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# Development and Vailidation of Implicit Association Tests for Organizational Citizenship Behavior Motives

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**DEVELOPMENT AND VALIDATION OF IMPLICIT ASSOCIATION TESTS  
FOR ORGANIZATIONAL CITIZENSHIP BEHAVIOR MOTIVES**

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

Tonielle Myriah Fiscus

July 2016

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**DEVELOPMENT AND VALIDATION OF IMPLICIT ASSOCIATION TESTS  
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Psychology

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**ABSTRACT**

Organizations have long held an interest in organizational citizenship behaviors (OCB), as they provide a link between employee satisfaction and productivity. Only recently have researchers begun to investigate the reasons why employees perform OCB. Explicit (self-report) measures of OCB motives are susceptible to contamination from impression management and self-knowledge artifacts, making the results of such measures potentially inaccurate. Four Implicit Association Tests (IATs) were developed to assess the OCB motives that Borman and Penner (2001) describe. Because the IAT procedure uses reaction times on classification tasks, the procedure is resistant to the contamination that impression management and inaccurate self-knowledge can have. Amazon's Mechanical Turk was utilized to collect data from participants who responded to both implicit and explicit measures of the OCB motives. The construct validity of the measures was examined by using confirmatory factor analytic methods to test a sequence of nested models in a multitrait-multimethod design. The results provide some support for the convergent and discriminant validity of the IATs.

**KEYWORDS:** organizational citizenship behavior, organizational citizenship behavior motives, implicit measures, implicit association test

This abstract is approved as to form and content

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Donald Fischer, PhD  
Chairperson, Advisory Committee  
Missouri State University

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Approved:

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## INTRODUCTION

Organizational Citizenship Behavior (OCB) is defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (Organ, 1988, pg.4). The construct of OCB is not a recent one. Daniel Katz is often cited as the first to introduce this concept to industrial and organizational psychology. Katz (1964) identified three basic tenets of behavior that were essential for organizations to function effectively: individuals must be induced to enter the organization and remain, carry out tasks related to their role in a reliable fashion, and there must be actions that go beyond the prescribed role activities. The third category is where the concept of OCB originated. These motivating factors should, therefore, be encouraged in different ways by the organization, either through pre-selecting those who are more likely to perform these helpful functions, or through the organization somehow encouraging employees to act on these motivations (Borman & Penner, 2001).

Four lines of research originated from the introduction of the concept of OCB: finding relationships between OCB and organizational effectiveness, determining the emphasis placed on OCB versus task performance during performance appraisals, exploring whether personality variables predict OCB better than task performance, and identifying motives for performing OCB in organizations (Borman & Penner, 2001). The main focus of the current study are the motives for performing OCB in organizations; however, background information will be provided for the other areas as well.

The first avenue of research regarding OCB is that of demonstrating that a relationship exists between OCB and organizational effectiveness. The positive relationship between task performance and organizational effectiveness is perhaps more obvious than the relationship between citizenship performance and organizational effectiveness (Organ & McFall, 2004). Evidence of this relationship, however, has emerged over the years. For example, Podsakoff and MacKenzie (1997) examined the relationship of OCBs (as measured by helping behavior, sportsmanship, and civic virtue) with effectiveness. They found that OCB accounted for variance in performance quantity, performance quality, financial efficiency of the organization, and quality of customer service.

The second avenue of research regarding OCB is that of demonstrating that OCBs are evaluated in conjunction with task performance. OCB has been shown to contribute to performance assessment in a unique way not covered by task performance. Motowidlo and Van Scotter (1994) found that task and contextual performance (including OCB) contributed independently to overall performance in a study in which air force personnel were rated by supervisors. Other studies have also found that managers attend to OCB related variables when making decisions regarding hiring and performance as well as those related to task performance (e.g. Dunn, Mount, Barrick, & Ones, 1995; Werner, 1994).

The third, prolific avenue of research regarding OCB, has uncovered the antecedents of OCB. Personality variables have been shown to correlate more strongly with OCB than with task performance, (Borman & Penner, 2001). For example, Motowidlo and Van Scotter (1994) found evidence that the personality traits of work

orientation, dependability, cooperativeness, and locus of control all correlated more strongly with OCB than with task performance. To more directly study which personality traits are related to OCB, personality inventory measures have been used. Penner, Fritzsche, Craiger, and Freifeld (1995) developed one such measure of citizenship performance. It is a 56-item self-report scale with two dimensions: other-oriented empathy and helpfulness. This measure is related to a large variety of prosocial behaviors, including the amount of time individuals volunteer with people who are HIV positive or who have AIDs (Penner & Finkelstein, 1998).

