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Predicting counterproductive work behavior (CWB) in the selection process can be difficult because the behaviors of interest are transparently negative. The current study tried to combat this by applying a non-transparent, implicit measurement method, conditional reasoning. The results indicated that conditional reasoning accurately predicted CWBs even after controlling for Conscientiousness.

Workplace deviance, otherwise known as counterproductive work behavior (CWB), in its various forms is both an expensive and pervasive problem for organizations. Estimates of the cost of deviant employee behavior, including theft, fraud, vandalism, and sabotage typically run upwards of \$200 billion dollars annually (Murphy, 1993). That estimate may, in fact, be just the tip of the iceberg. The Association of Certified Fraud Examiners recently estimated that businesses globally suffer annual losses of \$2.9 trillion as a result of employee's fraudulent activity (2010). Because the behaviors of interest are transparently negative (e.g., theft and violence), it can be difficult to obtain honest admissions from candidates during the selection process. The current study hopes to combat this issue by applying a non-transparent, implicit measurement method, conditional reasoning, as a predictor of CWBs.

Counterproductive Work Behaviors

In its most general form, counterproductive work behavior (CWB) can be defined as, "... any intentional behavior on the part of an organization member viewed by the organization as contrary to its legitimate interests" (Sackett, 2002, p. 5). CWBs may include behaviors such as the misuse of organizational assets, theft, property damage, unscheduled absences, tardies, long breaks, drug and alcohol use, intentionally performing slow or sloppy work, as well as sexual harassment, violence, bullying, gossiping, etc. (c.f. Hollinger & Clark, 1983; Robinson & Bennett, 1995). Selection researchers, in particular, have been interested in identifying individuals who are more likely to engage in CWBs with the goal of screening out and preventing organizations from hiring such poor employees. A variety of predictors have been developed and studied in this regard, mostly selfreport personality scales and integrity tests. **Predictors of CWBs**

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Any literature review on CWB predictors leads directly to the literature on integrity. Integrity researchers often use CWB behavior as the criterion measure to establish predictive validity for their integrity tools. While integrity researchers disagree to some extent regarding the exact meaning and underlying structure of integrity, they do seem to agree that it is not a unidimensional construct. Integrity seems to be a compilation of subfactors that work together to predict counterproductive or unethical work behaviors.

Some researchers have examined the associations between items in standard integrity tests to the five factor model of personality and identified relationships with C (Conscientiousness), A (Agreeableness), and ES (Emotional Stability) (Marcus, Hoft, & Riediger, 2006; Murphy & Lee, 1994; Ones, 1993). In an attempt to better understand the factor structure of well-known integrity tests, Wanek, Sackett, and Ones (2003) conducted a judgmental sort of 798 items from seven published integrity tests and factor analyzed them to come up with four components to integrity: (1) antisocial behavior (e.g., theft admissions, association with delinquents), (2) socialization (e.g., achievement orientation, locus of control), (3) positive outlook (e.g., viewing people as basically good and the world as basically safe), and (4) orderliness/diligence. Van Iddekinge, Taylor, and Eidson (2005) also rationally sorted the honesty scale in the PSI customer service assessment (PSI-CS), and reported similar results to Wanek et al. (2003).

Other researchers feel that these four factors do not adequately cover integrity. Connelly, Lilienfeld, and Schmeelk (2006) found integrity test scores related less to moral reasoning and more to psychopathic personality, which includes behaviors of self-centeredness, willingness to manipulate others, externalizing blame, and an impulse to flout social norms. Lee, Ashton and colleagues introduced the HEXACO model of integrity (Lee, Ashton, & de Vries, 2005; Lee, Ashton, Morrison, Cordery, & Dunlop, 2008). Their research suggests that Honesty-Humility (H-H) should be added to the five factor model to



adequately cover all aspects of integrity. The low end of this sixth construct resembles many of the psychopathic behaviors described by Connelly et al. (2006).

