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## Examining the Incremental Validity of Personality-Based Implicit Association Tests Designed to Predict Behavior Related to Integrity

Maryann Elaine Stassen

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**EXAMINING THE INCREMENTAL VALIDITY OF PERSONALITY-BASED  
IMPLICIT ASSOCIATION TESTS DESIGNED TO PREDICT BEHAVIOR  
RELATED TO INTEGRITY**

A Masters Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Psychology

By

Maryann E. Stassen

July 2015

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IMPLICIT ASSOCIATION TESTS DESIGNED TO PREDICT BEHAVIOR  
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Psychology

Missouri State University, July 2015

Master of Science

Maryann E. Stassen

**ABSTRACT**

The present study examined the incremental predictive validity of four personality-based Implicit Association Tests (IATs) for behavior related to integrity and character. Unlike overt-based IATs, the personality-based IATs assess attributes related to dark-side personality syndromes. A temptation manipulation provided opportunities for subjects to follow or break rules and blow the whistle or remain silent when queried about the rule compliance of a confederate and the theft of a wallet. In addition to the four personality-based IATs, subjects also completed five explicit (self-report) overt and personality-based integrity measures and two overt-based IAT measures. Findings generally supported the incremental validity of the new IATs for rule compliance and whistle blowing behavior; although, the magnitude of the incremental effects found were modest and inconsistent across criterion measures.

**KEYWORDS:** implicit association test, character failure, psychopathy, dark triad, integrity, personality, counterproductive work behavior, organizational citizenship behavior

This abstract is approved as to form and content

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Donald L. Fischer, PhD  
Chairperson, Advisory Committee  
Missouri State University

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July 2015

Approved:

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Julie Masterson, PhD: Dean, Graduate College

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When I began this project, which felt so long ago that dinosaurs roamed the earth, I felt beguiled and disillusioned by the enormity of the tasks that I would indubitably have to finish. Eventually, I unbuttoned and rolled up my sleeves and started working. I spent many long hours slowly making progress, only stopping temporarily the heat up a tin can of Spaghetti O's before continuing to work on the project. In spite of my sternocleidomastoid muscle in my neck cramping up, I finally achieved redemption in hard work alone. I would like to say thank you, gracias, and danke to those whom made this project possible. Most notably Dr. Fischer, the IO faculty, my partner, my family, my friends, Doctor Who and the founder of modern psychology, Wilhelm Wundt. To all of you, hyala, obrigado, bedankt, tak, díky, 谢谢, and thank you for all of your support.

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## **INTRODUCTION**

Despite employers' efforts to hire and retain trustworthy individuals, some employees succumb to the temptations in their environments and make unethical decisions. Examples of such character failure include the executives at Enron who fraudulently reported company assets, the Military Police at Abu Ghraib who violated Geneva Convention standards for the treatment of detainees, and those who perpetrated the Madoff investment firm's fraud. In these instances, highly knowledgeable and trained individuals failed to act with integrity and cost a lot of innocent people their jobs and security. Predicting and mitigating risks related to character failure, particularly for those in leadership roles, is a challenging problem. Valid psychological measures of integrity are necessary to address these challenges. Although there have been attempts to accurately assess risks related to character failure, there remains room for improvement. This study examines the predicative validity of new implicit measures designed to assess this risk.

### **Explicit Measures of Integrity**

Integrity testing began with attempts to detect dishonesty in job applicants without using a polygraph (Berry, Sackett, & Wiemann, 2007). The original measures of integrity were explicit self-report measures, which focussed on predicting counterproductive work behaviors. Sackett, Burris and Callahan (1989) divided integrity tests into two types: "overt" and "personality-oriented."

Overt personality measures often contain two types of items. One type assesses perceptions and general beliefs about theft and honesty (e.g., “Someone who steals because his family is in need should not be treated the same as a common thief” and “I am too honest to steal”). The second type asks participants to admit their own theft-related behaviors (e.g., “I have thought about taking money from an employer without actually doing it”). Some examples of overt tests are the Personnel Selection Inventory and the Reid Report.

In contrast, personality-oriented measures do not focus exclusively on theft and ask questions more related to conformity, conscientiousness, feelings towards authority and so on. The main difference being that overt scales ask direct questions about theft behaviors, while the personality-oriented scales focus more on a broad range of personality factors that are not as obvious and transparent (e.g. “Did you get in trouble with your teachers very often in high school?”). Personality-based items focus on attributes that distinguish what is often called the “dark triad” of personality syndromes: narcissism, Machiavellianism and psychopathy (Paulhus & Williams, 2002).

Meta-analytic studies have demonstrated that both types of integrity measures have predictive validity (Ones, Viswesvaran, & Schmidt, 1993). Berry, Sackett, and Wiemann (2007) concluded that overt tests better predicted counter-productive work behaviors (CWBs) than personality-based measures. They also found support for the validity of both overt and personality-based measures for predicting job performance ( $r = 0.41$ ) and theft ( $r = 0.33$ ). They discussed possible reasons for the modest relationships, identifying (1) the extent to which theft was unobservable in studies, (2) the use of a

single-act criteria, and (3) the extent to which the measures accurately reflect CWBs, as possible sources of unsystematic error.

### **Implicit Measures of Integrity**

While explicit overt and personality measures are useful (Berry, Sackett, & Wiemann, 2007), prediction is far from perfect and there is room for improvement (Van Iddekinge, Roth, Raymark, & Odle-Dusseau, 2012). Specifically, improvements are needed to mitigate (1) impression management and (2) self-knowledge artifacts. Concerning impression management, participants often use “face-saving” tactics when a psychological measure targets socially undesirable traits, such as those involving character failure or dishonesty. Effort has been made to both assess the extent of faking (Alliger & Dwight, 2000) and to create measures that mitigate participants’ ability to fake responses (Berry, Sackett, & Wiemann, 2007). The second issue concerns self-knowledge artifacts. Often individuals lack the awareness or self-insight necessary to accurately report their real behaviors or attitudes, especially in situations where there is an incentive to do the wrong thing (Schnabel, Asendorpf, & Greenwald, 2008). Recently, efforts have been made to utilize computerized tests and response latencies to identify faking (Berry, Sackett, & Wiemann, 2007). One effort in this regard involved the development of measures using Greenwald’s Implicit Association Test (IAT) procedure, which measures reaction times on classifying tasks (Greenwald, McGhee, & Schwartz, 1998).

Greenwald developed the Implicit Association Test (IAT) to measure underlying automatic evaluations (Greenwald, McGhee, & Schwartz, 1998). While Greenwald’s et al. original IAT studies used a five-block procedure, later they concluded a seven-block

procedure was more reliable (Greenwald, Nosek, & Banaji, 2003). This procedure included five practice blocks and two test blocks (see Table 1).

Table 1. Schematic Overview of the Implicit Association Test.

Blocks	Left E Key Assignment	Right I Key Assignment
1 (practice)	FLOWER	INSECT
2 (practice)	GOOD	BAD
3 (practice)	FLOWER + GOOD	INSECT + BAD
4 (test)	FLOWER + GOOD	INSECT + BAD
5 (practice)	BAD	GOOD
6 (practice)	FLOWER + BAD	INSECT + GOOD
7 (test)	FLOWER + BAD	INSECT + GOOD

Examples of “Flowers” (like lily, rose, daisy, tulip, etc.) and “Insects” (like ant, wasp, beetle, fly, etc.) are the stimuli that are displayed one at a time on a participant’s computer screen during the first block. Participants are instructed to hit the “E” on the keyboard if the word displayed is a flower and the “I” if the word displayed is an insect. In the second block, stimuli representing the attribute concepts “Good” (marvelous, joyful, superb, etc.) and “Bad” (tragic, horrible, awful, etc.) are displayed on the screen. Once again, participants press the “E” and “I” keys to quickly classify words into the good or bad categories. In the third block, participants practice pressing the left “E” key for words that are either a flower or good and press the right “I” key for words that are either an insect or bad. These targets and attributes remain the same for the fourth block. The only difference between the third and fourth blocks, are the number of classification trials presented. The first three blocks present 20 classification trials each and the fourth

block includes 40 classification trials. After the test block, the attribute concept assignment keys are reversed. For the fifth block, participants must press the left “E” key for bad stimuli and the right “T” key for good stimuli. Just like before, participants practice this new pairing 20 times. In the sixth block, participants practice classifying the incompatible pairings of flower and bad by pressing the left key and insect and good by pressing the right key. The final test block involves 40 presentations of stimuli for the incompatible pairings. This is the standard seven-block IAT procedure.

The seven-block IAT procedure provides a total of 120 reaction times for the compatible and incompatible paired classification tasks for each participant. These come from the 60 trials in blocks three and four of the compatible pairings, the 60 trials in blocks six and seven of the incompatible pairings. In the past, researchers would find and compare the means of the reaction times; however, a more reliable measure is obtained by standardizing the mean differences, which is called a “D score” (Nosek, Greenwald, & Banaji, 2005). A larger positive value (D score) is theorized to indicate a stronger association between the target and attribute concepts (flowers with good and insects with bad) in the person’s cognitive knowledge structure. As Lane, Banaji, Nosek and Greenwald (2007) discussed, the IAT effects should be easier to detect when there are strong mental associations between the compatible pairings, such as flowers are with “good” and insects are with “bad.” A small IAT value indicates an equal association between the targets and attribute concepts, while a negative value indicates that incompatible pairings are more strongly associated.

**Overt-Based Implicit Association Tests.** Fischer and Bates (2008) developed IATs that were based upon constructs related to what Sackett, Burris and Callahan (1989)

labeled overt integrity scales. Overt measures assess one's attitudes about integrity in obvious and transparent ways (e.g., "Have you ever switched tags on garments in order to pay less?"). Similarly, the target concepts Fischer and Bates' (2008) used were obvious and transparent ("honest" and "dishonest") as were the corresponding stimuli (e.g., "lie, cheat, steal" and "truthful, integrity, fair"). These IAT measures were found to have incremental validity over established self-report measures of integrity. However, the prediction of integrity behaviors remained modest for both the explicit and implicit measures (Fischer, Osafo, & Turner, 2010; Fischer, Thompson, & Turner, 2012), in that the overall prediction reflected a relationship that Cohen (1992) described as moderate.