However, while these lines of research bring the field closer to identifying who will perform OCB, it does not answer one crucial question: Why? The fourth avenue of research concerning OCB addresses this issue as its focus is on the motivation behind the commitment of OCB. The most common way to operationalize OCB motivations is through a self-report questionnaire. Rioux and Penner (2001) developed one such measure called the Citizenship Motives Scale. It is a 30-item measure with 3 subscales consisting of 10-items each, and respondents rate the items on a 5-point Likert type scale. The subscales have high internal consistency with Cronbach's alphas of .91 for prosocial values (PV), .94 for organizational concern (OC), and .91 for impression management (IM).

According to Nunnally's (1978) standards, these alpha levels are excellent as they are all above .90. The measure has also been shown to have test re-test reliability. Rioux and Penner (2001) had 104 individuals complete the scale a second time 2 to 3 weeks after the initial test, finding reliabilities ranging from .71 for prosocial values to .82 for impression management. Items from the measure include ask the respondent to report

whether they do OCB “Because I care what happens to the company” (for OC), “Because I believe in being courteous to others” (for PV), and “To look better than my co-workers” (for IM; the scale can be seen in its entirety in Appendix A).

In addition to being internally consistent and stable, the Citizenship Motives Scales have been shown to account for unexplained variance in OCB behaviors (Rioux & Penner, 2001; Takeuchi, Bolino, and Lin, 2014). However, the scales are not without flaws. First, while the subscales have been shown to correlate with each other (OC – PV,  $r = .53$ ; OC – IM,  $r = .36$ ; and PV – IM,  $r = .30$ ) they were not so strongly correlated that singularity is thought to exist (Rioux & Penner, 2001). This suggests that multiple motives are likely at work. Even more problematic, because the scales are self-reported, individuals can intentionally manipulate the results in order to be seen in a more favorable light. This is especially prominent in the impression management subscale, where those who are most likely to score highly if the scale is answered honestly, are those most likely to avoid presenting themselves in a negative light by lying (Rioux & Penner, 2001).

To control impression management effects, a format other than an explicit one might be used. Implicit Association Tests (IATs) use reaction times in categorical sorting tasks in order to determine individuals’ underlying attitudes toward the categories (Lane, Banaji, Nosek, & Greenwald, 2007). A classic example of an IAT examined attitudes toward insects and flowers (Greenwald, McGhee & Schwartz, 1998). Participants were asked to sort insect names (e.g. bee, wasp, horsefly) and flower names (e.g. rose, tulip, marigold), along with words from two descriptor categories containing pleasant words (e.g. family, happy, peace) and unpleasant words (e.g. crash, rotten, ugly), as quickly and

accurately as possible when the words appeared on a computer screen one at a time. The stimuli (words) were initially matched so that both flower and pleasant words were assigned to one computer keyboard letter (“e”), while insect and unpleasant words were assigned to another keyboard letter (“i”). The descriptor categories were then switched so that flower and unpleasant words were assigned to a common keyboard letter (“e”) while insect and pleasant words were assigned to the other keyboard letter (“i”). IAT theory posits that reaction times between paired constructs will be faster for those constructs that are more strongly associated in a person’s cognitive knowledge structure. The IAT score (or IAT effect) is a function of the difference between the mean reaction times on the alternative pairings of the constructs. An example of a seven block IAT can be seen in Table 1. The pairing that is most inconsistent with individuals’ attitudes toward the categories will take longer to sort and contain more mistakes than the pairing that is consistent with individuals’ attitudes. In accord with this, Greenwald et al. (1998) found that flowers-good and insects-bad had faster response times and fewer mistakes than did flowers-bad and insects-good.

Assessment results based on IATs often differ from those based on self-report measures (Greenwald, Banaji, Rudman, Farnham, Nosek, & Mellot, 2002), especially when there is an incentive and opportunity for dissociation (Fazio & Olsen, 2003). The present study seeks to explore the issue of potential dissociation between explicit and implicit measures of OCB by developing IATs that target OCB motives. More specifically, the following general hypothesis will be tested: IAT measures of three OCB Motive attributes (Prosocial Values, Organizational Concern, and Impression Management) will be related to corresponding explicit (self-report) measures of these

attributes, and these relationships will be stronger than the relationships with both explicit (self-report) and implicit (IAT) measures of non-corresponding attributes. This general hypothesis can be expanded into more specific hypotheses that involve convergent and discriminant validity evidence. These specific hypotheses can be assessed through the testing of hierarchically nested latent trait models using confirmatory factor analytic (CFA) procedures described by Widaman (1985). In the next section these more specific hypotheses and procedures will be described.