Bandura's (1986) Social Cognitive Theory takes a more cognitive approach to understanding unethical behavior by investigating the implicit processes employed by unethical individuals. He sets forth a model for rationalizing unethical behavior. He discusses the implicit cognitive process mechanisms that are used to morally disengage and then justify unethical behavior (e.g., CWBs). With moral disengagement being a precursor to the actual demonstration of unethical behavior, it's important to better understand what makes someone more or less likely to morally disengage. Researchers have identified several traits that can lead to moral disengagement: trait cynicism (Bandura, 1999; Detert, Treviño, & Sweitzer, 2008), two types of external locus of control (powerful others and chance; see Levenson (1973) for a more detailed description of ELOC) (Detert, Treviño, & Sweitzer, 2008; Levenson & Mahler, 1975), Machiavellianism (Kish-Gephart, Harrison, & Treviño, 2010; Moore, Detert, Treviño, Baker, & Mayer, 2012) and trait empathy (Eisenberg & Miller, 1987; Hoffman, 2000; Moore et al., 2012). In sum, integrity researchers have made great contributions to the literature by providing a better understanding of the many underlying personal traits that are related to undesirable work behaviors; finding accurate and meaningful ways of measuring these traits can be somewhat of a challenge and will be discussed in the next section.

Measures of Integrity

Most current measures of integrity fit cleanly into two categories: overt and covert. Overt measures of integrity ask individuals direct questions about their past unethical behavior or their attitudes towards unethical behavior. There is no subtlety or pretense to these items. Individuals find overt items to be very face valid and tend not to have strong negative reactions towards them (Berry, Sackett, & Weinman, 2007). Covert integrity items are typically personalitybased and are more indirect in their connection to counterproductive behavior. Commonly used covert personality items might ask about one's impulsivity or general outlook on people and the world.

As mentioned, the majority of integrityrelated assessments rely on self-report personality measures and/or overt self-admissions of counterproductive behavior. Measuring such clearly

negative traits and behaviors in a self-report manner can prove to be difficult, especially if used for personnel selection. One of the main issues with selfreport measures is the opportunity for individuals to misrepresent themselves (fake) and respond in a more favorable manner. Numerous studies have established that such tests can be faked easily and extensively by respondents when instructed to do so (Berry, Sackett, & Wiemann, 2007; Viswesvaran & Ones, 1999). More importantly, research indicates that faking occurs in real selection situations (Griffith, Chmielowski, & Yoshita, 2007; Bott, O'Connell, Ramakrishnan, & Doverspike, 2007). However, there are different perspectives on whether faking actually impacts test validity. Some researchers conclude minimal or no effect (e.g., Ones, Viswesvaran, & Reiss, 1996; Schmitt & Oswald, 2006) while others caution that faking can attenuate validity (e.g., Komar, Brown, Komar, & Robie, 2008). While controversy surrounds self-report measurement and its value as a predictor, the lack of viable alternatives impedes development in this field.

Conditional Reasoning

Almost two decades ago, James and his colleagues introduced a method of measuring implicit personality traits that they referred to as conditional reasoning (CR) (c.f. James, 1998; James, McIntyre, Glisson, Bowler, & Mitchell, 2004). Conditional reasoning is based on the premise that unseen biases in what people believe to be reasonable explanations for their behaviors reveal their implicit personalities. People with a strong motive (desire) to engage in a behavior will develop biased (i.e., defensive) ways of reasoning that make the behavior seem rational and sensible as opposed to irrational and foolish. The biases in the ways of reasoning are referred to as justification mechanisms to indicate that they serve to enhance the rational appeal of behaviors that express a desire.