**Personality-Based Implicit Association Tests.** In light of these results, Thomas, Fischer and Willis (2014) turned to some work that Greenwald and his German colleagues did pertaining to non-bipolar, valence-balanced IATs to assess implicit self-concepts related to personality traits (Schnabel, Asendorpf, & Greenwald, 2008). For example, "honest" and "dishonest" represent a bipolar pair of concepts that are confounded with a good—bad value dimension. Greenwald and his colleagues used semantically distinct descriptors of alternative behavioral tendencies to create pairs of non-bipolar categories – like conscientiousness and agreeableness – and then they matched the stimuli within the categories according to their valence. In other words, the stimuli were comparably positive or negative, in a way that reflects how classic forced-choice measures match alternatives according to their social desirability. Thomas, Fischer, and Willis, (2014) developed IATs to assess attributes related to dark side personality traits – social insensitivity, thrill-seeking impulsiveness, and hostility toward rules and authority. These attributes are related to the dark triad personality syndromes

(narcissism, Machiavellianism, and psychopathy) described by Paulhus and Williams (2002). These overlapping, yet distinct, aversive personality constructs can exist in normal, non-clinical individuals (Paulhus & Williams, 2002). Thomas, Fischer and Willis (2014) selected prototypic dark side attributes – like “mean” and “confident” – and paired them with non-prototypic attributes – like “shy” and “nice” so that larger IAT effects (higher test scores) reflected an implicit self-concept that is more strongly associated with the dark side attributes. In accord with evidence that the IAT procedure is resistant to impression management artifacts and independent of introspective self-knowledge, it was hypothesized that the IATs (four in all) would have incremental predictive validity for trait-related conduct – conduct like following or breaking rules and lying or telling the truth.

The current study examined the criterion-related validity evidence of the personality-based IATs. The purpose was to examine whether the current IATs accurately predict behaviors related to integrity, such as lying, cheating, and exposing a thief. Predictive validity would provide evidence that the IATs have useful and practical applications for assessing an individual’s risk of character failure. Once the risk is identified, future research about managing risks could be developed.

## **Hypotheses**

Hypothesis 1: The four non-bipolar, valence-balanced IATs based on dark side personality traits will predict behavior related to these traits – behavior like breaking or following rules and lying or telling the truth.



Hypothesis 2: The four non-bipolar, valence-balanced IATs based on dark side personality traits will incrementally improve upon the prediction of trait-related behavior that both overt and personality-based self-report measures achieve *and* that which the overt-based IAT measures achieve.

## METHOD

### Participants

The university's Institutional Review Board approved this research on October 24, 2013 (Study Number: 14-0167). A total of 144 students were recruited from Introductory Psychology courses and they received credit for participating in the study. Sixteen participants' data were excluded from analysis due to random responding (i.e., error rates in the top 10%) for at least two of the six IATs. The mean age of the remaining 128 participants was 20.28 ( $SD = 3.74$ ). Of the sample, 43% were men and 81% were non-Hispanic whites. Years of employment data were also collected with 32% reporting less than two years of work experience, 48% with three to five years of experience and 18% with over five years of experience.

### Measures

**Explicit Measures.** One overt integrity measure and two personality-based integrity measures were used in this study. These tests were administered on lab computers using a link to Millisecond.com. The full online questionnaire can be found in Appendix A.

The Employee Integrity Index (EII; Ryan & Sackett, 1987) is an overt integrity measure with 63 items on which people use a five-point scale to rate their agreement/disagreement with statements about the prevalence of counterproductive behavior ("Most people are basically dishonest") and the appropriateness of punitive sanctions ("A person caught stealing \$50 from his employer should be fired"), in addition

to admissions of dishonest conduct (“Have you ever changed the price tags in a store because the prices were too high?”). Reliability estimates for the measure are typically very good (i.e., coefficient alpha > 0.90).

Levinson’s Self-Report Psychopathy Scales (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) is a personality-based integrity measure that contains 28 items. Subjects use a four point Likert scale to indicate how true various statements are of them. The measure provides scores for both primary and secondary psychopathy. Primary psychopathy is composed of behaviors like lying, lack of remorse, callousness, and selfishness. The primary psychopathy subscale (LSRP-1) includes 18 items like “For me, what’s right is whatever I can get away with” and “I enjoy manipulating other people’s feelings.” Secondary psychopathy traits include impulsive, thrill-seeking behaviors, and intolerance of frustration. The secondary psychopathy subscale (LSRP-2) contains 10 items that include, “I am often bored” and “I find myself in the same kinds of trouble, time after time.” Reliability estimates for the primary psychopathy subscale are robust (coefficient alpha = 0.82), while those for the secondary psychopathy subscale are not as strong (coefficient alpha = 0.63, Levenson et al., 1995).

Paulhus Deception Scales (PDS; Paulhus, 1998) is a personality-based measure of integrity containing 40 items. Subjects use a five point scale to indicate how true various statements are of them (e.g., “I always know why I like things” and “I don’t care to know what other people really think of me”). The items provide an *impression management* score (PDS-IM; 20 items) and a *self-deceptive enhancement* score (PDS-SD; 20 items); the latter is associated with what Paulhus, Hogan and others describe as the narcissistic syndrome (Hogan & Hogan, 2001; Robins & Paulhus, 2001). The User’s Manual

(Paulhus, 1998) reports adequate reliability (coefficient alphas ranging from 0.70 to 0.84).

**Implicit Measures.** In all, six IAT measures were administered online using software supported by Millisecond, Inc. Both the overt-based and personality-based IAT measures used the seven-block procedure and standardized *D* measures described by Greenwald, Nosek, and Banaji (2003).

Participants completed two computer-administered overt-based IATs adapted from Fischer and Bates (2008). These IATs produce implicit measures of self-integrity associations (Integ-Self) and employer-integrity associations (Integ-Empl). The larger the IAT score, the stronger the implicit associations of one's self with honesty and employers with honesty. The overt-based IAT category labels and word stimuli are displayed in Table 2.

Table 2. Concept Labels and Word Stimuli for the Overt Implicit Association Tests

Person		Group		Attribute	
<u>Self</u>	<u>Other</u>	<u>Employer</u>	<u>Employee</u>	<u>Honest</u>	<u>Dishonest</u>
Me	Not Me	Manager	Subordinate	Fair	Unfair
		Boss	Laborer	Integrity	Steal
		Supervisor	Worker	Sincere	Deceive
		Employer	Employee	Trustworthy	Cheat
				Truthful	Lie
				Moral	Corrupt

Participants completed four computer-administered personality-based IATs developed by Thomas, Fischer and Willis (2014): Mean-Shy, Irresponsible-Anxious (Irr-

Anx), Confidence-Nice (Conf-Nice), and Adventurous-Conscientious (Adv-Cons). Larger IAT effects indicate a stronger association between one's self and a dark side (psychopathic) attribute (e.g., mean, irresponsible, impulsive thrill-seeking, and over-confident). The category labels and word stimuli for the two positive-valence IATs are displayed in Table 3 and the category labels and word stimuli for the two negative-valence IATs are displayed in Table 4. The personality-based IATs used the same self-referent concept labels and stimuli as the overt-based IATs (Me and Not-Me).

Table 3. Concept Labels and Word Stimuli for Positive Implicit Association Tests

Positive Pd IAT 1		Positive Pd IAT 2	
<u>Adventurous</u>	<u>Conscientious</u>	<u>Confident</u>	<u>Nice</u>
Bold	Responsible	Strong	Kind
Spontaneous	Trustworthy	Determined	Friendly
Daring	Reliable	Forceful	Warm
Brave	Dutiful	Assertive	Caring
Carefree	Ethical	Calm	Sensitive

Table 4. Concept Labels and Word Stimuli for Negative Implicit Association Tests

Negative Pd IAT 1		Negative Pd IAT 2	
<u>Irresponsible</u>	<u>Anxious</u>	<u>Mean</u>	<u>Shy</u>
Impulsive	Afraid	Ruthless	Cautious
Reckless	Worried	Rude	Withdrawn
Careless	Tense	Selfish	Quiet
Lazy	Timid	Angry	Bashful
Unreliable	Fearful	Hostile	Meek

**Criterion Measures.** The temptation manipulation produced four criterion measures: two involved rule compliance and two involved exposing the confederate as a

cheater or a thief. The first rule compliance measure was a dichotomized variable based upon whether subjects stopped working on the test within 10 seconds of the alarm going off. The second rule compliance measure was the total time that elapsed between the start of the test and the participant's last response. A third measure was based upon the subject's responses to the research assistant's inquiry about whether the confederate stopped working on the test when the alarm sounded. This measure classified subjects into one of three groups: those who told the truth, those who lied and those who reported not knowing (i.e., claimed that they didn't know whether he/she stopped). The fourth measure was based on the subject's response to the research assistant's query regarding the whereabouts of a wallet. This measure also classified subjects into one of three groups: those who exposed the confederate as the thief, those who admitted seeing the wallet but were reluctant to identify the confederate as the thief, and those who denied knowing anything about a wallet.

## **Procedure**

A temptation manipulation provided subjects with an opportunity to (1) cheat on a test, (2) lie about a confederate's cheating, and (3) expose a thief. The protocol treated subjects individually throughout the experiment. Upon arrival, a research assistant greeted participants and directed them to a bench where another subject (the confederate) was waiting to participate in the study. Confederates were used to model bad behaviors (such as lying, cheating, and stealing a wallet) (see Appendix B for full confederate script). The subject and the confederate were directed to follow the research assistant to a

small lab with three computer work stations. The researcher directed the confederate and the participant to specific computer desks.

Once seated, the assistant read informed consent information that told participants that the purpose of the study was to investigate the relationship between academic ability and personality traits (see Appendix C for script). Subjects were told the study had two parts. One credit would be awarded for participating in the first half of the study and an additional three credits would be awarded for the second part of the study. However, in order to participate in the second half, they needed to answer 10 questions correctly during a five-minute timed trial. In reality, the subject's test was rigged to award correct answers based only based on the amount of time that had passed. The test program was designed to always award up to nine correct responses, one short of the 10 needed when time expired, thus tempting the subject to cheat. To further tempt subjects to cheat, the research assistant would leave "to check on subjects down the hall" and close the door behind them. Lastly, as mentioned earlier, the confederate was also in the room modeling the bad behaviors. The confederate's test program was also rigged, but unlike the subject's, the confederate's would award the final 10<sup>th</sup> correct answer after five minutes and 30 seconds had passed. After the five minute timer sounded, the confederate would say, "Don't open the door yet! I'm going to keep going. I'm only one away." Confederates would continue responding until the final credit was awarded and announce their success to the subject.

