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Forced-Choice Personality Measures and Academic Dishonesty: a Comparative Study

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Abstract Extant research (e.g., Wilks et al. 2016; Williams et al. 2010) has shown personality to be a predictor of engagement in academic dishonesty. The current study seeks to determine whether the type of personality measure affects predictive efficacy by comparing single stimulus and forced-choice measures of personality using a sample of 278 undergraduate students in two U.S. universities. Students scoring high on conscientiousness reported as engaging in fewer academic cheating behaviors than those scoring low on conscientiousness regardless of whether conscientiousness was measured using the forced-choice or single stimulus scale format. In addition, the forced-choice and single stimulus measures each contributed significant unique variance to prediction of academic dishonesty. For agreeableness, scores on the single stimulus measure were negatively correlated with academic dishonesty whereas there was a positive relationship found for the forced-choice measure. Overall, the forced-choice format of the Occupational Personality Questionnaire 32*r* (OPQ32*r*) did not show higher validities than the single stimulus IPIP counterpart in predicting self-reported academic dishonesty. Implications for future research and management education are discussed.

Keywords Forced-choice personality · Big five personality · Academic dishonesty

Academic dishonesty has gained increasing attention among organizational researchers in recent years because it is a wide-spread phenomenon in college campuses around the world. In the U.S., according to a Boston Globe report, 75% of U.S. college students admitted to cheating at least once while in college and the proportion of students cheating in colleges has held steady since the data were first tracked in 1963 (Lang 2013). According to a large-scale survey (Josephson Institute 2012), the prevalence of academic dishonesty in high schools was

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equally astounding. For example, 51% of 20,000 survey students admitted to cheating on a test while 74% reported copying another student's homework, and almost one third (32%) admitted to turning in classwork by copying from the Internet without giving proper credit.

According to Mc Cabe et al. (2001), the number of students engaging in academic cheating rose sharply between 1963 and 1993 in the U.S., especially cheating on examinations. This trend led most U.S. universities to implement stricter exam proctoring procedures and codes of conduct to warn students not to cheat during their course of studies (Mc Cabe and Trevino 1993). Despite measures implemented to prevent academic cheating, one study showed that students cheated more because the Internet made it easier to cheat (Roberts and Wasieleski 2012).

Whereas some studies looked at demographic factors as correlates of academic dishonesty (e.g., Whitley 1998; Whitley et al. 1999) others looked at situational factors such as honor codes, and penalties as predictors of academic dishonesty (e.g., McCabe and Trevino 1997). Yet, other studies examined personality including the Big Five personality factors and how they related to academic cheating (e.g., Nguyen and Biderman 2013; Stone et al. 2010; Stone et al. 2008). Most recently, a meta-analysis based on 17 published and unpublished studies of personality and academic dishonesty reported that conscientiousness was negatively related to academic dishonesty (Mean Rho = −. 20 with 95% CI of −.27 to −.16) as shown in Table 2 of Giluk and Postlethwaite (2015) based on 16 samples. This means that highly conscientious students were not likely to cheat in college compared to those scoring low on conscientiousness. Agreeableness was also meta-analytically estimated to have a negative relationship with academic dishonesty (Mean Rho = − .12, 95% CI = −.21–.08; k = 13). However, the Giluk and Postlethwaite (2015) did not examine the moderating effect of scale format in their meta-analysis. Specifically, all 18 independent samples included in the above meta-analysis involved the use of single stimulus format items. Thus, the first purpose of this study is to examine the validity of a forced-choice (FC) personality measure to predict academic dishonesty.

Over the past 40 years, some researchers have voiced their concern over the low validity of personality measures for predicting occupational performance (e.g., Morgeson et al. 2007). Meta-analyses have shown that the observed uncorrected validity of conscientiousness across all jobs to be .15 (Hurtz and Donovan 2000; Kepes et al. 2011). Even after correcting for artifacts including the publication bias, the corrected validity of conscientiousness has been found to be no higher than .29 (Kepes et al. 2011). The above mentioned low validity estimates continue to generate research interest on validating personality measures for predicting occupational and academic performance (Morgeson et al. 2007).

Given the above-mentioned low validities, much research has been devoted to improving the measure of personality so that measures can be validly used for personnel selection decisions. One line of research that gained traction among practitioners and researchers alike is the use of forced-choice measures of personality. There are two types of personality measures in extant literature: single stimulus and forced-choice measures. One reason most personality measures have low validities is because most personality tests that are available to the public are single stimulus such as the International Personality Item Pool (IPIP) available at www.ipip.ori.org . Single stimulus measures were found to be more easily faked by applicants than forced-choice measures (e.g., Nguyen and McDaniel 2000). When multiple applicants fake a personality test differently, the rank order is changed, which affects the validity of selection decisions (Morgeson et al. 2007).

