corresponding employee and supervisor ratings. The table shows that the convergence between the two sources is higher in the frequency than the agreement condition in all cases, although z tests for independent correlation comparisons failed to reach significance for any pair.

Tests of Hypotheses

We conducted two sets of comparisons to test the hypotheses. In the first, we compared the OCB-Pods with the OCB-C, and in the second we compared two subscales of the OCB-Pods, Sportsmanship, which contained antithetical items, and Altruism, which did not.

Hypothesis 1 stated that correlations between CWB and OCB would be more negatively correlated in the agreement condition than the frequency condition. It can be seen at the top of Table 3 that in seven cases, agreement formats yielded larger negative correlations than frequency, with five of the seven comparisons statistically significant according to z tests for independent correlations. In one case agreement had a correlation of zero, whereas frequency had a significant correlation of .21, but these two were not significantly different from one another.

Support for Hypothesis 2 that the inclusion of antithetical items would result in stronger CWB–OCB negative correlations was found in all cases, as shown in the middle of Table 3. Hotelling t tests for dependent correlations with Williams' correction (E. J. Williams, 1959) were significant for all eight comparisons. In addition we computed correlations between CWB and OCB, beginning with the Altruism scale, and adding one antithetical item (there were 5) or overlapping item (there were 3) sequentially for all four Format $\times$ Source conditions. The CWB–OCB correlation was a linear function of number of overlapping items, with the correlation increasing at each step in 29 of 32 cases.

The third hypothesis was that supervisor ratings would result in larger negative CWB–OCB correlations than would employee ratings. The hypothesis was supported in all agreement cases; supervisor correlations were significantly more negative (z test). For frequency conditions, only one case yielded significantly different correlations, but it did so in a direction opposite to expectations (positive for employees). For the other frequency conditions, results were in the expected direction, but differences were not significant. Given that supervisor ratings had better internal consistencies than the employee ratings, we adjusted the correlations in Table 3 for attenuation to see if differential reliability could account for the greater correlations for supervisors. We found little difference when comparing employees with supervisors with nondisattentuated versus disattenuated correlations (mean change in differences in correlation between sources on corresponding variables was .001). This allowed us to rule out differential reliability as an explanation.

We tested for interactions among the three measurement features in their effects on the magnitude of correlations between CWB and OCB using moderated multiple regression analysis, with CWB as the criterion and OCB as a predictor, along with the three measurement features and all possible two-way, three-way, and four-way interaction terms.[1] The three-way and four-way interactions that included OCB reflect interactions among the features. Only one such term was significant, showing a significant interaction of antitheticals with source. Figure 1 shows that the effects

[1] We thank an anonymous reviewer for suggesting this analysis.

Table 1
Descriptive Statistics (Means, Standard Deviations, Ranges and Internal Consistencies)