While the rigged test was the main focus of the temptation manipulation, there was an additional condition. When the researcher first entered the room with the subject and confederate, they unclipped a wallet on their clipboard and visibly set it on the third

desk. The wallet was left behind on the desk as the research assistant left the room. After the confederate had successfully achieved their 10 correct questions, they sat back in their chair and casually look about the room. Approximately 40 seconds before the research assistant returned, the confederate noticed the wallet and thumbed through it noisily (to catch the attention of the subject) and pocketed the wallet as the research assistant returned. Because of the stress that might be involved in watching someone steal a wallet, any subject that blew the whistle on the thief immediately or showed signs of distress, was told it was part of the study, and sent to debriefing right away. This happened on only three occasions.

After 6 minutes and 30 seconds passed, the research assistant returned, briefly knocking and opening the door (see Appendix D for full script). The researcher immediately asked the confederate, “Did you two stop when the alarm went off?” and he/she would quickly respond “Yes!” The researcher would respond with “okay” and look at the confederate’s computer screen. The confederate would be invited to stay for the second part of the study and told to go down the hall to another room to complete the study. The confederate would actually disappear into another room and never show up for the second part of the study.

Once the confederate had left, the researcher would sit at the confederate’s work station and close it down. When closing the file, a string of reaction times appear on the screen. The research would “hm” audibly and ask the subject, “Did they really stop when the alarm went off?” The researcher would remember the response to record it later as a measure of lying. Next, attention turned to the participant’s computer screen. The assistant acknowledged that they are one away from the needed ten responses, but since



they were so close, offers subject the opportunity to stay and finish the second half the study. Of all the participants given this option, only one participant did not continue on the second half of the study. Before leaving the room, the research assistant “noticed” their wallet missing and asked, “Did you see a wallet in here?” If subjects seemed distressed they were sent to debriefing first before finishing the study. If subjects did not seem distressed, they were led to a computer lab for the second half of the study.

When subjects arrived to the second computer lab, they were directed to a computer and given instruction on how complete the implicit IAT measures and explicit questionnaire (see Appendix A). Upon completion, participants were sent to debriefing. When subjects arrived, a new Research Assistant awarded credit and explained the purpose of the study (see Appendix E for debriefing script). Participants were given an informed consent form, which provided an opportunity to authorize use of their data and assessed their current state of distress. Nearly all participants reported no distress. A full script for debriefing is provided in Appendix C and the Informed Consent form is provided in Appendix F. This subject protocol was submitted to our Institutional Review Board’s Human Subjects Protection Committee for review and approval.

## RESULTS

The categorical rule compliance criterion measure based upon whether subjects stopped working on the test within 10 seconds of the alarm sounding revealed that most (80%) did not. In response to the question about whether the confederate stopped working on the test when the alarm sounded, 47% lied and said “yes”, 25% told the truth and replied “no” and 28% reported not knowing whether the confederate stopped (e.g., “I don’t know/wasn’t watching/can’t say”). In response to the question regarding the whereabouts of the wallet, 25% blew the whistle on the confederate and reported the thief, 20% indicated seeing the wallet on the desk, but didn’t know what happened to it, and 54% feigned ignorance (e.g., didn’t see a wallet or know anything about it). Table 5 contains descriptive statistics for the continuous rule compliance criterion measure (total time subject worked on the test) in addition to descriptive statistics for the five explicit predictor measures and six implicit (IAT) measures.

### Tests of Hypothesis 1

Several discriminant function analyses (DFA) were conducted to test the hypothesis that the four dark side personality-based IATs predict criterion behavior. A DFA based on the dichotomous rule compliance measure and the four personality-based IATs was marginally significant ( $p < 0.10$ ). However, post hoc analyses revealed that two of the four univariate ANOVAs for the personality-based IATs were significant (Irres-Anx,  $p < 0.05$  and Conf-Nice,  $p < 0.05$ ). Plots of the cell means for the new IATs’ revealed that mean-differences were all in the predicted direction. On average, the

“cheaters” had larger IAT scores and implicit self-concepts that were more strongly associated with dark-side attributes (see Figure 1).

Table 5. Descriptive Statistics for Selected Study Variables

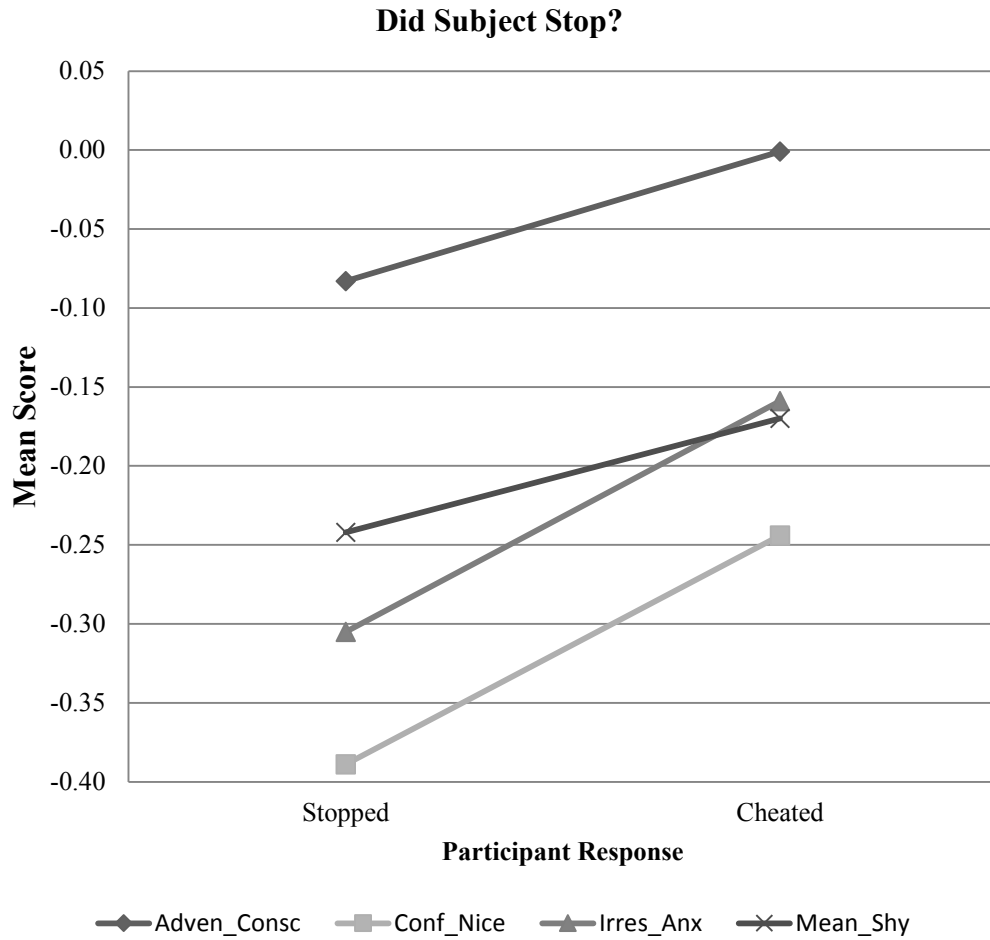
Variables	N	Mean	SD	Alpha
Demographics				
Age	127	20.21	3.56	NA
Yrs of Employment	127	3.95	3.91	NA
Explicit Measures				
LSRP-1	127	1.89	0.40	0.65
LSRP-2	127	2.06	0.48	0.58
EII- Integ	127	3.59	0.41	0.91
PDS-IM	127	1.58	0.78	0.69
PDS-SD	127	0.79	0.73	0.74
Implicit Measures <sup>1</sup>				
Integ-Empl <sup>2</sup>	127	-0.10	0.32	0.29
Integ-Self <sup>3</sup>	127	0.29	0.35	0.66
Mean-Shy	127	-0.18	0.30	0.43
Conf-Nice	127	-0.27	0.31	0.31
Irres-Anx	127	-0.20	0.31	0.29
Advn- Cons	127	-0.02	0.34	0.64
Criterion Measure				
Total Test-time <sup>4</sup>	127	363.94	47.87	NA

<sup>1</sup> All implicit measures are standardized IAT effects (D scores).

<sup>2</sup> Higher scores indicate a stronger association of employer+honest (or worker+dishonest)

<sup>3</sup> Higher scores indicate a stronger association of self+honest (or other+dishonest)

<sup>4</sup> This measure is the number of seconds that elapsed from the beginning of the academic test session to the time of the subject’s last response; values greater than 300 indicate a last response made after the timer alarm had sounded and subjects were to have stopped.



Figure

### 1. Cell Means for Groups Based on a Dichotomized Rule Compliance Measure

In addition to the DFA based on the dichotomous rule compliance measure, the continuous rule compliance criterion measure (total test time) was correlated with the four personality-based IATs to explore whether the IATs predicted trait-related conduct. The multiple regression analysis based on all four IATs was marginally significant ( $R = 0.263, p < 0.07$ ). As can be seen in the bottom row of Table 6 (following page), two of the IATs had significant zero-order correlations with test time (Adven-Consc and Irres-Anx had  $p < 0.05$ ) and two were marginally significant (Conf-Nice and Mean-Shy had  $p < 0.10$ ). This provided further evidence in support of the first hypothesis.

Table 6. Zero-order Correlations for Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
Explicit Measures											
1. LSRP-1	-										
2. LSRP-2	0.49**	-									
3. EII-Integ	-0.61**	-0.53**	-								
4. PDS-IM	-0.47**	-0.39**	0.65**	-							
5. PDS-SD	0.03	-0.11	0.12	0.25**	-						
Implicit Measures											
6. Integ-Empl	0.12	0.08	-0.16	0.11	0.10	-					
7. Integ-Self	-0.08	-0.02	-0.04	0.03	-0.03	-0.06	-				
8. Mean-Shy	0.03	0.08	-0.06	0.06	0.11	0.21*	-0.15	-			
9. Conf-Nice	0.08	-0.03	-0.12	-0.08	0.05	0.04	-0.01	0.32**	-		
10. Irres-Anx	0.04	0.02	-0.08	-0.10	-0.01	0.19*	-0.04	0.29**	0.35**	-	
11. Adv-Cons	0.08	>0.001	-0.03	0.03	0.02	0.12	-0.16	0.09	0.25**	0.18*	-
Criterion Measure											
12. Test Time	-0.03	-0.17 <sup>+</sup>	-0.04	0.02	-0.05	0.07	0.01	0.15 <sup>+</sup>	0.23*	0.19*	0.15 <sup>+</sup>

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$

A DFA based on whether the subject blew the whistle on the confederate for cheating was marginally significant ( $p < 0.10$ ) and a post hoc analysis indicated that one of the univariate ANOVAs for the IATs was significant (Mean-Shy,  $p < 0.05$ ).