Forced-choice (FC) format items are different from single stimulus (SS) format items in that for SS items, the respondent chooses an answer from a continuum of choices that best represents his or her opinion or behavior relative to an item. On the other hand, a FC item requires the respondent to choose one of multiple statements that is most or least descriptive of him or herself. Consider the following FC item:

You are given a block of four statements: A, B, C and D. Your task is to choose one statement which is *most* like your behavior in work situations and one statement which is *least* like your behavior.

I am the sort of person who…

A. has a wide circle of friends;
B. enjoys organizing people;
C. relaxes easily;
D. seeks variety.

In contrast, in a traditional single stimulus format, the respondent is asked to rate individual statements as each applies to him/her (e.g., Likert-type such as the IPIP; Yes/No; True/False items (e.g., the HPI; Hogan and Hogan 1995). Examples of ipsative FC format can be found in personality assessment (e.g., the Occupational Personality Questionnaire; SHL Group, 2011; with normative FC format in the Myers-Briggs Type Indicator (MBTI; Myers et al. 1998).

A popular forced-choice measure of personality that has been widely used in organizational selection is the Occupational Personality Questionnaire – ipsative format (OPQ*i*). The OPQ*i* is a multidimensional personality measure, tapping 32 personality traits that may be grouped under the Big Five personality model. Recently, the OPQ*i* has been revised to be OPQ32*r* (SHL Group 2009–2011). Test items are scored using a multi-dimensional item response theory scoring model to produce normative rather than ipsative scale scores from forced-choice item format data (SHL Group 2009–2011). Whereas normative scale scores allow between-person comparison, ipsative scale scores allow within-person comparison only (Hicks 1970). Thus, for the purpose of this study, it is important to have normative scale scores derived from ipsative measures to enable the concurrent comparison of SS and FC personality measures.

The reliability and validity of the OPQ32 has been established across countries (e.g., the U.K., Spain, France, Italy, Japan, Turkey, Korea, and the U.S.) and participant groups (e.g., line managers and individuals in the age range of 19 to 38 years) within countries (e.g., Beaujouan 2000; Bartram 2007; Bartram 2012). The criterion related validity of the OPQ32*r* for predicting overall job performance was found to be near the top of the range of reported validities ($r = .22$ as reported in Bartram 2005), and even higher, however, when mapping with specific criterion measures ($r = .53$; Bartram 2005). No studies have examined the predictive validity of the OPQ32*r* in academic dishonesty. Thus, the second purpose of this study is to compare the validity of the OPQ32*r* with a single stimulus (SS) measure of personality such as the IPIP.

There is well-established evidence in the literature concerning the stability of the Big Five Personality model (e.g., Costa and McCrae 1992; Goldberg 1990). This trait model of personality is based on the lexical approach to studying human behavior, which can be described using descriptive adjectives. All adjectives can be then categorized into five broad and stable personality traits of extroversion, agreeableness, conscientiousness, neuroticism, and openness to experience. One popular single stimulus measure of the Big Five personality model is the 50-item questionnaire from the International Personality Item Pool (IPIP)

developed by Goldberg (1990) and available to the public at www.ipip.ori.org. The psychometric properties of the Big Five personality model have been well established and replicated across languages in Europe including German (Ostendorf 1990); Polish (e.g., Szarota 1996); and French (e.g., Plaisant et al. 2010).

Because only the personality traits of conscientiousness and agreeableness were reported to have consistent relationship with academic dishonesty based on Giluk and Postlethwaite's (2015) meta-analysis, in this study, two hypotheses were formulated to replicate those findings. Agreeableness refers to the extent to which people are kind and caring as well as cooperative in interpersonal relationships. Thus, it is expected that agreeable individuals will be less likely to engage in cheating because doing so would damage the relationship with teachers and professors as well as the authority. In fact, agreeableness was reported to be negatively related to academic cheating in several prior studies (e.g., Clariana 2013; Williams et al. 2010). Agreeableness was found to be negatively related to work place deviant behavior both at the organizational and interpersonal levels in the U.S. (e.g., Scherer et al. 2013) and Malaysia (e.g., Alias et al. 2013). Further, agreeable individuals were found to be more likely to engage in pro-social behavior such as kindness and benevolence according to a recent meta-analysis (Parks-Leduc et al. 2015). Recently, agreeableness was found to be inversely related to the inclination to plagiarize among a sample of Portuguese undergraduate students (Wilks et al. 2016). Therefore, we hypothesize:

- H1: Agreeableness will be negatively associated with academic dishonesty.