Variable	*M*	*SD*	Observed range	Possible range	Coefficient alpha
Agreement (n = 119)					
CWB-C	20.2	7.0	10–36	10–50	.81
OCB-Pods	82.5	8.9	58–98	20–100	.85
OCB-C	38.5	6.2	18–50	10–50	.82
Altruism	20.4	2.8	11–25	5–25	.77
Sportsmanship	20.8	3.3	10–25	5–25	.78
Courtesy	21.3	3.1	5–25	5–25	.84
Conscientiousness	20.0	3.4	10–25	5–25	.74
CWB-C, supervisor	16.9	6.7	10–34	10–50	.90
OCB-Pods, supervisor	83.4	11.2	51–100	20–100	.93
OCB-C, supervisor	38.4	7.2	14–50	10–50	.89
Altruism, supervisor	20.5	3.2	10–25	5–25	.87
Sportsmanship, supervisor	21.1	3.6	12–25	5–25	.82
Courtesy, supervisor	21.1	3.2	10–25	5–25	.87
Conscientiousness, supervisor	20.7	3.5	10–25	5–25	.82
Interpersonal conflict	6.1	2.7	4–15	4–20	.77
Organizational constraints	22.2	8.4	11–54	11–55	.89
Workload	16.3	4.5	6–25	5–25	.79
Job satisfaction	14.8	3.5	3–18	3–18	.88
Frequency (n = 140)					
CWB-C	16.6	5.2	10–34	10–50	.79
OCB-Pods	80.7	8.6	49–96	20–100	.76
OCB-C	29.1	7.3	12–47	10–50	.84
Altruism	16.8	4.1	7–25	5–25	.80
Sportsmanship	21.6	3.1	10–25	5–25	.69
Courtesy	22.4	3.5	8–25	5–25	.84
Conscientiousness	19.8	3.6	8–25	5–25	.59
CWB-C, supervisor	13.4	5.3	10–43	10–50	.89
OCB-Pods, supervisor	83.3	12.0	45–100	20–100	.88
OCB-C, supervisor	30.4	8.7	11–50	10–50	.89
Altruism, supervisor	18.4	4.8	6–25	5–25	.87
Sportsmanship, supervisor	22.7	3.3	9–25	5–25	.83
Courtesy, supervisor	21.6	4.3	6–25	5–25	.82
Conscientiousness, supervisor	20.7	4.4	7–25	5–25	.76
Interpersonal conflict	6.1	2.6	4–15	4–20	.74
Organizational constraints	20.5	7.9	11–44	11–55	.88
Workload	15.9	4.8	5–25	5–25	.81
Job satisfaction	15.1	3.1	5–18	3–18	.86

Note. CWB-C = Counterproductive Work Behavior Checklist; OCB-Pods = Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) Organizational Citizenship Behavior Scale; OCB-C = Organizational Citizenship Behavior Checklist.

of antithetical items (represented on the horizontal axis) had a bigger impact (lines are steeper) on correlations (vertical axis) for employees than for supervisors.

CWB and OCB Correlations With Other Variables

Our research question is addressed in Table 4, which contrasts correlations of CWB and OCB with four potential antecedent variables across conditions. Relationships of job satisfaction with CWB and the OCB scales with antithetical items correlated significantly and oppositely in three of four cases (all but agreement with supervisors). The OCB-C, which contains no antithetical items, failed to correlate with job satisfaction in any of the conditions. Comparison of subscales of the OCB-Pods shows that the Altruism scale, which contains no antithetical items, correlated less often than the Sportsmanship subscale, which does contain antitheticals. Patterns of results for interpersonal conflict and organizational constraints were similar. Both correlated significantly positively with CWB and significantly negatively with OCB-Pods with antithetical items. Correlations with OCB-C that did not contain antithetical items were positive, although there were no significant relationships with the agreement format. For the subscales of the OCB-Pods, Altruism, which contains no antitheticals, did not correlate significantly with these job stressors, whereas Sportsmanship, which contains antitheticals, correlated negatively. The patterns were quite different for workload, as it correlated positively with the CWB-C and OCB-C in half the cases. For the OCB-Pods, when the overall and subscale scores were included, four of 10 of the frequency format conditions were significantly positively related to workload, but none of the agreement conditions were significant.

Factor Structure of CWB and OCB Scales Across Conditions

In order to determine the effects of response format and rating source on factor structure of the CWB and two OCB scales, we ran a series of covariance homogeneity tests, considered the most

Table 2
Multitrait, Multimethod Matrix of CWB and OCB Measures by Employee Versus Supervisor Sources