Table 1. Example Structure of a Traditional IAT

Block	Number of Trials	Left key response	Right key response
1*	20	Flower	Insect
2*	20	Good	Bad
3*	20	Flower + Good	Insect + Bad
4**	40	Flower + Good	Insect + Bad
5*	40	Insect	Flower
6*	20	Insect + Good	Flower + Bad
7**	40	Insect + Good	Flower + Bad

\*Practice blocks; \*\*Test blocks

## **METHOD**

In accord with procedures described by Campbell and Fiske (1959), multiple methods were used (i.e. implicit and explicit) to measure multiple traits (i.e. impression management, organizational concern, and prosocial values), to examine the construct validity of the IATs. Prior approval for this project was obtained from the Institutional Research Board at Missouri State University (November 12, 2015; approval #16-0213).

### **Participants**

Participants in the study were recruited through Amazon's Mechanical Turk, which is a marketplace in which workers can self-select which 'jobs' to complete. Two hundred and thirty-six workers took part in the study, and were paid \$.75-\$1.00 for doing so. However, 15 individuals were removed from the study because they were identified as outliers upon examination of the explicit data (greater detail for how these individuals were identified as outliers is provided in the Data Screening section) and 38 were removed for having less than 60% accuracy on at least one of the IATs. Of the 183 remaining subjects, the age range of participants was 20-69, with an average age of 40. One hundred fifty-six participants identified as United States citizens. The racial/ethnic composition of the sample was: 3% American Indian or Alaska Native, 17% Asian, 7% Black or African American, 4% Hispanic or Latino, 66% non-Hispanic White, and 3% two or more race/ethnicities; 52% of the individuals identified as female. Participants averaged 18 years of work experience, and 83% indicated they were presently employed.



## **Implicit Measures**

The IATs were developed following the guidelines established by Lane et al. (2007) in conjunction with the standard seven-block procedure and D-scoring procedure described by Greenwald et al. (2002). Several iterations were necessary to develop usable IATs. First, category labels were chosen to accurately represent the three OCB motives identified by Rioux and Penner (2001). Their three OCB motives were Organizational Concern, Prosocial Values, and Impression Management (Rioux & Penner, 2001). The category labels that were chosen to represent these three OCB Motives were Commitment, Altruism, and Status, respectively. Second, word lists were generated that were synonyms of the labels or semantically related to the category labels. Final stimuli items were selected based on ratings of their positive valence, as well as being quickly and easily sorted into their labeled categories. This matching of stimuli in accord with their valence follows the recommendation of Schnabel, Asendorf, and Greenwald (2008), who advised using valence-balanced stimuli in order to avoid confounding the IAT effects with implicit self-esteem. This was especially important for the Impression Management category as negative connotations are often associated with words related to impression management (i.e. selfish, greedy, etc.). Four words were selected for use in each IAT as this is the minimum number recommended by Nosek, Greenwald, and Banaji (2005).

The structure of the IAT was modified from that described by Greenwald et al. (1998) in that the OCB motive descriptors replaced insects and flowers as comparison categories. Because individuals with high self-esteem identify readily with the descriptor 'good' rather than 'bad,' the good/bad referent categories used in Greenwald et al. (1998)

were maintained in the present study. Therefore, the stronger the self – OCB motive associations in one’s implicit self-concept, the greater the IAT effects will be (Schnabel et al., 2008). The category labels and stimuli chosen for the traditionally formatted IATs can be seen in Table 2. The traditionally formatted IATs have the OCB motive categories pitted against each other (i.e. Status – Altruism, Commitment – Status, and Altruism – Commitment), as the OCB Motives are not dichotomous, meaning individuals can be high/low in more than one category. This matching procedure has previously been used with IATs measuring Big Five personality factors (Back, Schmukle, & Egloff, 2009; Vecchione, Dentale, Alessandri, & Barbaranelli, 2014).

To determine whether a single IAT which targets an overall OCB motive is as predictive as the three separate OCB motive IATs, a single-target IAT was developed. Two stimuli words from each of the OCB Motive IATs were chosen for use in the aggregate IAT. Unlike traditionally formatted IATs, single-target IATs do not have a comparison category; the IAT effect is based upon the pairing of target stimuli (work motive words) with each of the two descriptor categories (good vs. bad). The category labels and stimuli used in the single-target IAT can be seen in Table 3. The hypothesized relationships among the OCB motive measures is displayed in the confirmatory factor analysis (CFA) model labeled Model 1 in Figure 1.