Unfortunately, plots of the cell means revealed that the patterns differed somewhat from that which was expected. As with rule compliance, positively sloped curves across the three categories were expected (i.e., those who lie should have larger IAT scores and implicit self-concepts that are more strongly associated with dark-side attributes). As Figure 2 displays below, this was not the case.

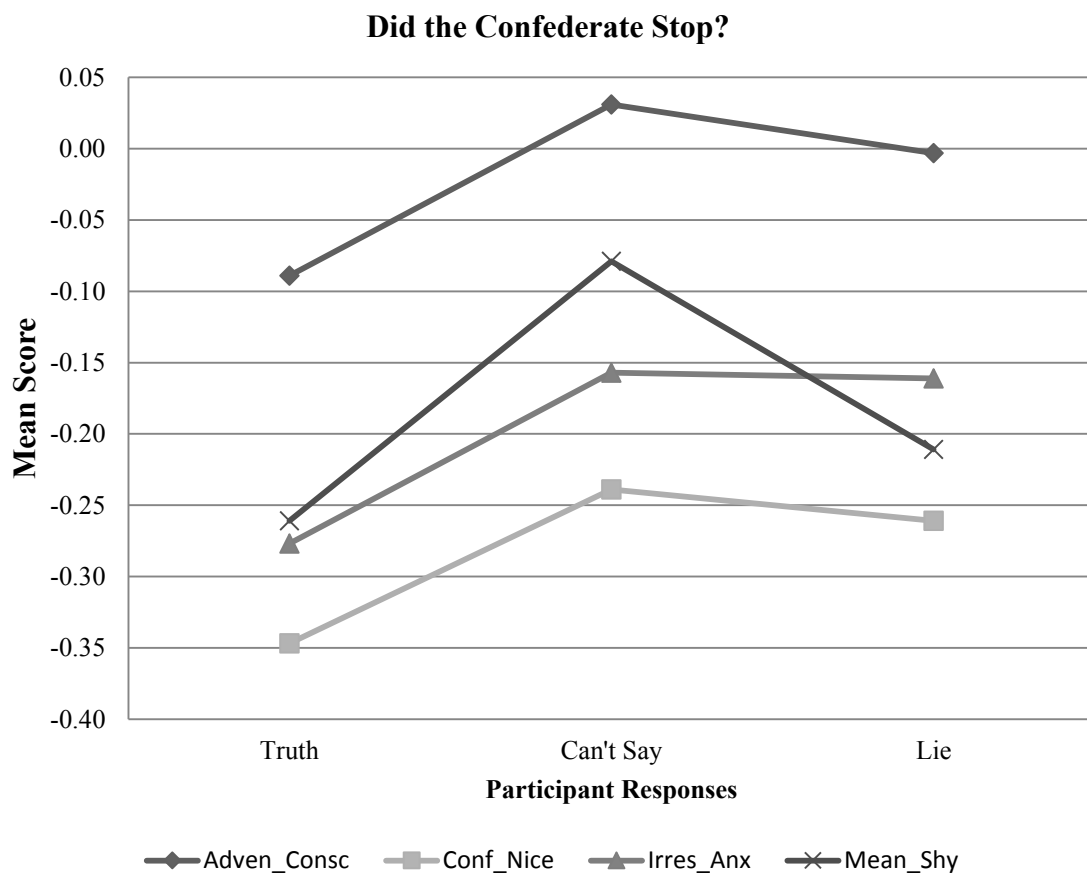


Figure 2. Cell Means for Groups Based on Subjects' Willingness to Expose a Cheater

A DFA based on whether the subject blew the whistle on the confederate's theft of the wallet was significant ( $p < 0.05$ ). Three of the four univariate ANOVAs for the IATs were significant ( $p < 0.05$ ) and the last one was marginally significant (Adven-Consc,  $p < 0.10$ ). Plots of cell means revealed patterns that are generally consistent with expectations. As with the other categorical criterion measures, it was expected that those who disavowed seeing or knowing anything about the wallet would have larger IAT effects and implicit self-concepts that were more strongly associated with dark side attributes. Figure 3 displays these results.

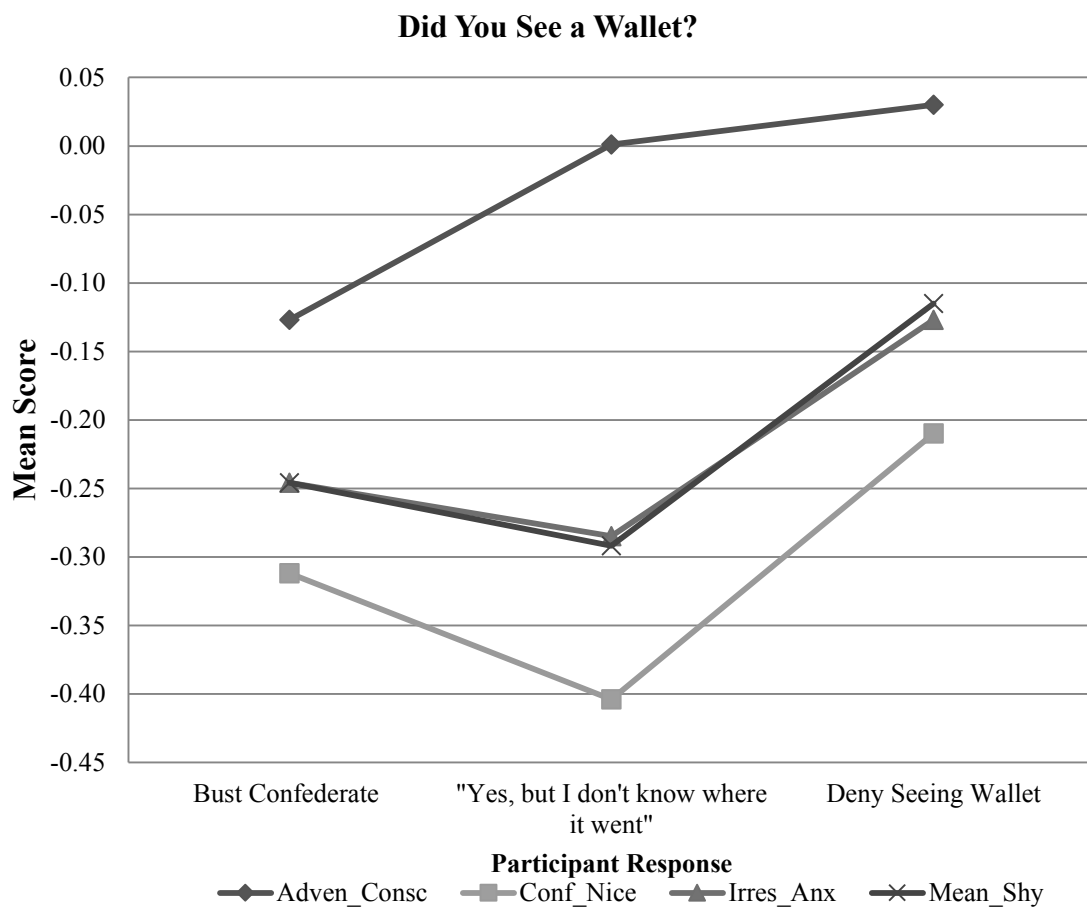


Figure 3. Cell Means for Groups Based on Subjects' Willingness to Expose a Thief

## Tests of Hypothesis 2

To test the incremental predictive validity hypothesis a hierarchical regression analysis was conducted using the total time subjects spent working on the test as a continuous rule compliance (criterion) measure. Adding the four new IATs to the prediction model containing all the other predictors (the five explicit integrity measures and two overt-based IATs) produced a marginally significant result ( $p < 0.10$ ). These results are displayed in Table 7. However, a step-wise regression procedure produced a model with only two of the new IATs (Conf-Nice and Irres-Anx) and one of the self-report measures (LSRP-2) as predictors ( $R = 0.29, p < 0.05$ ).

With regard to the categorical criterion measures, hierarchical DFAs were conducted to test the hypothesis that the four personality-based IAT measures significantly improve the prediction of criterion behavior. When the four personality-based IATs were added to the two overt-based IATs and the five explicit measures, the Chi-Square test for a significant difference was not significant for the dichotomous rule compliance measure ( $\Delta\chi^2 = 6.23, p > 0.10$ ). This indicates that knowing a person's IAT score did not improve the prediction of whether they followed or broke rules. The hierarchical DFA based upon whether the subject blew the whistle on the confederate cheating was also non-significant ( $\Delta\chi^2 = 8.64, p > 0.10$ ). Again, adding the implicit measures to the discriminant function did not significantly improve the prediction of whether a person exposed a cheater. The hierarchical DFA for the question involving the whereabouts of the wallet indicated that adding the four personality-based IATs to the discriminant function *did* significantly improve the prediction of group membership ( $\Delta\chi^2 = 19.68, p < 0.05$ ). The “hit” rate for predicting if a subject would reveal the thief



increased from 41% to 56%. The “hit” rate for predicting if a subject would feign ignorance rose from 45% to 61% and rate for acknowledging having seen the wallet rose from 50% to 58%. Details for all these analyses can be found in tables contained in Appendix G.