James and LeBreton (2012) described nine specific justification mechanisms that, driven by implicit personality characteristics, shape, define, and guide perceptions, understandings, hypotheses, causal explanations and expectancies that a person employs to give meaning to events and to reason about how best to behave in a specific environment (see James &LeBreton, 2102 for an in-depth overview of justification mechanisms). According to James and LeBreton (2012), the Conditional Reasoning (CR) Measurement approach involves modifying standard inductive reasoning problems (Sternberg, 1982) by



manipulating one or more of the response options to be more attractive to individuals with targeted implicit personality traits. James et al., (2004) developed a CR assessment designed specifically to identify aggressiveness in individuals. Subsequent research reported criterion-related validity (corrected only for dichotomization of criteria) of r = .44 across 11 studies, between their conditional reasoning measure of aggression (CRT-Aggression) and CWBs (James, McIntyre, Glisson, Green, Patton, LeBreton, et al., 2005). A larger meta-analysis found that the CRT-Aggression scale estimated validity in predicting CWB was closer to .26 (Berry, Sackett, & Tobares, 2010). Even the lower estimate compares very favorably to the Big Five's prediction of CWBs, which tend to range from r = .01 to r = .16, with conscientiousness being the strongest and most consistent predictor (Salgado, 2002).

A study by LeBreton, Barksdale, Robin, and James (2007) looked at the susceptibility of the CRT-Aggression scale to response bias, or faking. They found that when subjects were specifically told the purpose of the assessment and asked to identify the aggressive response alternative, they were able to do so at a significantly higher rate that the control group. However, when they administered the CRT-Aggression assessment to student, job applicant, and incumbent samples in a normal testing environment, they found no significant mean differences. These results dramatically contrast the consistent findings in personality research wherein applicants tend to perform up to 1 standardized score higher than incumbents in applied settings (c.f. Bott et al., 2007). This finding reinforces the main advantage of CR tests in the measurement of implicit personality traits related to socially undesirable behaviors.

Present Study: Applying CR to Integrity

Given the strong parallel between Bandura's Social Cognitive Theory and the CR approach to implicit personality measurement and the promising findings around conditional reasoning in applied settings, our goal in the present study was to expand the conditional reasoning approach to a measure of integrity that could be used as a predictor for professional level positions. Despite the clear linkage between this implicit measurement approach and the implicit cognitive processes that lead to unethical behavior, the CR approach has not, to our knowledge, been applied to a specific measure of integrity. The purpose of this study was two-fold: 1) examine the relationship between CRT-Integrity and CWBs; and 2) compare CRT-Integrity to a traditional self-report personality measure (specifically Conscientiousness which has been consistently linked to high/low integrity behavior) related to integrity. We expect the following:

H1: Individuals higher in Integrity and Conscientiousness will demonstrate fewer CWBs

H2: CRT-Integrity will add incremental variance in the prediction of CWBs over self-report Conscientiousness.

METHOD

Sample

We used Mechanical Turk, a booming, crowdsourcing internet marketplace to recruit participants for this study. Among the 114 participants, 56% were females, 83% were White/Caucasian, 91% were employed (71% full-time), 70% were below 40 years old, and 90% received education beyond high school. 62% of the participants held a current leadership position. The average leadership experience was 5.08 years.

Measures

Conditional Reasoning Test (CRT-Integrity). We developed a CRT-Integrity assessment designed to measure the aforementioned personality traits related to implicit moral disengagement. Consistent with James and LeBreton (2012), we created an inductive reasoning measure to guide the structure of the CRT-Integrity Items.

A team of four individuals, each with 10+ years of experience writing assessment items, wrote a total of 28 conditional reasoning scenarios. These inductive reasoning scenarios present a paragraph of information followed by a series of statements. Respondents are asked to read each statement and choose whether it supported, contradicted or neither supported nor contradicted, the information presented in the paragraph. Each scenario had between 5 and 8 follow-up statements. Of those statements, up to 4 of them were modified to reflect one of the five traits related to moral disengagement. The team employed a construct-oriented approach to assessment development, in that the five underlying traits and their definitions were provided to all item writers and the modified responses were written to tap one or more of the traits related to moral disengagement. Table 1 shows an example CR item. The highlighted rows show statements that have been



modified to tap one of the traits that lead to moral disengagement, while the other statements are typical of those written for a standard inductive reasoning test.