Table 2. Category Labels and Word Stimuli for the Traditional IATs

Status	Altruism	Commitment	Good	Bad
Reputation	Helpful	Devoted	Marvelous	Tragic
Money	Empathic	Loyal	Superb	Horrible
Prestige	Generous	Motivated	Glorious	Terrible
Impressive	Friendly	Concerned	Wonderful	Awful

Table 3. Category Labels and Word Stimuli for Single-Target IAT

Work Motive	Good	Bad
Reputation	Marvelous	Tragic
Money	Superb	Horrible
Helpful	Glorious	Terrible
Empathic	Wonderful	Awful
Devoted	Lovely	Humiliate
Loyal	Splendid	Disaster

### Explicit Measures

OCB behaviors were measured through the use of an OCB scale developed by Podsakoff, MacKenzie, Moorman, and Fetter (1990). It is a 24-item scale with five subscales (altruism, conscientiousness, courtesy, sportsmanship, and civic virtue). Responses are recorded using a 5-point Likert scale, and each of the subscales is summed separately for a score on that subscale. Example items from the scale are, “Attends meetings that are not mandatory, but are considered important,” and “Helps others who have been absent,” (the complete scale can be seen in Appendix A). The subscales are considered internally consistent as all of the alpha coefficients exceed .80 except for civic virtue (alpha = .70; Podsakoff, et al., 1990).

The NEO-PI-R (Costa & McCrae, 2008) provided scores on three facet scales that are thought to be related to OCB. One facet scale was chosen for each of the three OCB motives: A3-Altruism, N4-Self-Conscious, and C3-Dutifulness. It is expected that A3 would relate to Prosocial Values, N4 to Impression Management, and C3 to Organizational Concern. These relationships can be seen in the CFA model labeled Model 1 in Figure 1. Sample items include, “I try to perform all the tasks assigned to me conscientiously” (C3), “I seldom feel self-conscious when I’m around people” (N4), and