Conscientiousness refers to the extent to which people are hard-working, organized, and reliable. Of the Big Five personality traits, conscientiousness is the most valid predictor of job performance (e.g., Barrick and Mount 1991) and academic performance (Vedel 2014) based on results of meta-analyses. Thus, it is reasonable to expect that highly-conscientious individuals will not break the rules and engage in academic dishonesty. Indeed, conscientiousness was found to be positively related to the value of rule conformity according to a recent meta-analysis (Parks-Leduc et al. 2015). Conscientious students are also organized and goal-oriented such that they allocate time and resources to study for the exam. In fact, a previous study supported resource allocation (e.g., time to study) as a mediator of the conscientiousness – academic performance relationship (Biderman et al. 2008). Furthermore, conscientiousness was found to be negatively related to deviant behavior in the workplace at both the organizational and interpersonal level (Alias et al. 2013; Scherer et al. 2013). Several studies reported a negative relationship between conscientiousness and academic dishonesty (e.g., Clariana 2013; Williams et al. 2010). Recently, conscientiousness was found to be inversely related to the tendency of students to plagiarize (Wilks et al. 2016). Based on the above discussion, it is hypothesized:

- H2: Conscientiousness will be negatively associated with academic dishonesty.

Previous studies have reported that forced-choice measures of personality predicted self-reported counterproductive work behavior (CWB) better than Likert-type personality measures (e.g., Jackson et al. 2000) even when participants were instructed to fake the personality measure as if they were applying for a job. Single stimulus measures of personality only predicted CWB when participants responded honestly (Jackson et al. 2000). A recent meta-analysis of forced-choice measures of personality in predicting occupational performance

(including job and academic performance) showed that forced-choice measures had slightly higher criterion-related validities than single stimulus measures in predicting both academic and job performance, with quasi-ipsative measures of conscientiousness having the highest validity in predicting job performance compared to normative and purely ipsative measures (Rho = .400) (Salgado and Táuriz 2014). Based on the above discussion, it was hypothesized that FC measures of conscientiousness and agreeableness would have higher criterion related validities than their SS counterpart because of the potential for FC measures to reduce respondent faking; which would result in distorted rank order of test takers.

- H3: Forced-choice Conscientiousness and Agreeableness scales from the OPQ32*r* will exhibit higher criterion-related validities (i.e., be more negatively related to academic dishonesty) than will the SS conscientiousness and agreeableness scales from the IPIP Big Five.

Method

Participants and Procedure

An email invitation was sent out to a total of 465 undergraduate students from two universities in the southeast and Mid-Atlantic of the U.S. A total of 299 participants provided usable responses. Their participation was in exchange for partial course credit. Their mean age was 21.37 (SD = 3.03) ranging from 17 to 40 years of age. The majority of the sample was female (n = 185; 61.9%) and White (n = 228; 77%). The remaining ethnic groups include 10.5% Blacks, 6.4% Asians, 6.1% mixed with 3 participants not reporting their ethnicity. Data collection was conducted entirely online. Participants were instructed to log on to a web page within the Saville and Holdsworth Ltd. (SHL) website (www.shl.com) to complete the OPQ32 *r* and Qualtrics site to complete the IPIP and academic dishonesty as well as demographic questions designed for this study. Due to missing data on demographic variables (e.g., sex, age); the final sample size was 278 for all subsequent hypothesis testing.

Measures

IPIP Big Five As stated above, the Big Five personality measure used in this study was the 50-item Sample Questionnaire from the International Personality Item Pool (IPIP) web site (Goldberg 1990). Each Big Five dimension was measured with 10 Likert-type items. Participants were asked to indicate the extent to which each item accurately described them. Scale anchors ranged from 1 "very inaccurate" to 7 "very accurate". Cronbach's alphas for internal consistency estimates in this study were .91, .83, .79, .86, and .83 for extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience respectively.

Forced-Choice Personality Measure The revised version of the 32-item Occupational Personality Questionnaire (OPQ32*r*) was used. Participants were presented with blocks of 3 statements having equivalent positive or negative valence. Participants were asked to select the statement that most described their behavioral tendency at the time. Sample block of items include: I am the sort of person who (a) relaxes easily; (b) enjoys organizing people; (c) has a

wide circle of friends. The internal consistency estimates in this study were .71, .64, .78, and .54 for extraversion, agreeableness, conscientiousness and emotional stability respectively. For openness to experience, according to the OPQ32*r* manual, this trait was broken down into two dimensions: unconventionality and critical thinking. The reliability estimates for these two dimensions in this study were .89 and .52 respectively. It is important to note that with the exception of emotional stability and critical thinking, the reliability estimates were consistent with those published in the technical manual (SHL Group 2009–2011).