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Employee														
1. CWB-C	—	−.00	−.57*	−.24*	−.56*	−.34*	−.44*	**.42***	−.14	−.24*	−.16	−.23*	−.15	−.24*
2. OCB-C	.21*	—	.43*	.60*	.17	.05	.41*	−.14	**.33***	.16	.11	.12	.13	.17
3. OCB-Pods	−.37*	.35*	—	.66*	.66*	.70*	.79*	−.33*	.24*	**.33***	.24*	.34*	.20*	.32*
4. Altruism	.01	.58*	.69*	—	.17	.34*	.43*	−.20*	.29*	.23*	**.28***	.19*	.09	.20*
5. Sportsmanship	−.51*	−.13	.36*	.00	—	.25*	.38*	−.28*	.13	.26*	.12	**.31***	.23*	.19
6. Courtesy	−.36*	.06	.69*	.20*	.18*	—	.39*	−.20*	−.02	.15	.07	.21*	**.04**	.16*
7. Conscientiousness	−.12	.23*	.63*	.31*	−.17*	.32*	—	−.26*	.28*	.30*	.21*	.22*	.21*	**.33***
Supervisor														
8. CWB-C	**.48***	.06	−.20*	.09	−.37*	−.25*	−.02	—	−.42*	−.75*	−.49*	−.71*	−.61*	−.64*
9. OCB-C	.08	**.51***	.23*	.29*	−.07	.10	.16	.01	—	.66*	.68*	.37*	.53*	.61*
10. OCB-Pods	−.21*	.22*	**.46***	.20*	.19*	.32*	.40*	−.46*	.49*	—	.73*	.45*	.78*	.85*
11. Altruism	−.04	.37*	.40*	**.38***	.02	.21*	.31*	−.12	.73*	.81*	—	.52*	.61*	.58*
12. Sportsmanship	−.26*	−.11	.23*	−.10	**.43***	.23*	.06	−.60*	−.19*	.81*	.02	—	.57*	.46*
13. Courtesy	−.28*	.09	.32*	.11	.17	**.27***	.24*	−.39*	.27*	.85*	.37*	.28*	—	.64*
14. Conscientiousness	−.07	.18*	.31*	.09	.01	.20*	**.45***	−.28*	.40*	.81*	.51*	.16	.53*	—

Note. Agreement condition is above the main diagonal; frequency condition is below the main diagonal. Bolded entries are correlations between corresponding employee and supervisor ratings. CWB-C = Counterproductive Work Behavior Checklist; OCB-Pods = Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) Organizational Citizenship Behavior Scale; OCB-C = Organizational Citizenship Behavior Checklist.
* $p < .05$.

stringent way of determining factor equivalence (Riordan & Vandenberg, 1994), using LISREL 8 (Jöreskog & Sörbom, 1992). We did one set of analyses comparing the agreement with the frequency formats for each of the three measures for employees and supervisors separately. We then did a set of analyses comparing employee with supervisor ratings for agreement and frequency formats separately (see Table 5). For all three scales, agreement and frequency covariance matrices showed at best borderline fit, with most fit indices falling outside generally accepted standards (i.e., below .08 for root mean square error of approximation and above .90 for normed fit index, comparative fit index, and incremental fit index, Spector, 2001). Comparisons of employee and supervisor sources showed similar borderline fit for the CWB-C but acceptable fit for the OCB-Pods and OCB-C for both agreement and frequency formats. This suggests that format has a more serious impact than rating source on the internal factor structure of these scales.

Discussion

Our findings are consistent with Dalal's (2005) in suggesting that many relationships between CWB and OCB reported in the literature might have been distorted by measurement features. We conclude that if measurement features are properly controlled, CWB and OCB are likely not opposites and that individuals who perform one form of behavior do not necessarily avoid the other. These findings have important implications for the assessment of these variables, as well as for theories concerning antecedents and consequences of OCB in particular, as most studies seem to use OCB scales with CWB content (antithetical and overlapping items), as well as agreement formats. For example, some have argued that job satisfaction is more strongly related to OCB than is job performance (e.g., Organ & Ryan, 1995), perhaps because the former is more under discretionary control of the employee. Such a conclusion might not be correct.

Our results suggest that antithetical item content had the biggest impact on correlations (see Table 3). Furthermore, we computed the mean of the differences between corresponding conditions shown in Table 3. The antithetical condition showed the largest mean difference in correlations across all comparisons (mean *r* difference = .44); by comparison, response format and rater source had a mean *r* difference of .24 and .19, respectively. The correlations of CWB and OCB in the presence of antitheticals ranged from −.37 to −.75, with a mean of −.57, which is halfway between Dalal's (2005) −.54 estimate for studies with antitheticals and Sackett's (2002) overall −.60 estimate. For the no antithetical conditions the range of correlations was −.49 to .21 with a mean of −.13, which is quite close to Dalal's (2005) corresponding mean of −.16.