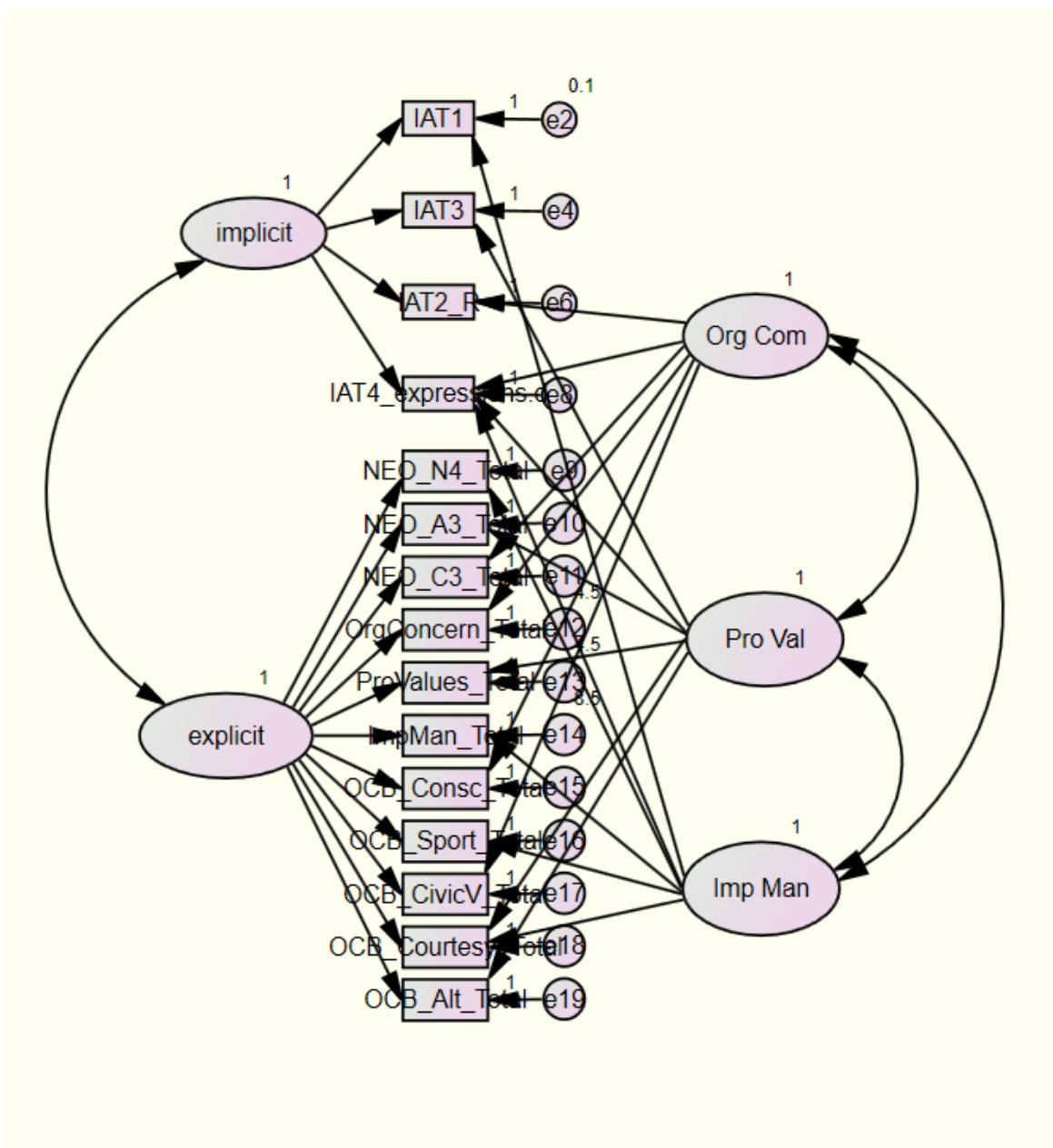


Figure 1. CFA Model 1: Two Freely Correlated Method Factors and Three Freely Correlated Trait Factors. NOTE: In the subsequent figures and tables the variables will be abbreviated as follows: Status IAT – IAT1, Commitment IAT – IAT2, Altruism IAT – IAT3, Work Motivation IAT – IAT4, NEO Neuroticism subscale – NEO\_N4, NEO Agreeableness subscale – NEO\_A3, NEO Conscientiousness subscale – NEO\_C3, Organizational Concern – OrgConcern, Prosocial Values – ProValues, Impression Management – ImpMan, OCB Conscientiousness subscale – OCB\_Consc, OCB Sportsmanship subscale – OCB\_Sport, OCB Civic Virtue subscale – OCB\_CivicV, OCB Courtesy subscale – OCB\_Courtesy, and OCB Altruism subscale - OCB\_Alt

“I try to be courteous to everyone I meet” (A3; the complete scales are contained in Appendix B). Items are rated using a 5-point Likert response scale in which 1 is *strongly disagree* and 5 is *strongly agree*. The alpha coefficients for all of the subscales fall within the acceptable range (.87 to .92).

OCB Motives were assessed through the use of a 30-item, explicit self-report measure called the Citizenship Motives Scale (Rioux & Penner, 2001). As described above this measure contains three subscales: Organizational Concern (OC), Prosocial Values (PV), and Impression Management (IM). Alpha coefficients for the three scales are all very good (OC = .94, PV = .91, IM = .91). Sample items include, “I engage in OCB to be friendly with others” and “I engage in OCB because I want a raise,” (the complete scale is contained in Appendix C). Items are rated using a 6-point Likert scale where 1 is *not at all important* and 5 is *extremely important*.

## **Procedure**

Participants had the option of selecting the study from a listing on Amazon’s Mechanical Turk. Once individuals decided to participate in the study, they were directed to a website hosted by Millisecond.com, the website from which all measures were administered and where the data was stored. All participants took the IATs first, followed by the explicit items. The explicit items began with basic demographic questions, then the OCB scales, Citizenship Motives scales, and the NEO facet scales. Once participants finished, they were given a completion code to enter into Mechanical Turk to verify that they completed the study. Participants then received a notification that thanked them for

their participation in the study and \$0.75-\$1.00 was credited to their account according to whether or not they were an “MTurk master” (non-masters got \$1.00). If participants had questions regarding the study or their participation in the study they were able to email them to the researcher.

### **Data Analysis**

To test the hypothesis developed in this study, CFA methods were used to compare different latent trait models. This method was first presented by Widaman (1985), who established convergent and discriminant validity of the traits by comparing model fit statistics through a series of nested models. This technique calls for comparing the first model (the hypothesized model) to a series of three subsequent models that each are more restrictive (i.e., they have fewer latent factors or more constraints on relationships among latent factors).

The hypothesized model for this study (Model 1) consists of three correlated latent traits (the three OCB motive factors) and two correlated method factors (implicit and explicit). Figure 2 shows the second model (labeled Model 2). This model is more restrictive than Model 1 in that it contains no latent traits and consists of only the two method factors. Model 3 (Figure 3) contains perfectly correlated traits and two freely correlated method factors. Model 4 (Figure 4) allows the latent trait factors to correlate freely, but requires the two method factors be uncorrelated.

The Model 1 – Model 2 comparison should show that Model 2 has poorer model fit statistics than Model 1, demonstrating convergent validity due to the lack of any trait specification (Widaman, 1985). The Model 1 – Model 3 comparison should demonstrate