Table 7: Hierarchical Regression Analysis for Predicting Test Time<sup>1</sup>

Hierarchical Step and Independent Variable	B	$\beta$	<i>Sig.</i>	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> <i>Change</i>	<i>F</i> <i>Change</i>	<i>Sig. F</i> <i>Change</i>
Step 1				0.22	0.05	0.05	0.87	0.53
Emp-Integ	8.40	0.06	0.56					
Self-Integ	0.92	0.01	0.94					
PDS-IM	1.15	0.07	0.56					
PDS-SD	-1.14	-0.07	0.47					
LSRP-1	0.53	0.08	0.52					
LSRP-2	-2.49	-0.24	0.03					
EII-Integ	-0.24	-0.13	0.33					
Step 2				0.33	0.11	0.06	2.05	0.09
Emp-Integ	1.19	0.01	0.94					
Self-Integ	4.89	0.03	0.71					
PDS-IM	1.33	0.09	0.50					
PDS-SD	-1.41	-0.08	0.37					
LSRP-1	0.61	0.09	0.45					
LSRP-2	-2.32	-0.23	0.04					
EII-Integ	-0.18	-0.10	0.47					
Mean-Shy	15.28	0.09	0.34					
Conf-Nice	18.14	0.11	0.26					
Irres-Anx	19.18	0.11	0.27					
Adven-Consc	9.48	0.07	0.47					

<sup>1</sup>N=128; Dependent Variable: Test Time

## DISCUSSION

### **Evidence of Predictive Validity**

The results provided some evidence that the four personality-based IATs predicted criterion behaviors related to integrity. First, while only two of the four personality-based IATs (Irres-Anx and Conf-Nice) significantly predicted rule compliance behaviors, all four IATs were in the predicted direction. This demonstrates that “cheaters” on average had larger IAT scores as predicted. Second, the continuous rule compliance criterion measure (total test time) was significantly correlated with two personality-based IATs (Adven-Consc and Irres-Anx) and marginally correlated with the other two (Conf-Nice and Mean-Shy). This provided further evidence that the four personality-based IATs predicted criterion behaviors related to integrity. Lastly, three of the four IATs significantly predicted whether subjects reported the wallet thief (the fourth, Adven-Consc, was marginally significant) and the pattern of cell means for those reporting and those not reporting was consistent with expectations. That is, those who denied seeing or knowing anything about the wallet had larger IAT effects and implicit self-concepts that were more strongly associated with dark side attributes. Collectively, these examples provided evidence that the four personality-based IATs were related to the criterion measures produced by the temptation manipulation.

However, one criterion measure (whistle-blowing on a cheater) had results that were inconsistent with this conclusion. Unlike the other criterion measures, whistle-blowing on the cheater was only marginally significant for the Mean-Shy IAT. The other three personality-based IATs did not significantly predict whether subjects exposed a

thief. Furthermore, these IATs also produced unexpected patterns. Positively sloped curves across the three categories were expected, but not found. This inconsistency could be due to high levels of error contamination in the measures or the method used to elicit exposure to a cheater was not an accurate or effective measure of integrity.

### **Evidence of Incremental Validity**

Adding the four personality-based IATs to the prediction model containing all the other predictors (the five explicit integrity measures and two overt-based IATs) marginally improved the prediction of test time. With regard to the categorical criterion measures, the four personality-based IATs were added to the two overt-based IATs and the five explicit measures in the DFAs. For the dichotomous rule compliance measure, knowing a person's IAT score did not significantly improve the prediction of whether subjects followed or broke rules. Similarly, adding the implicit measures did not significantly improve the prediction of whether a subject exposed a cheater. However, for the question involving the whereabouts of the wallet, adding the four personality-based IATs to the discriminant function, did significantly improve the prediction of group membership. Overall, aside from the question involving the whereabouts of the wallet, it seemed the four IATs did not produce incremental validity over the previously developed explicit integrity measures and overt-based IATs.

### **Limitations and Implications for Future Research**

One of the goals of this research was to create a measure that would allow individuals to identify if they were at risk of character failure. However, using Nunnally's

(1978) standards, only two of the six IATs had reliabilities close to the standards for making decisions about treatment conditions ( $\alpha > 0.7$ ) and none met his standards for making decisions about individuals using psychological measures ( $\alpha > 0.9$ ).

Unfortunately, this indicates that the IAT measures were too contaminated with error to be of any practical use in identifying those at greater risk of character failure in their work roles. Several threats to internal validity could have contributed to the amount of measurement error.

While some threats to internal validity such as testing effects and maturation could have occurred, these threats are inherent in every IAT procedure and therefore unlikely to be significant causes for error. However, instrumentation might have been a factor since the temptation manipulation was altered a few times during data collection. When it was discovered that participants were not exposing the thief, the procedure was altered slightly (i.e., previously, the research assistant would not mention the wallet). Interestingly, exposing a thief was the only criterion measure in which the four personality-based IATs added incremental validity.

Another calibration problem occurred in coding the criterion measures. Although participants had a large range of responses beyond simply confirming or denying, the responses were grouped into one of three categories. Looking at the cell means for groups based on subjects' willingness to expose a thief (Figure 3, pg. 23), there is a middle category of responses coded as "Yes, but I don't know where [the wallet] went." It was assumed that this response was a half-lie, that the participant did in fact know where the wallet went but did not want to expose the confederate. However, it is possible that these participants honestly did not know where the wallet was (perhaps because they were

distracted by the task). A manipulation check was never completed to ensure that subjects actually noticed the theft and were affected by it as expected. A repeated study should establish the procedure and complete a manipulation check. Without this manipulation check, there was no way to definitively conclude whether the IATs accurately predicted behaviors related to integrity. Future studies should consider the changing the confederate's script to increase whistle-blowing behaviors. Some of the folks might not have exposed the theft because they felt they would have to confront the confederate at the second lab. A simple solution would be to have the confederate decline the invitation to participate in the second part of the study. This change should be implemented in future studies to negate any distress that the subject has about possibly confronting the confederate.

This study was set-up to examine the how the four new IATs predicted actual behavior. However, it is possible that the wallet theft was a strong situation which primed subjects in such a way that it changed their IAT scores. In other words, the theft response was a manipulation rather than a good indicator of character or integrity behaviors. In strong situations, the situation might override personality. While this is a possibility, it would be difficult to construct a study that would ethically examine distressing subjects.

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## APPENDICES

### Appendix A: Online Questionnaire for Explicit Measures

Part 1: PLEASE RESPOND TO THE FOLLOWING DEMOGRAPHIC ITEMS.

1. Subject ID:
2. Age:
3. Sex:
  - A. Male
  - B. Female
4. Race/Ethnicity:
  - A. African American
  - B. Asian American/Pacific Islander
  - C. Mexican American, Latin American, Hispanic
  - D. European American (Caucasian)
  - E. Native American
  - Other:
5. Years of work experience:

Part 2: Read each item carefully and then rate each of the statements by marking the appropriate response choice. If you are unsure of how to answer a particular item, please choose the answer that describes you as accurately as possible. No item should be left unanswered.

6. My first impressions of people usually turn out to be right.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
7. It would be hard for me to break any of my bad habits.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
8. I don't care to know what other people really think of me.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
9. I have not always been honest with myself.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
10. I always know why I like things.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
11. When my emotions are aroused, it biases my thinking.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
12. Once I've made up my mind, other people cannot change my opinion.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
13. I am not a safe driver when I exceed the speed limit.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
14. I am fully in control of my own fate.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------
15. It's hard for me to shut off a disturbing thought.

Not true	1	2	3	4	5	Very True
----------	---	---	---	---	---	-----------

16. I never regret my decisions.  
Not true      1      2      3      4      5      Very True
17. I sometimes lose out on things because I cannot make up my mind soon enough.  
Not true      1      2      3      4      5      Very True
18. The reason I vote is because my vote can make a difference.  
Not true      1      2      3      4      5      Very True
19. People don't seem to notice me and my abilities.  
Not true      1      2      3      4      5      Very True
20. I am a completely rational person.  
Not true      1      2      3      4      5      Very True
21. I rarely appreciate criticism.  
Not true      1      2      3      4      5      Very True
22. I am very confident of my judgments.  
Not true      1      2      3      4      5      Very True
23. I have sometimes doubted my abilities as a lover.  
Not true      1      2      3      4      5      Very True
24. It's alright with me if some people happen to dislike me.  
Not true      1      2      3      4      5      Very True
25. I'm just an average person.  
Not true      1      2      3      4      5      Very True
26. I sometimes tell lies if I have to.  
Not true      1      2      3      4      5      Very True
27. I never cover up my mistakes.  
Not true      1      2      3      4      5      Very True
28. There have been occasions when I have taken advantage of someone.  
Not true      1      2      3      4      5      Very True
29. I never swear.  
Not true      1      2      3      4      5      Very True
30. I sometimes try to get even rather than forgive and forget.  
Not true      1      2      3      4      5      Very True
31. I always obey laws, even if I'm unlikely to get caught.  
Not true      1      2      3      4      5      Very True
32. I have said something bad about a friend behind his or her back.  
Not true      1      2      3      4      5      Very True
33. When I hear people talking privately, I avoid listening.  
Not true      1      2      3      4      5      Very True
34. I have received too much change from a salesperson without telling him or her.  
Not true      1      2      3      4      5      Very True
35. I always declare everything at customs.  
Not true      1      2      3      4      5      Very True
36. When I was young, I sometimes stole things.  
Not true      1      2      3      4      5      Very True
37. I have never dropped litter on the street.  
Not true      1      2      3      4      5      Very True
38. I sometimes drive faster than the speed limit.  
Not true      1      2      3      4      5      Very True

39. I never read sexy books or magazines.  
 Not true      1      2      3      4      5      Very True
40. I have done things that I don't tell other people about.  
 Not true      1      2      3      4      5      Very True
41. I never take things that don't belong to me.  
 Not true      1      2      3      4      5      Very True
42. I have taken sick-leave from work or school even though I wasn't really sick.  
 Not true      1      2      3      4      5      Very True
43. I have never damaged a library book or store merchandise without reporting it.  
 Not true      1      2      3      4      5      Very True
44. I have some pretty awful habits.  
 Not true      1      2      3      4      5      Very True
45. I don't gossip about other people's business.  
 Not true      1      2      3      4      5      Very True

Part 3: PLEASE RESPOND TO EACH OF THESE QUESTIONS USING THE FOLLOWING RATING SCALE.

46. Pick the response that best describes you.  
 Strongly disagree      Disagree      Neither      Agree      Strongly agree
- Someone who steals because his family is in need should not be treated the same as a common thief.
  - Most companies take advantage of people who work for them.
  - I've thought about taking money from an employer without actually doing it.
  - The average employee will tell his boss about a fellow employee who is stealing money.
  - I have known people who have stolen money from their employer.
  - Making personal phone calls at work without an O.K. is stealing.
  - I am too honest to steal.
  - I've thought of ways in which a dishonest person could steal from the company if a dishonest person had my job.
  - A judge freed a worker who had stolen money from his employer, because the employer paid such low wages. To what extent do you agree or disagree with the judge?
  - I have occasionally had ideas and thoughts that I would not like other people to know about.
  - The average policeman would overlook a traffic violation if offered money.
  - I would turn in a fellow worker I saw stealing.
47. Pick the response that best describes you.  
 Strongly disagree      Disagree      Neither      Agree      Strongly agree
- Taking paper clips, pencils, or envelopes from a place where you work is stealing.
  - A person caught stealing \$50 from his employer should be fired.
  - I've been tempted to steal company money to buy something I really wanted.