Beyond the potential distortion of observed relationships, the decision to include or exclude antithetical items goes to the definition of the OCB construct itself. OCB has been conceptualized as behavior that goes beyond the core task requirements of a job and that supports the psychological and social context of organizations (Borman & Motowidlo, 1997; Organ, 1997). Such behaviors are proactive acts that might help others or the organization. The absence of negative behaviors reflected in antithetical items does not seem to reflect contemporary definitions of OCB. Such items should not continue to be included in OCB scales.

The next most serious measurement issue is the use of agreement rather than frequency formats. Again, our results were quite consistent with Dalal's (2005) in showing that correlations between CWB and OCB were in almost all comparisons larger with agreement than with frequency. Supervisor ratings produced larger CWB–OCB correlations than did employee self-ratings, suggest-

Table 3
Comparison of Correlations Between CWB and OCB to Test Hypotheses 1–3

OCB scale	Condition	Condition	Agreement	Frequency	Correlation comparison
OCB-Pods	Antithetical	Employee	−.57*	−.37*	*
OCB-C	No antithetical	Employee	−.00	.21*	ns
OCB-Pods	Antithetical	Supervisor	−.75*	−.46*	*
OCB-C	No antithetical	Supervisor	−.42*	−.01	*
Sportsmanship	Antithetical	Employee	−.56*	−.51*	ns
Altruism	No antithetical	Employee	−.24*	.01	*
Sportsmanship	Antithetical	Supervisor	−.71*	−.60*	ns
Altruism	No antithetical	Supervisor	−.49*	−.12	*
			Antithetical	No antithetical	
OCB-C and OCB-Pods	Agreement	Employee	−.57*	−.00	*
OCB-C and OCB-Pods	Frequency	Employee	−.37*	.21*	*
OCB-C and OCB-Pods	Agreement	Supervisor	−.75*	−.42*	*
OCB-C and OCB-Pods	Frequency	Supervisor	−.46*	.01	*
Altruism and Sportsmanship	Agreement	Employee	−.56*	−.24*	*
Altruism and Sportsmanship	Frequency	Employee	−.51*	.01	*
Altruism and Sportsmanship	Agreement	Supervisor	−.71*	−.49*	*
Altruism and Sportsmanship	Frequency	Supervisor	−.60*	−.12	*
			Employee	Supervisor	
OCB-Pods	Antithetical	Agreement	−.57*	−.75*	*
OCB-C	No antithetical	Agreement	−.00	−.42*	*
OCB-Pods	Antithetical	Frequency	−.37*	−.46*	ns
OCB-C	No antithetical	Frequency	.21*	.01	*
Sportsmanship	Antithetical	Agreement	−.56*	−.71*	*
Altruism	No antithetical	Agreement	−.24*	−.49*	*
Sportsmanship	Antithetical	Frequency	−.51*	−.60*	ns
Altruism	No antithetical	Frequency	.01	−.12	ns

Note. $n = 119$ for Agreement and 140 for Frequency. OCB-Pods = Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) Organizational Citizenship Behavior Scale; OCB-C = Organizational Citizenship Behavior Checklist. ns = nonsignificant.
* $p < .05$.

ing that supervisors are unable to make as fine discriminations as employees themselves.

Perhaps an even more important issue than the correlation between CWB and OCB is whether or not these measurement features affect relationships with other variables. We explored the extent to which correlations with four potential antecedents were opposite in sign for CWB and OCB. For job satisfaction, our results supported prior findings of negative relationships with the CWB-C and positive relationships for the widely used OCB-Pods. However, for the OCB-C, which contained no antitheticals, there was no significant relationship at all, and for the OCB-Pods Altruism scale, which contained to antitheticals, only 1 of 4 correlations was significant. These results suggest that the observed relationships in prior studies between OCB and job satisfaction are quite possibly due to the confounding of OCB with CWB.