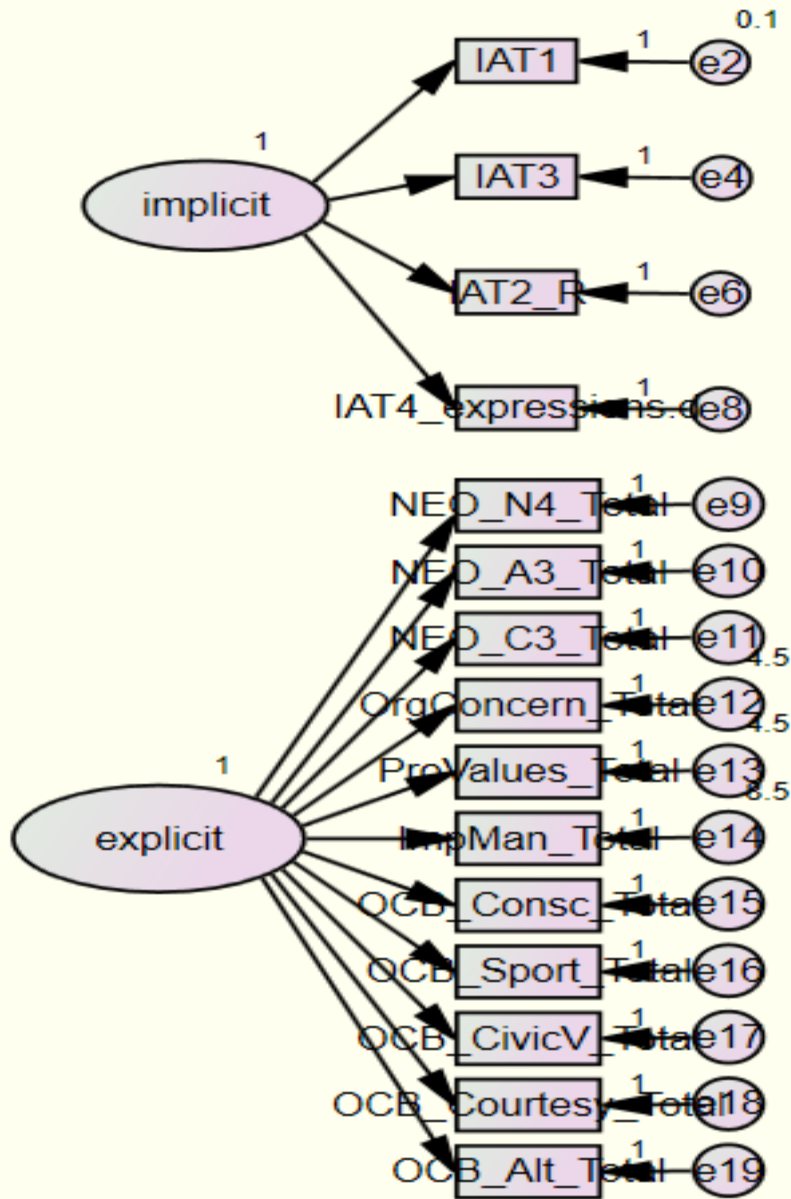


Figure 2. CFA Model 2: Two Feely Correlated Method Factors and No Trait Factors

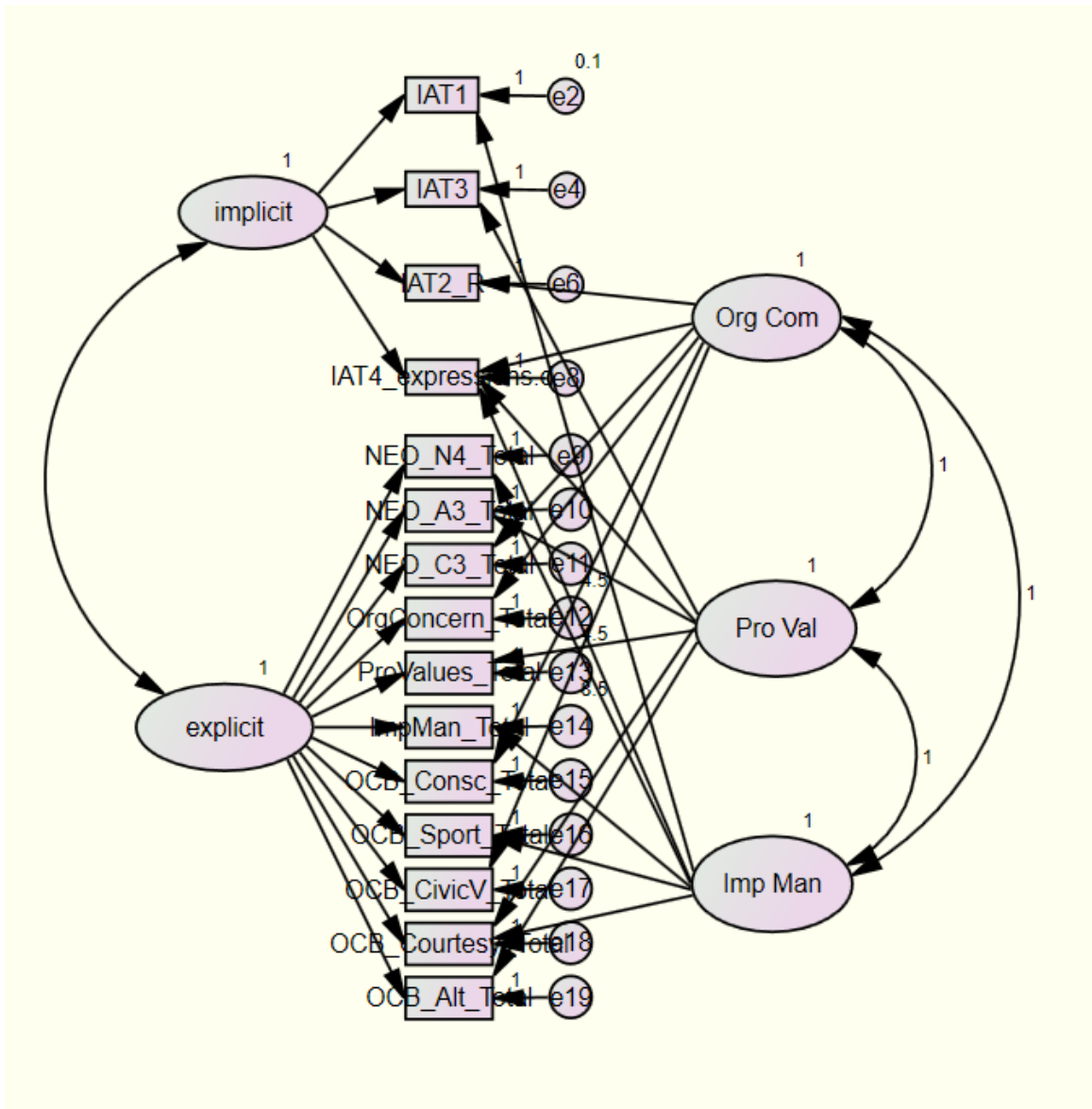


Figure 3. CFA Model 3: Two Freely Correlated Method Factors and Three Perfectly Correlated Trait Factors