Academic Dishonesty We adapted the Academic Dishonesty Inventory (ADI) developed by Newstead et al. (1996) and Koljantic and Silva (2002) to measure academic dishonesty behavior. Sixteen Yes-No items constitute this scale. Participants were asked to indicate whether in the previous two years they had engaged in any of the listed behaviors at least once. Scale items were coded as "0" for not yet engaged in the behavior and "1" for having engaged in the behavior at least once over the previous two years. Sample items include "paraphrased material from a book without acknowledging the source"; "fabricated reference or a bibliography"; and "copied from a neighbor during an examination". A summed scored of all 16 items represents the scale score of academic dishonesty. Cronbach's alpha estimate for this variable in this study was .77.

Results

Table 1 shows the descriptive statistics and intercorrelations of all variables in the study. As expected and consistent with previous research (e.g., Williams et al. 2010), older students were less likely than younger students to report engaging in academic dishonesty over the previous two years as reflected in the negative correlation between age and academic dishonesty ($r = -.27$, $p < .001$). Also consistent with previous research on the linkage between demographic variables and academic cheating (e.g., Newstead et al. 1996; Whitley et al. 1999; Williams et al. 2010), female students were found to be less likely than male students to report having cheated during the previous two years as shown in the negative correlation between sex and self-reported academic dishonesty ($r = -.12$, $p < .05$). Because of these significant findings, we included age and sex as control variables in subsequent hypotheses testing.

Hypothesis 1 stated that agreeableness would be negatively associated with academic dishonesty. To test this hypothesis, a hierarchical regression was conducted in which academic dishonesty was regressed onto age and sex in the first step, and agreeableness assessed with SS and FC measures in the second step. The results of this regression analysis are shown in Table 2. As can be seen in Table 2, the SS of agreeableness was significantly and negatively related to self-reported academic dishonesty even after controlling for age and gender ($\beta = -.145$, $t = -1.96$, $p = .05$). Contrary to expectation, the FC measure of agreeableness was positively and significantly related to self-reported academic cheating after controlling for age and gender ($\beta = .218$, $t = 2.987$, $p < .01$). This finding was opposite to expectation. Thus, Hypothesis 1 was supported for the SS measure but not for the FC measure of agreeableness. Low-agreeable students were found to be less likely to report cheating as measured by the IPIP SS measure, however, those same students were predicted to be more likely to report engaging in cheating based on the FC measure of agreeableness. These two measures combined

Table 1 Descriptive statistics and intercorrelations among variables in the study

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	21.36	3.03	-												
2. Sex	1.62	.49	−.12*	-											
3. E - SS	4.39	1.09	−.06	−.03	(.91)										
4. A	5.17	.81	−.05	.34**	.28	(.83)									
5. C	4.87	.76	.06	.03	.11*	.12*	(.79)								
6. ES	4.04	.93	.08	−.29**	.22**	.07	.19**	(.86)							
7. O	4.69	.78	.16**	−.22**	.21**	.23**	.16**	.26**	(.83)						
8. E - FC	.12	.43	−.01	−.14*	**.74****	.03	.11*	.22**	.25**	(.71)					
9. A	.04	.51	−.05	.27**	.38**	**.63****	−.08	.08	.13**	.28**	(.64)				
10. C	.07	.56	−.01	.19**	.14*	.12*	**.55****	.06	.10	.31**	.17*	(.78)			
11. ES	.03	.39	−.09	−.07	.05	.07	.02	**.49****	−.01	.01	.10	.04	(.54)		
12. O – UC	−.02	.27	.05	.03	.09	.04	.08	−.01	**.27****	.25**	.12*	.21**	−.05	(.89)	
13. O - CT	−.12	.56	.17**	−.18**	−.03	−.06	.10	.12	**.42****	.12*	.02	.17*	−.15*	.12*	(.52)
14. Dishonesty	2.73	2.67	−.27**	−.12*	.07	.01	−.19**	−.11*	−.09	.06	.08	−.14*	.02	−.16**	−.10

E – SS Extraversion – single stimulus scale; *E – FC* Extraversion – Forced choice scale; *A* Agreeableness; *C* Conscientiousness; *ES* Emotional Stability; *O* Openness to Experience; *O – UC* Openness – Unconventional; *O-CT* Openness – Critical thinking

* Correlations are significant at $p < .05$ (two-tailed)

** Correlations are significant at $p < .01$ (two-tailed)

$N = 299$ except for age and sex where $N = 278$

Sex was coded as "1" = Male; "2" = Female"