Results with job stressors also show effects of measurement features. For CWB, frequency formats and employee ratings tend to produce the strongest and most consistent correlations. For OCB, correlations were inconsistent across conditions for most cases. For example, as shown in Table 4, organizational constraints and interpersonal conflict correlate negatively with the OCB frequency format scale with antitheticals but positively with the OCB frequency scale without antitheticals. We see a similar pattern when comparing the Sportsmanship subscale with the Altruism subscale.

Limitations and Conclusions

One potential limitation to our study is the population that we studied. Five of the same scales, however, were used in an earlier study by Fox et al. (2007) with a nonuniversity sample. Of six comparisons between the current and Fox et al. studies, only two corresponding correlations were significantly different, based on a z test for independent correlations, although both samples had significant correlations in the same direction. These comparisons cast doubt that our results would not generalize to a broader working population.

Another issue to consider is whether antithetical items are a problem or if they are an integral part of the OCB construct. Indeed, the conception of OCB has evolved from Organ and colleagues' original idea of discretionary and unrewarded behavior that contributes to organizational effectiveness (Smith et al., 1983). Contemporary definitions are perhaps best reflected in Borman and Motowidlo's (1997) idea of contextual performance that Organ (1997) has himself endorsed more recently. The common thread through this literature is that OCB is behavior that supports organizational functioning distinct from

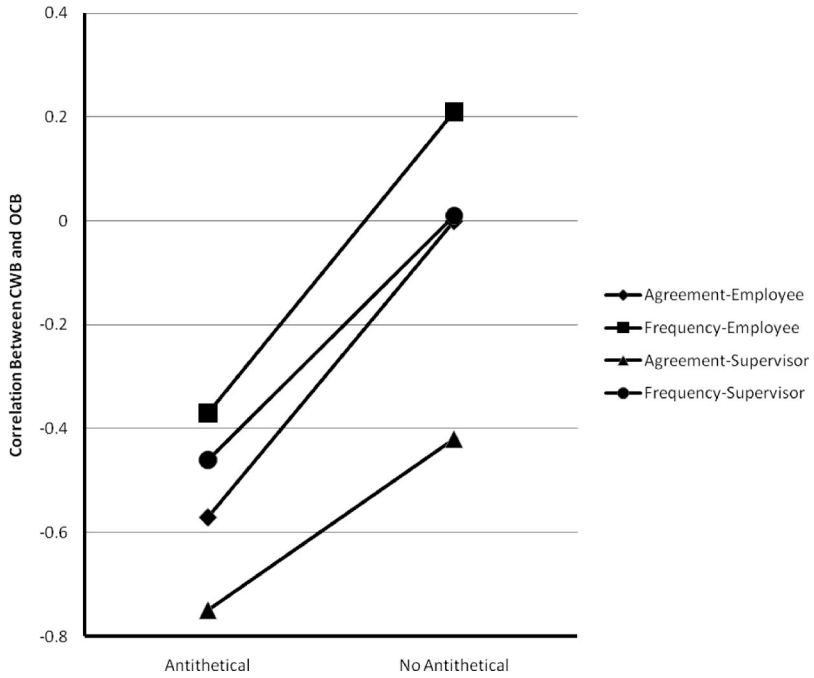

Figure 1. Correlations between CWB and OCB as a function of measurement conditions. CWB = counterproductive work behavior; OCB = organizational citizenship behavior.

required task performance. It is clearly distinct from CWB, which is behavior that harms organizations. It is difficult to justify considering low levels of CWB or the avoidance of CWB to be OCB.

We conclude that there is little relationship between CWB and OCB and that many reported findings have been distorted by measurement issues. This problem has been more severe in the assessment of OCB than of CWB, in that CWB researchers have been more careful to avoid OCB content and tend to use frequency formats. We strongly recommend that researchers who study either of these behaviors avoid antithetical items and overlapping content and use a frequency format. This will minimize the confounding between these two distinct forms of behavior and will assess the frequency of occurrence, at least to the extent that individuals are able to accurately recall behaviors. Our results add to a growing literature that challenges the assumption that CWB and OCB tend to be committed by different people and that they relate oppositely to potential