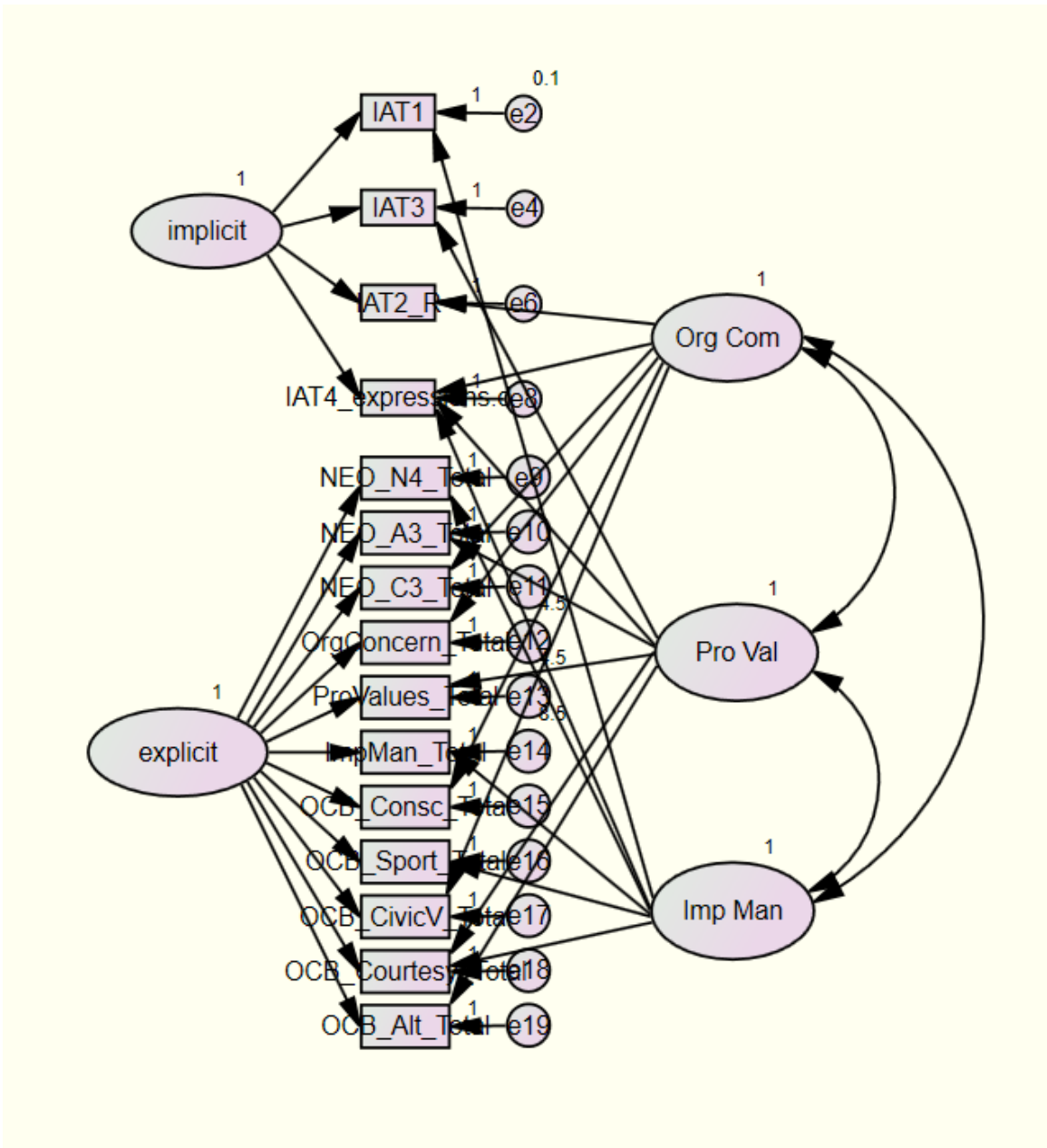


Figure 4. CFA Model 4: Two Uncorrelated Method Factors and Three Freely Correlated Trait Factors

discriminant validity through the comparison of a model with freely correlated traits (Model 1) to a model in which the traits are required to be perfectly correlated (Model 3). The larger the difference in the model fit statistics, the greater the support for discriminant validity. However, because the three OCB Motive factors are expected to be correlated, a large difference between the two models is not expected, although a significant difference in model fit statistics is predicted. The Model 1 – Model 4 comparison utilizes the same logic as that used in the Model 1 – Model 3 comparison, but in reverse. Model 4 removes the correlation between the methods. Thus discriminant validity is shown through Model 1 and Model 4 not being significantly different because we do not expect the methods (implicit and explicit) to be correlated; this result would demonstrate no bias across methods.

## RESULTS

### Data Screening

Prior to analysis the IAT and explicit data were data screened. The IAT data were screened regarding accuracy on the categorization task while the explicit data were examined through various SPSS programs for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis. The variables were examined for the 236 participants who completed all aspects of the study.

The descriptive statistics showed that the means and standard deviations were relatively normal, as can be seen in Table 4. No missing values were found. Fifteen multivariate outliers were found using the Mahalanobis distance metric with a  $p < .001$  significance level. These were deleted, leaving 221 cases. A bivariate correlation to check for multicollinearity and singularity was conducted and none of the variables were too highly correlated. Skewness and kurtosis of the variables were also checked, and all were found to be normal. The multivariate normality plot showed that results were normal. The normal P-P Plot of regression standardized residual scatter plot showed that the variables were linear. The Standardized Regression Scatter plot showed that the results were both homogeneous and homoscedastic. These results indicated that the data met the assumptions needed for multivariate analysis.