- I secretly feel good when I read about a successful robbery in the papers.
- Most bosses treat their employees unfairly.
- Nearly every worker has at some time cheated his company out of something.
- It's O.K. for an employee to allow friends to use his/her employee discount card, even though the company does not allow it.
- I have on occasion been at least a little tempted to steal something.
- A person who pays back money he/she stole from the company should be fired anyway.
- A person could steal company merchandise for ten years without being caught.
- Most people I've worked with have stolen something at one time or another.
- If I get into a movie without paying and be sure I wouldn't be caught, I'd do it.

48. Pick the response that best describes you.

Strongly disagree      Disagree      Neither      Agree      Strongly agree

- A life of crime would be exciting.
- Most people cheat on their income tax.
- Honesty is always the best policy.
- I have sometimes felt like swearing.
- It's okay to lie about the past to help get a job if you will be very honest after you're hired.
- Someone who helped another employee steal a little merchandise from the company should be fired.
- A person should always tell the truth.
- I like almost everyone.
- I have been approached by someone with a plan to steal something.
- Most people are honest only because they are afraid they'll be caught.
- It's fair for an employee to borrow some money from the company without asking if he/she has worked there for a long time.
- If I were given an extra 25 cents change at the supermarket, I would return it.

49. Pick the response that best describes you.

Strongly disagree      Disagree      Neither      Agree      Strongly agree

- A certain degree of dishonesty is just part of human nature.
- I get angry when someone treats me really badly.
- I'd be willing to take a lie detector test if money was missing on the job.
- Employers expect a certain amount of stealing.
- I am almost never wrong about things.
- It would be easy to steal from my employer if I wanted to.
- Just about everyone has shoplifted something.
- I am always able to accomplish my goals in life.
- Most people are basically dishonest.
- If I found \$3.00 in the coin return of a payphone, I'd send the money to the phone company.

- Most of my friends have taken a little money or merchandise from their employer.
- I sometimes think of doing dishonest things.

50. Pick the response that best describes you.

Strongly disagree      Disagree      Neither      Agree      Strongly agree

- A person who refuses to take a lie detector test probably has something to hide.
- Do you agree with the proverb "once a thief, always a thief."
- Cheating a little on an expense account is really not the same as stealing.
- People who say they have never stolen anything are lying.
- An employee should be fired if the employer finds out the employee lied on the application blank.
- A person who buys stolen merchandise is as bad as the person who originally stole it.
- I sometimes enjoy listening to gossip.
- After waiting 20 minutes for a waitress to bring the bill, it would be O.K. to leave the restaurant without paying.
- Most people I've worked with have never stolen from their employers.
- I sometimes put things off when I shouldn't.
- If I found a wallet with money, I'd return it to the owner.
- My conscience would bother me if I cheated someone.
- The penalties for theft are too severe.

Part 4: PLEASE RESPOND TO EACH QUESTION BY SELECTING ONE OF THE FIVE OPTIONS.

51. Over the last three years, what's the total dollar value of merchandise and property that you've taken from your employers?

- A. over \$100
- B. \$51-\$100
- C. \$11-\$50
- D. \$1-\$10
- E. \$0

52. Over the last three years, what's the total amount of money you've taken without permission from your employer?

- A. over \$100
- B. \$51-\$100
- C. \$11-\$50
- D. \$1-\$10
- E. \$0

53. The most expensive thing you've ever taken from a store and not paid for was worth?

- A. over \$100
- B. \$51-\$100
- C. \$11-\$50
- D. \$1-\$10

- E. \$0
54. What is the total amount of money you have taken without permission from places other than work, such as schools, parents and friends
- A. over \$100
  - B. \$51-\$100
  - C. \$11-\$50
  - D. \$1-\$10
  - E. \$0
55. What is the dollar value of all property you have taken without permission from places other than work, such as from school and from friends?
- A. over \$100
  - B. \$51-\$100
  - C. \$11-\$50
  - D. \$1-\$10
  - E. \$0
56. How long has it been since you have stolen money from anyone or any place?
- A. less than 6 months ago
  - B. 1 year ago
  - C. several years ago
  - D. when I was a child
  - E. I have never stolen any money
57. Have you ever changed price tags in a store because the prices were too high?
- A. never
  - B. once
  - C. twice
  - D. a few times
  - E. many times
58. Have you ever given unauthorized discounts to friends?
- A. never
  - B. once
  - C. twice
  - D. a few times
  - E. many times
59. Have you ever knowingly purchased stolen merchandise?
- A. never
  - B. once
  - C. twice
  - D. a few times
  - E. many times
60. What percentage of employees steal something from their company?
- A. 75%
  - B. 50%
  - C. 25%
  - D. 10%
  - E. 1%

61. What percentage of employees steals over \$10 worth of cash or merchandise every month?

- A. 75%
- B. 50%
- C. 25%
- D. 10%
- E. 1%

62. Pick the response that best describes you.

Strongly disagree      Disagree      Neither      Agree      Strongly agree

- Success is based on survival of the fittest; I am not concerned about the losers.
- I find myself in the same kinds of trouble, time after time.
- For me, what's right is whatever I can get away with.
- I am often bored.
- In today's world, I feel justified in doing anything I can get away with to succeed.
- I find that I am able to pursue one goal for a long time.
- My main purpose in life is getting as many goodies as I can.
- I don't plan anything very far in advance.
- Making a lot of money is my most important goal.
- I quickly lose interest in tasks I start.
- I let others worry about higher values; my main concern is with the bottom line.
- Most of my problems are due to the fact that other people just don't understand me.
- People who are stupid enough to get ripped off usually deserve it.
- Before I do anything, I carefully consider the possible consequences.
- Looking out for myself is my top priority.
- I have been in a lot of shouting matches with other people.
- I tell other people what they want to hear so that they will do what I want them to do.
- When I get frustrated, I often "let off steam" by blowing my top.
- I would be upset if my success came at someone else's expense.
- Love is overrated.
- I often admire a really clever scam.
- I make a point of trying not to hurt others in pursuit of my goals.
- I enjoy manipulating other people's feelings.
- I feel bad if my words or actions cause someone else to feel emotional pain.
- Even if I were trying very hard to sell something, I wouldn't lie about it.
- Cheating is not justified because it is unfair to others.

## Appendix B: Research Assistant (E1) Script & Procedure

Get to 454 at least 5 min before a scheduled S and either sit on the bench by the door in the main hallway or in the chair outside the door in the side hallway. If a likely suspect passes by before E1 arrives ask:

- “Are you looking for a psychology study?” and if they say “yes” tell them “you found it” & that E1 was here a minute ago & said to “have a seat & wait till they return”

If E1 is already in 454 or sitting in the hall with you, just follow E1’s directions & act like a real S. Toward the end of the 5-min session slow down (or click off the ‘submit’ button) so that you are at least 2 short of 10 when the alarm goes off; then say:

- “Don’t open the door yet – I didn’t make it . . . but I’m just a couple short . . . I wanna see if I can get it . . .” and continue for at least 30 sec’s.
- after getting 10 correct say “got it” & lean back to see what S is doing. Spend about a few sec’s looking around before you “find” the wallet & start perusing its contents [for at least 15-20 sec] . . . and then pocket the wallet. Try to time it so that you pocket the wallet just as E2 knocks/opens the door, or just as E2 arrives if the door is already open.

Option 1: if S is passive (doesn’t say anything to dissuade you from stealing the wallet), then wait for E2.

Option 2: if S challenges you at any point, (eg, “hey, don’t do that!” or “put that back!”) then accommodate, don’t escalate (say “okay” & put the money/wallet back on the desk). If S appears to be agitated or confrontational, reveal who you are and why you did what you did; say:

- “It’s okay; this is part of the study – this was a staged event, not a real theft; I’m part of the research team. When E2 returns he/she will tell you all about it – stay calm.”

When E2 arrives tell them that you’ve been caught & let E2 take it from there. If S has been passive (hasn’t challenged you), when E2 asks if you stopped on time QUICKLY answer “yes” . . . then let E2 “sell you” on volunteering for the second part – but when E2 finishes, tell him/her “yes” & follow directions. Duck into 460 after you leave & wait for S/E2 to go down to 425.

Option 3: if S blows the whistle on you while you are there, as E2 arrives or shortly thereafter:

- Support E2 as he/she thanks S for reporting you, but this is part of what this study is really about – blowing the whistle on those who break rules or commit crimes -- and you are really a research team member who helped stage the event. Accompany E2 & S to 460 (or wherever we are debriefing).



## **Appendix C: Research Assistant (E1) Script & Procedure**

- Arrive at 454 at least 10 min before an S (Research Subject/Participant) is scheduled to show up; pull up the countdown timer on the desktop computer; load the Academic Test programs on both work station computers so that the “consent” page is on the screen; wait for S to arrive.
- When S arrives ask if he/she is “here for the psychology study dealing with Academic Ability and Personality” but don’t call/ask for S by name; direct S & C to sit at the designated workstations or “wait a few minutes to see if another subject will show up” if C is not already there. Once both are there start with the informed consent info:

“Both of you signed up for this study on SONA, right? Like the brief description on the Sona web site says, this study investigates the relationship between academic ability and personality traits related to conscientiousness and character – traits of interest in I-O psychology. We use the kinds of items found on standard achievement tests to measure your academic ability – a lot of word analogy & vocabulary items. The personality traits are measured by two kinds of items. One type involves self-report items like those found on personality inventories that ask you to describe yourself in terms of: “I like almost everyone I meet” (true/false) or “sometimes I put things off when I shouldn’t” (true/false). A second type of item uses a procedure called the Implicit Association Test and it is based upon reaction times on classification tasks.

“All of the items for all of the measures are administered by computer programs connected to your work stations, both here & in another lab down the hall in room 425. The first part of this procedure – the assessment of your academic ability – requires that you correctly answer 10 questions during a 5-minute timed trial . . . and you will be given one unit of credit for participating in this activity. IF you can correctly answer 10 questions during the allotted time, we want you to stay for the second part of this study – the part that involves the personality measures – but at this point we’re interested in further testing only those who get at least 10 correct on the academic test.