Table 4
Correlations of CWB and OCB With Job Satisfaction and Job Stressors

Scale	Condition	Job satisfaction, employee	Job satisfaction, supervisor	Conflict, employee	Conflict, supervisor	Constraints, employee	Constraints, supervisor	Workload, employee	Workload, supervisor
CWB-C	Agreement	−.27*	.01	.46*	.39*	.45*	.11	.30*	.07
OCB-C	Agreement	.11	.05	.01	−.15	.17	.07	.31*	.08
OCB-Pods	Agreement	.31*	−.00	−.28*	−.31*	−.26*	−.08	−.01	−.05
Altruism	Agreement	.14	−.04	−.10	−.13	.04	−.07	.14	−.05
Courtesy	Agreement	.09	−.01	−.13	−.36*	−.11	−.07	−.02	−.10
Conscientiousness	Agreement	.28*	.05	−.15	−.30*	−.10	−.03	.03	.01
Sportsmanship	Agreement	.33*	−.01	−.39*	−.24*	−.52*	−.10	−.15	−.02
CWB-C	Frequency	−.35*	−.32*	.58*	.37*	.58*	.30*	.23*	.13
OCB-C	Frequency	.05	.04	.24*	.13	.23*	.01	.31*	.15
OCB-Pods	Frequency	.30*	.38*	−.24*	−.18*	−.19*	−.19*	.29*	.05
Altruism	Frequency	.06	.18*	.16	−.05	.08	−.03	.31*	.09
Courtesy	Frequency	.24*	.34*	−.36*	−.18*	−.20*	−.22*	.20*	.01
Conscientiousness	Frequency	.17*	.25*	−.11	−.06	.01	−.05	.25*	.10
Sportsmanship	Frequency	.28*	.32*	−.34*	−.27*	−.45*	−.28*	−.13	−.09

Note. Conflict = interpersonal conflict; Constraints = organizational constraints; CWB-C = Counterproductive Work Behavior Checklist; OCB-C = Organizational Citizenship Behavior Checklist; OCB-Pods = Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) Organizational Citizenship Behavior Scale.
* $p < .05$.

Table 5
Covariance Matrix Homogeneity Tests of CWB-C, OCB-C, and OCB-Pods Factor Structure

Scale	Comparison	Condition	χ^2	RMSEA	NFI	CFI	IFI
CWB-C	Agreement vs. frequency	Employee	183.1	.12	.84	.88	.88
CWB-C	Agreement vs. frequency	Supervisor	184.7	.12	.93	.95	.95
CWB-C	Employee vs. supervisor	Agreement	214.3	.14	.89	.91	.91
CWB-C	Employee vs. supervisor	Frequency	255.3	.14	.88	.90	.91
OCB-C	Agreement vs. frequency	Employee	162.0	.11	.88	.92	.92
OCB-C	Agreement vs. frequency	Supervisor	134.5	.10	.94	.96	.96
OCB-C	Employee vs. supervisor	Agreement	99.6	.076	.94	.97	.97
OCB-C	Employee vs. supervisor	Frequency	69.7	.039	.97	.99	.99
OCB-Pods	Agreement vs. frequency	Employee	506.0	.089	.82	.88	.89
OCB-Pods	Agreement vs. frequency	Supervisor	615.0	.10	.90	.93	.93
OCB-Pods	Employee vs. supervisor	Agreement	310.0	.050	.95	.98	.98
OCB-Pods	Employee vs. supervisor	Frequency	325.7	.051	.92	.97	.97

Note. RMSEA = root mean square error of approximation; NFI = normed fit index; CFI = comparative fit index; IFI = incremental fit index; CWB-C = Counterproductive Work Behavior Checklist; OCB-C = Organizational Citizenship Behavior Checklist; OCB-Pods = Altruism, Conscientiousness, Sportsmanship, and Courtesy subscales of the Podsakoff et al. (1990) Organizational Citizenship Behavior Scale.

antecedents and consequences. Recent research and thinking about CWB and OCB suggests that things are more complex than the rather simple idea that CWB is harmful and is done by harmful people and OCB is helpful and is done by helpful people. This line of research has shown us that in this domain, we do not necessarily know what we think we know.

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