To screen the implicit data, individuals who failed to achieve at least a 60% accuracy rating on all four of the IATs were removed from further analyses. Thirty-eight individuals were deleted according to this criterion. After the IAT and Explicit data were merged, there were 183 cases left for further analysis.

## Hypothesis Testing

After the data was screened, descriptive statistical analyses were conducted and the results are displayed in Tables 4 and 5. The internal consistency of the implicit data was assessed by using a Spearman-Brown procedure with parceled IAT effects (i.e. a split-half reliability coefficient). As can be seen in 4, all of the IATs had alpha levels

Table 4. Descriptive Statistics for Study Variables (n = 183)

Variables	Min	Max	Mean	SD	Alpha
Implicit Measures					
Status IAT*	-1.38	1.29	-.36	.48	.82
Commitment IAT**	-1.07	1.01	-.16	.37	.71
Altruism IAT***	-1.02	.91	.16	.35	.64
Work Motivation****	-.83	1.49	.23	.38	.67
Explicit Measures					
Org Concern	10	60	46.52	8.54	.94
Prosocial Values	10	60	47.30	8.58	.94
Impression Manage	10	60	33.05	12.78	.95
OCB_Conscient	15	30	25.34	3.17	.75
OCB_Sportsman	4	20	16.68	3.26	.87
OCB_CivicVirtue	4	20	15.17	2.83	.83
OCB_Courtesy	15	25	21.16	2.61	.86
OCB_Altruism	5	25	20.59	3.35	.92
NEO_N4	8	38	21.33	5.93	.79
NEO_A3	14	40	31.55	4.50	.83
NEO_C3	16	40	32.64	4.27	.70

\*Positive IAT values indicate that the individual is more strongly associated with Status, negative values reflect a stronger association with Altruism; \*\*Positive IAT values indicate that the individual is more strongly associated with Commitment, negative values reflect a stronger association with Status; \*\*\*Positive IAT values indicate that the individual is more strongly associated with Altruism, negative values indication that the individual is more strongly associated with Commitment; \*\*\*\*Positive values indicate that individuals associate with all of the motivation components.