The team reviewed and rated each scenario and pared them down to 12 scenarios that were deemed most relevant to a broad range of organizations. Those 12 scenarios were included in a small pilot study geared at leaders and professionals. The logically correct answers to the integrity-related statements should be rated "Neither". Respondents who rated those items as "Supported" were assigned one point. By removing items with extremely low endorsement rates, and thus little variance, we finalized the conditional reasoning test to include 5 scenarios with 7 integrity-related statements and 19 integrity-irrelevant (i.e., purely inductive reasoning) statements.

Self-Report Personality. A proprietary selfreport Conscientiousness measure was used. The scale was composed of 8 items (α = .72) and respondents provided ratings on a six-point Likert-type scale from 1 = Strongly Disagree to 6 = Strongly Agree. An example item is "I always take full responsibility for the outcome of my work." This scale has been used in multiple studies and has shown strong validity and reliability in a variety of applied settings (O'Connell, Lawrence, & Kung, 2012).

Self-reported CWB. Twenty-four CWB items were selected from validated scales of CWBs (α = .88) developed by Gruys and Sackett (2003) and Spector, Fox, Penney, Bruuisema, Goh and Kessler (2006). All behaviors were rated on a 5-point frequency scale (1 = Never; 2 = Once or Twice; 3 = Once or Twice per Month; 4 = Once or Twice per Week; 5 = Almost Every Day). Respondents rated how frequently they demonstrated each of the behaviors.



RESULTS

Descriptives

Table 2 summarizes the endorsement rates for each integrity-related CR statement, ranging from 1.75% to 29.82%. A CRT-Integrity total score was calculated as the sum of the 7 integrity endorsements. Therefore, higher CRT-Integrity scores indicate that the respondents endorsed more traits associated with moral disengagement and should be positively related to CWBs. Table 2 also shows the means and standard deviations for the overall CRT-Integrity, Conscientiousness, and CWB scales. Conscientiousness was calculated as the average rating of the items in the scale. The CWB score represents the average frequency rating given to the 24 behaviors.

Hypothesis Testing

Bivariate correlation analyses showed that CWB overall scores were positively and significantly correlated with CRT-Integrity scores ($r = .228^*$, p<.05) and negatively and significantly related to conscientiousness ($r = -.335^{**}$, p<.001). Additionally, multiple regression analysis showed that both conscientiousness (Beta=-.326^{**}) and CRT-integrity (Beta=.214^{*}) accounted for a significant amount of variances in CWB (R² = .158). These results fully support hypothesis 1 and show that both measurement methods can predict the same outcome.

Our second hypothesis was driven by our belief that the explicit and implicit integrity measurement methods would capture unique variance in CWBs. Our bivariate correlations support this by showing that CRT-Integrity and Conscientiousness were not correlated (r = -.043, p =.653). To examine CRT-Integrity's incremental validity beyond conscientiousness, hierarchical regression was conducted entering conscientiousness in step one and CRT-Integrity in step two. As presented in table 3, CRT-Integrity accounted for a significant amount of variance in CWB in addition to what was captured by conscientiousness ($\Delta R^2 = .046$, p = .016). Therefore, hypothesis 2 was also supported.

DISCUSSION

The results of this study extend the research on integrity measurement and the prediction of CWBs in several ways. First, it adds to the literature supporting self-report conscientiousness as a key predictor of counterproductive work behaviors. Secondly, this study shows that the conditional reasoning methodology can be applied to the measurement of integrity and that it is predictive of CWBs. Lastly, it suggests that implicit and explicit measures can tap into unique and valuable variance within the same criterion variable.