“While the first part of this procedure takes about 20 minutes, including the time it’s taking me to read you these instructions, the second part of this procedure should take about 50 minutes to complete and you will be given an additional three units of credit for that effort, making a total of 4 units for the entire study, if you qualify and volunteer to continue. We estimate that the entire study, both the first and second parts, will take about 75 minutes from start to finish.

“Participation in this study is entirely voluntary and you have the right to withdraw at any time, without penalty. Your identity as a subject in this study is confidential; no names or other personally identifying information will be recorded or retained. The faculty member responsible for this study is Donald Fischer in the Psychology Department and he will answer any questions you may have regarding this study. You can also ask his research assistants – me – any questions you have about this study and

I will answer them to the best of my ability. Do you have any questions you wish to ask at this time?"

- After answering any question, tell S & C to "refresh" their computer screens (if needed) and to:

"Read the 'consent statement' silently on your computer to yourselves while I read it out loud:

"The procedures of this study have been described to me. I understand that the questions I may have about this research will be answered by Professor Fischer or the research assistants working on this project. By clicking on "Begin Test" (when instructed to do so) I certify that I am at least 18 years old and consent to participate in this research."

"If you do NOT want to participate, you should leave now (since you're still here I take it you want to stay).

"When you click on "begin test" the questions will be presented on your computer screen one at a time. All of the questions are presented in a multiple-choice format. You record your response by clicking on the radio button for the alternative you choose (an "A" "B" "C" "D" or "E") and then clicking the "submit" button. As soon as you enter your response the computer will tell you whether your answer was correct or incorrect, along with how many more questions you need to get correct in order to qualify for the second part of this study (how close you are to getting 10 correct) . . . and then the next question will be displayed, along with the prompt for your response.

"You must respond to each item; you can't skip an item without entering a response and you can't go back to earlier items. I want you to take your time and try your best on each item – if you respond in under 3 seconds, your response will be counted as false, regardless – so take your time and try your best . . . but, in the end, if you can't figure out the answer, make your best guess and go on to the next item. The countdown timer here on this computer [point to the desktop computer] will display how much time is left, so in addition to knowing what your total score is, you will know how much time remains to get a passing score – 10 correct.

[don't read this part] "I'm going to leave after I get you started (I've gotta go down to the lab in 425 to make sure things are set up & ready for the personality testing), but I'll be back to see how you did as soon as I can. I'm going to close the door when I leave so that you won't be distracted by people out in the hallway – it can get pretty noisy up here at times. You'll want to open the door after the alarm goes off to let me or the other RA know you're done . . . Just make sure you stop working on the test when the timer's alarm goes off (you'll hear a classic "ring" tone) and then wait for one of us to arrive if we aren't already here – sitting in that chair waiting for you to open the door . . . if someone's not there – don't panic – just sit tight & don't go anywhere (we're just down the hall). Do either of you have any questions before I get you started? Okay, I want you to position your mouse-cursor on top of the 'begin test' button and get ready

to click it after I give you a ‘one-two-three-go’ countdown – I want us all to try to click our buttons at the same time. Ready? Okay: 1-2-3-go!”

- As you go through your countdown try to start the timer simultaneously with “go” & the S’s clicking their “begin” button so that we get a true mark of the time of S’s last response. Then leave, closing the door behind you. Make note of the time so you know when to return (or stand in the hallways outside 454 so you can hear the alarm sound)- all Ss need to have at least 90 sec’s to continue working on the test after the timer goes off.

## Appendix D: Research Assistant (E2) Script & Procedure

Stand in the main hall outside 454, close to the wall so that you can hear the alarm sound when 5 min has expired. If S is confrontational and C discloses (tells S who he is), **immediately** return to corroborate C and take S for debriefing in 460. If S is passive or non-confrontational, wait approximately 90 sec's after the timer alarm has sounded to return/open door(after C has taken the wallet); if the door is still closed, open it & enter (if it's open, just enter); as you enter the room ask C & S if they stopped when the timer went off:

- While looking at C ask: "Did you two stop when the alarm went off?"

Option 1: If S disagrees or agrees with C say: "Okay; well, let's see how you two did anyway."

Option 2: If S says nothing, look at S and say "is that right?" then say "okay" regardless of how they respond before quickly look at C's computer & saying:

- "I see you got a passing score – good job. We'd really like for you to stay & volunteer for the second part – it's easy compared to this part – no tough analogy or vocabulary questions, just brief descriptions to rate and a classification task – and you'll get **three more units of credit**. [after C volunteers say:] Okay, I need to give you a subject number from my sheet; it's your identification number – you'll need it when you get to the lab down the hall . . . [make sure you get C's number from the correct column & cross it off so you know where to begin next time]. After you give C his number, say: "You can go ahead to room 425 down and get started [point the way] while I save your data."

After C leaves, sit down at C's computer click "**end test**" and "**OK**" in response to the dialog box that opens to display the summary table; make a noticeable sound "hummm" or "that's strange" then look at S & ask:

- "Did he really stop when the alarm went off?"

**Option 3A:** if S says "yes" or "I don't know/can't say" then say "Okay" and get up/swivel around so you can look at S's computer.

**Option 3B:** if S blows the whistle & says "no; he/she kept working on the test" (or something similar), but **says nothing about the wallet**; say "I thought this looked funny; thank you for telling me" and get up/swivel around so you can look at S's computer.

Under either option 3A or 3B say:

- “It looks like you didn’t make it; came close, though – just one short of 10 . . . tell you what – do you want to stay for the second part & do the personality scales? If you do, you’ll still get the three units of credit, even if we don’t use your data – just like you get 1 unit for this part, even though you didn’t get 10 correct.”

Option 3A/B(1): if S does NOT want to stay for the second part say:

- “Okay; we’d really like you to do the second part – it’s an easy way to get your course credit, but if you don’t want to, it’s your choice. Before you leave I need to take you 460 (or wherever) so you can get your credit on SONA; follow me.” [Before you leave, notice that your wallet isn’t in the clipboard & vocalize your concern (say to yourself)] “Wait a minute . . . where’s my wallet?” and then quickly look S in the eyes & ask “Did you see a wallet in here?” (then take S to debriefing)

Option 3A/B(2): If S wants to stay, say:

- “Okay; I need to give you a subject number from my list.” Assign S a number off the sheet & give it to him/her, but as you do this notice that your wallet isn’t in the clipboard & vocalize your concern (say to yourself) “Wait a minute . . . where’s my wallet?” and then quickly look S in the eyes & ask “Did you see a wallet in here?”

If S blows the whistle on C (reports theft), proceed according to Option 3C below; If S does **NOT** blow whistle on C, then proceed to 425, but note that C isn’t there by asking E1:

- “Where is the other subject?” (if no E1, then comment aloud, “Wonder where is that other S?”)

Then get S seated at a computer . . . and suggest E1 “go look for him while I get this subject started.” Instruct S to take a seat and enter their 5-digit code in the response to the prompt. **Monitor S’s login to insure he/she correctly enters the 5-digit code &** tell S to hold onto the number so they can enter it when prompted after they finish the first set of measures. When S finishes, lead him/her down to 460 (or wherever) for debriefing.

**Option 3C:** if S says “no, C did not stop (or something similar)” **and proceeds to report the wallet & theft**, then say “Okay; I’ve got to tell you the theft was part of this study – C (name) is part of our research team and the theft was staged. Since you’ve reported the event, we need to debrief you – tell you all of the facts – before we go any further. Please follow me next door.” . . . and bring S to debriefing.

Option 4: If S responds by blowing the whistle on C for stealing wallet **before** C leaves: disclose and immediately take S to debriefing.

- “Thank you for reporting this – it’s a part of what this study is really about – blowing the whistle on those who break rules or commit crimes. C (name) is really a research team member who helped stage the event so that you’d have an opportunity to report it. Because this study involves deception, we need to give you a full debriefing (give you all of the facts) before you leave, so please follow me.” Accompany E2 & C to 460 (or wherever we are debriefing).

Return to 454 & save S’s data (following procedures below); write time & #correct on clip board so the data can be entered in the SPSS file (on desktop computer in 454).

#### **Post-subject clean up:**

Click “**end test**” and “**OK**” in response to the dialog box that opens on S’s computer to display the data. Write down the “time” of S’s last entry (on a piece of scratch paper in your clipboard) and the number of correct responses made in under 300 sec’s (or within a couple of sec’s more) so you can add these to the SPSS data file along with S’s response codes & subject ID# on the big computer (computer on the big desk). Save S’s data on the workstation computer in the “data” folder by clicking on “**page**” in the Explorer tool bar to get a dropdown menu and selecting the “**save as**” option; change the file type from the default (.html) to “.txt” as the file extension option and give the “**file name**” the same 5-digit ID number you gave C from the random number sheet. Log-off computers in 454 or prepare for next subject by closing & reopening the “Academic Test” program; log-off computers in Hill425 (or prepare for next subject).

#### **Pre-subject set up:**

Log onto the computers in 454 & double click on the “Academic Test” icon on the desktop (or plug in the memory stick & open the “Academic Test” from there) & click on the “allow scripts & ActiveX” bar & “yes”; open the behavioral data file in SPSS and open the countdown timer (click on the link & set it to 5 min); log onto the computers in 425 & make sure the desktop (Millisecond) shortcuts are ready.

#### **Codes for S’s response to the questions:**

Q1 code: in response to first question (Did you two stop?) 1=affirms/lie (says “yes” or nods agreement); 2=negates/truth (says “no” or disagrees); 3=silence (neither affirms nor negates) at first, but then agrees (lie) when pressed; 4=silence at first, but then disagrees (truth) when pressed; 5=other (make written note for file & record actual response or paraphrase in “comment” space).

Q2 code: in response to second question (after C is gone, “Did C really stop?”) 1=affirms (says “yes” or nods agreement); 2=negates (says “no” or disagrees & elaborates); 3=neither affirms nor negates (says or gestures “I don’t know/wasn’t watching/can’t say/etc); 4=other (make written note & record actual response in “comment” space).

Q3 code: in response to third question (“Did you see a wallet in here?) or prior to third question: 1=busts C on theft with C present; 2=busts C on theft after C is gone; 3=says nothing about theft/wallet; 4=anything else (make a note & record actual response in “comment” space).

## Appendix E: Debriefing Script and Procedure

Pull up SONA, verify S's by his/her first name & award S the units of credit & tell S what you are doing ("okay; it says you've got X credits for this study"). Then say: "I need to take a few more minutes of your time because this study involves some deception and I need to describe this to you before you leave and obtain your fully informed written consent to retain & use the data we have collected (or not).