This study is one of the first to examine the use of an implicit measurement approach in predicting undesirable (and potentially unethical) work behaviors. While more research is warranted, these results are encouraging for the use of conditional reasoning as a measure of integrity in applied settings. The CRT-Integrity measure seems to be capturing variance that self-report Conscientiousness does not. The two together provide more accurate prediction of CWBs than either alone. Since the sample used in this study was not comprised of real applicants, it's difficult to know if the item transparency and response distortion, that often affect self-report measures in competitive applicant situations, would have come into play and yielded different results.

We see this study as a strong first step in introducing conditional reasoning to this line of research and as a springboard for additional research. Future studies should explore CRT-Integrity in a true candidate sample and it should be compared to overt and covert measures of integrity to ascertain how it predicts and relates to traditional measures already in use. This study also relied on a self-report CWB criterion measures. While difficult to obtain, an ideal study would include a sample of real employees with supervisor rated CWBs or objective measures indicative of counterproductive behavior. We also encourage other researchers to create CRT measures of other valuable and predictive constructs. All in all, we hope this study sheds some light on the value that implicit measures can provide in the prediction of important organizational outcomes.



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Table 1. Example Inductive Reasoning Item used for Conditional Reasoning assessment

In this section, you are presented with a series of paragraphs in which a position on an issue is presented. Each position, or argument, is followed by a set of statements. You must determine how each statement relates to the argument. After reading each statement, decide if it (1) Is **Supported** by the argument, (2) **Contradicts** the argument, or (3) Is **Neither Supported by Nor Contradicts** the argument. Keep in mind that, although you may believe some of the statements are true, DO NOT base your answers on your personal opinion. The task is to simply determine how the statements are related to the argument.

Scenario:

Tough economic times can make allies out of former competitors. These new relationships are often formed out of necessity, but may help each company stay in business. When making these alliances, each company may need to make concessions or changes in the way it typically operates. For instance, in times of economic duress, standards or quality may need to be compromised in order to keep the business alive. In the end, combining efforts could actually end up making each company more profitable.

Statements		Moral Disengagement Trait
1.	The economy is unpredictable. Businesses cannot plan for what might happen, so they must deal with the damage after it is done.	ELOC – Chance
2.	It is never acceptable to compromise standards or quality in order to keep a business in operation.	N/A
3.	Forming an alliance with a former competitor may help both companies stay in business.	N/A
4.	One strategy competing companies can employ to stay in business and to increase profits is to work together to set a certain price for common goods and services.	Machiavellian
5.	Making concessions is a necessary part of any company merger.	N/A
6.	There is never a good reason to join forces with a competitor.	N/A
7.	Rather than join forces with a competitor, it is better to use the tough economic times to run them out of business.	Machiavellian
8.	When two companies for an alliance, one of them always gets the better end of the deal.	Trait Cynicism



	Mean	SD	Supported (%)	Contradict (%)	Neither (%)
Conditional Reasoning					
Test	0.72	0.98			
Scenario 1 Item 1	0.14	0.35	14.04	17.54	68.42
Scenario 1 Item 2	0.06	0.24	6.14	21.05	72.81
Scenario 2 Item 1	0.04	0.21	4.39	38.60	57.02
Scenario 3 Item 1	0.07	0.26	7.02	44.74	48.25
Scenario 4 Item 1	0.30	0.46	29.82	14.04	56.14
Scenario 5 Item 1	0.02	0.13	1.75	14.91	83.33
Scenario 5 Item 2	0.09	0.28	8.77	13.16	78.07
Conscientiousness	4.65	0.58			
СШВ	1.40	0.33			

Table 2. Response Frequencies, Means, and Standard Deviations of Conditional Reasoning Test Items

Note. Conscientiousness=Personality scale of conscientiousness; CWB=counterproductive work behavior score



Table 3. Incremental Validity of CRT-Integrity beyond Conscientiousness on CWB
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	Beta	F Change	R ²	ΔR ²
Step 1				
Conscientiousness	335**	14.13**	.112	
Step 2				
Conscientiousness	326**			
CRT-Integrity	.214*	6.018*	.158	0.046