First, I need to ask if you knew anything about this study OTHER than the information that we posted at the Sona System web site where you signed up, or the information I [E1] read to you when you began the study – did you talk with anyone who had already participated in this study? [record response & probe if "yes"]

Did you suspect that we were really interested in something other than academic ability & personality traits? What was it? When did you suspect this? [record & probe as appropriate]

Okay; in fact, this study is NOT designed to investigate the relationship between academic ability and personality traits – what we're really interested in is the relationship between personality measures and actual behavior related to integrity/character – lying, cheating & stealing behavior.

In order to obtain this behavior we use what is called a "temptation manipulation" – we create a situation where you (the subject) have an opportunity to follow or break a rule, lie or tell the truth, and blow the whistle on a thief (or not) . . . just like the "sting" operations you've seen on TV or in movies where they bait a target in an effort to get them to do something while they're watching.

In our case, the other subject (name) is a confederate – a member of our research team – who doesn't stop when the alarm goes off and then lies about it when asked by the research assistant and steals a wallet . . . which gives you an opportunity to join him – or not – and then "blow the whistle" on him - or not.

It is difficult to do research like this – research that examines the relationship between psychological measures and actual behavior, especially when the behavior is potentially compromising. At the same time, it is important to learn more about the dynamics of integrity so that we can better manage the risks related to "character failure" – like the illegal conduct of the executives at Enron who fraudulently "cooked the books" and broke laws that led to the collapse of the corporation and the financial ruin of many innocent people (especially those whose retirement funds were heavily invested in Enron stock) . . . or like the illegal conduct of the MP's who violated Geneva Convention standards and abused prisoners at Abu Ghraib in Iraq . . . or like the illegal conduct of police officers who engage in racial profiling when deciding who to pull over and arrest.

IF we can develop psychological measures that accurately identify those who are at higher risk of "character failure" then we can work on ways to mitigate this problem by

developing interventions – ways of structuring work environments so those who are prone to temptation do not fall prey to it – in much the same way that treatment programs for alcohol/drug abusers intervene with those at risk of “falling off the wagon” by helping them identify situations that are “dangerous” (like bars & parties where alcohol is flowing) and then develop strategies that help them NOT fall prey to these temptations – like avoiding bars (finding “new playgrounds & new playmates” is the AA motto) . . . or calling your sponsor BEFORE you throw down that first drink.

We’re not interested in alcohol/drug addiction – we’re interested in lying/cheating/stealing behavior . . . but, just as with addiction, intervention BEGINS with awareness. How would I know if I’m at risk for cooking the books or abusing prisoners? If you ask me “are you a person of good character?” I would honestly tell you “YES!” . . . I think of myself as a someone who tries to do the right thing . . . but how do I really know what I’d do if I were there in the room when the Enron executives were cooking up their illegal schemes & inviting me to join in . . . or what I’d do if I were there at Abu Ghraib in Iraq being told by higher ranking officers to abuse the prisoners?

Do you remember the classic Milgram studies from your Psych class? If you’d asked ANY of Milgram’s subjects – before they ever set foot on the Yale University campus – “Are you the kind of person who would torture an innocent victim to death because a Yale professor was telling you to, would you do it?” ALL of them would say “Absolutely not!” . . . and they wouldn’t be lying to you – like me, they think of themselves as people who try to do the right thing. But, in fact, we know 2 out of 3 of Milgram’s subjects actually do go all the way and electrocute the victim, even with him screaming in pain in the next room. The problem is that we often don’t have the kind of self-knowledge or self-insight to accurately predict what we would actually do in situations that challenge our integrity.

I’m telling you all this so that you might understand WHY we’re doing this research. We are trying to develop psychological measures that better predict who is/isn’t at risk of character failure and doing things they later regret . . . we’re not just on a lark, trying to trick students into doing something that is potentially distressing.

It is also important that you understand we are NOT interested in who you are in any way; we are ONLY interested in what you said/did (next door) & how you responded on the psychological measures we’re developing. Your name is NOT recorded in ANY of our records; you are only identified by a 5-digit number we assign you . . . and the only reason we give you that number is because we have to have some way of connecting your data from 3 sources – your personality scales are on 2 different servers & your time log is on the computer next door . . . once the information from these 3 sources is connected even the 5-digit number is destroyed & your data becomes just another record in our file, indistinguishable from any other record in the file.

Although I know who you are by name because I have access to the Sona System & award your credit, I don’t know what you said/did next door . . . nor do I want/need to know anything about you . . . if we could figure out how to award you credit WITHOUT



identifying you are by name, we would do it. While C (name) probably knows whether you kept answering questions after the alarm went off & E2 (name) knows how you answered his/her questions, neither of them knows your name because they aren't awarding your credit on the Sona System.

This study was carefully designed to protect your anonymity because being tempted to break a rule and lie can potentially cause distress or anger at being "set up". The only exception to your anonymity is that C and E2 have seen your face and may recognize you at some time in the future (say, grocery shopping or walking across campus) . . . although we know from past studies that this is a remote possibility – not very likely – and, again, even if one of them DO see you again, neither knows who you are (by name).

However, because we think there IS a remote risk of harm to you – specifically, a potential for you to be distressed or angry at us for "setting you up" (tempting you to cheat and lie), the University's Human Subjects Protection Committee (our IRB) requires that I formally assess your feelings and inform them (the IRB) IF you feel harmed by the way we have treated you or IF you are dissatisfied with the protections we are offering you (anonymity) or IF you object to what we say we intend to do with the data we have collected . . . because if you ARE upset then I need to explore these feelings with you and talk about what you might do in response to these feelings – more specifically, I need to make sure you know there are campus resources like the Counseling Center in Carrington Hall where you can talk with a licensed professional (without any cost to you) and explore what you might do in this regard.

For that reason, I need to formally ask you now – Do you feel distressed – are you angry or upset about having participated in this study? [explore/follow up, as appropriate]

I also need to tell you that if you should decide at some future time that you were harmed by participating in this study, you can (and should) contact me (here in the Psych Dept) to discuss these feelings and what you might do about them . . . and I also need to tell you that you can communicate any of these concerns directly to a member of the University's IRB, either now or in the future, and I will provide you with a name and contact information upon your request.

Okay; we're almost done. (give S the Informed Consent Form) The last thing I need to do is ask you to complete this form by marking the appropriate alternatives and then signing it. Please read silently to yourself while I read out loud: (read it to S)

Thank & excuse the S.

## Appendix F: Informed Consent Form

### Informed Consent Form

The procedures and purpose of the “Academic Ability and Personality Study” in which I participated have been described to me and I understand that deception was used to tempt subjects to break rules and tell lies. I also understand that the data which were collected are anonymous in that *no names* (including mine) appear in any of the records.

I understand that those conducting this study are required to assess and report all adverse responses subjects may have regarding their participation. In accord with this requirement, I have checked the alternative below that represents the amount of *distress* (how worried, angry, upset, or ashamed) I currently feel regarding having participated in this study:

☐ (1) not at all ☐ (2) small/slight ☐ (3) somewhat, but not a lot ☐ (4) much/substantial ☐ (5) very much

I understand that all data pertaining to my participation will be destroyed if I do not want to authorize its use. By checking the appropriate alternative below, I am indicating what I want in this regard:

☐ (1) I *do* authorize Professor Fischer to retain and use my data.

☐ (2) I *do not* authorize any use of my data and I want it destroyed.

Signed \_\_\_\_\_, Date \_\_\_\_\_

## Appendix G: Hierarchical DFA for Criterion Measures

### Hierarchical Discriminant Function Analysis for Stop/Cheat

Hierarchical Step & DV	Function Coefficient	Canonical ( <i>r</i> )	Wilks' Lambda	Δ Chi-Square	df	<i>p</i>	Δ Chi-Square	df	<i>p</i>
Step 1		0.28	0.92	9.79	7	.20			
Emp-Integ	0.32								
Self-Integ	-0.11								
PDS-IM	-0.18								
PDS-SD	0.19								
LSRP-1	-0.43								
LSRP-2	0.91								
EII-Integ	-0.20								
Step 2		0.35	0.88	16.02	11	.14	6.23	4	.18
Mean-Shy	-0.17								
Conf-Nice	0.54								
Irres-Anx	0.32								
Adven-Consc	0.37								
Emp-Integ	0.12								
Self-Integ	0.06								
PDS-IM	-0.06								
PDS-SD	0.08								
LSRP-1	-0.32								
LSRP-2	0.66								
EII-Integ	-0.07								

### Hierarchical Discriminant Function Analysis for Exposing a Cheater

Hierarchical Step & DV	Function Coefficient	Canonical ( <i>r</i> )	Wilks' Lambda	Δ Chi-Square	df	<i>p</i>	Δ Chi-Square	df	<i>p</i>
Step 1		0.39	0.81	25.23	14	.03			
Emp-Integ	0.03								
Self-Integ	0.09								
PDS-IM	0.32								
PDS-SD	-0.21								
LSRP-1	-0.78								
LSRP-2	0.98								
EII-Integ	0.27								
Step 2		0.48	0.73	37.87	22	.02	12.64	8	.12
Mean-Shy	0.56								
Conf-Nice	-0.13								
Irres-Anx	0.20								
Adven-Consc	0.25								
Emp-Integ	-0.20								
Self-Integ	< 0.01								
PDS-IM	-0.28								
PDS-SD	0.09								
LSRP-1	0.70								
LSRP-2	-0.92								
EII-Integ	-0.20								

### Hierarchical Discriminant Function Analysis for Exposing a Thief

Hierarchical Step & DV	Function Coefficient	Canonical ( <i>r</i> )	Wilks' Lambda	Δ Chi-Square	df	<i>p</i>	Δ Chi-Square	df	<i>p</i>
Step 1		0.32	0.86	17.83	14	.22			
Emp-Integ	0.77								
Self-Integ	0.47								
PDS-IM	-0.60								
PDS-SD	0.53								
LSRP-1	0.14								
LSRP-2	0.23								
EII-Integ	0.84								
Step 2		0.45	0.73	37.51	22	.02	19.68	8	.01
Mean-Shy	0.37								
Conf-Nice	0.30								
Irres-Anx	0.24								
Adven-Consc	0.26								
Emp-Integ	0.45								
Self-Integ	0.46								
PDS-IM	-0.45								
PDS-SD	0.36								
LSRP-1	0.12								
LSRP-2	0.20								
EII-Integ	0.73								