Reliability estimates (Cronbach's alphas) are shown along the diagonal

Table 2 Hierarchical regression results for agreeableness ($N = 278$)

Predictor	Regression weight (β)	t	p	Adjusted R^2	ΔR^2
Step 1					
Gender	−.153	−2.490	.037		
Age	−.280	−5.063	.000	.088	
Step 2					
Agreeableness - SS	−.145	−1.960	.050		
Agreeableness – forced-choice	.218	2.987	.003	.110	.029

Sex was coded as "1" = Male; "2" = Female"

All regression values are standardized estimates shown in the last step of the regression equation

explained 2.9% of incremental variance above and beyond demographic variables of age and gender in self-reported academic dishonesty.

Hypothesis 2 stated that conscientiousness would be negatively associated with academic dishonesty. To test this hypothesis, another hierarchical regression analysis was conducted in which academic dishonesty was regressed onto demographic variables of age and sex in the first step, and conscientiousness assessed with SS measure and FC measure in the second step. The results are shown in Table 3.

As can be seen from Table 3, Conscientiousness – SS measure was significantly and negatively related to self-reported academic cheating after controlling for age and sex ($\beta = -.16$, $t = -2.27$, $p < .05$). Conscientiousness – FC measure failed to reach statistical significance, however, albeit the relationship was in the expected direction ($\beta = -.041$, $t = -.589$, $p > .05$). Thus, Hypothesis 2 was supported for the SS measure, but not for the FC measure of Conscientiousness.

Hypothesis 3 stated that the FC measures of both agreeableness and conscientiousness would have higher criterion-related validities than their SS counterparts. To test this hypothesis, Steiger's (1980) Z statistic revised by Hoerger (2013) for comparing two related correlations was calculated. As shown in Table 1, the correlation between conscientiousness – SS and academic dishonesty was −.19 vs. -.14 for the correlation between conscientiousness – FC and academic dishonesty. There was no significant difference, however, in these two correlation coefficients ($r = -.19$ vs. $r = -.14$, $Z = -.922$, $p = .356$, *ns*). The same statistical test was performed for the two related correlations between agreeableness – SS and academic dishonesty ($r = .01$) and agreeableness – FC and academic dishonesty ($r = .08$). Again, there was no significant difference in these two related correlation coefficients ($r = .01$ vs. $r = .08$, $Z = -1.4$, $p = .161$, *ns*). Because age and sex were significant correlates of self-reported

Table 3 Hierarchical regression results for conscientiousness ($N = 278$)

Predictor	Regression weight (β)	t	p	Adjusted R^2	ΔR^2
Step 1					
Gender	−.122	−2.090	.037		
Age	−.280	−4.890	.000	.088	
Step 2					
Conscientiousness - SS	−.157	−2.270	.024		
Conscientiousness – forced-choice	−.041	−.589	.556	.115	.033

Sex was coded as "1" = Male; "2" = Female"

All regression values are standardized estimates shown in the last step of the regression equation

academic cheating as shown in Table 1, the significance in differences between two regression coefficients after controlling for age and sex was tested to serve as a more stringent test of Hypothesis 3. First, the regression coefficient associated with agreeableness – SS measure after controlling for age and sex was compared with the same of agreeableness – FC measure ($\beta = -.145$ vs. $\beta = .218$, $Z = -7.08$, $p < .001$). Second, the regression coefficients associated with conscientiousness – SS measure after controlling for age and sex was compared with the same of conscientiousness – FC measure ($\beta = -.157$ vs $\beta = -.041$, $Z = 2.04$, $p < .05$). Thus, Hypothesis 3 was not supported. Contrary to expectation, the SS measure of agreeableness and conscientiousness actually exhibited higher criterion-related validity than the FC measure of the same personality traits.

To further understand the nature of academic dishonesty behavior among undergraduate students in the U.S., the frequency of self-reported academic dishonesty was analyzed. Table 4 shows the frequency of academic dishonesty behavior broken down by individual behavior for students who reported that they had engaged in such a behavior at least once over the previous two years. As shown in the Table, the most frequently admitted dishonesty behaviors were those that involved a lower risk of detection (e.g., letting others copy one's own coursework). Behaviors that involved a higher risk of detection (e.g., taking an exam for someone else or having someone take an exam for you) were the least reported cheating behavior possibly because of the higher stake and likelihood of detection.

Discussion

This study was one of the first to look at forced-choice personality measures in predicting academic dishonesty. The OPQ32*r* with its forced-choice format did not exhibit higher criterion validity than a single stimulus format such as the IPIP in predicting academic dishonesty. The interesting finding in this study was that both the agreeableness – SS measure and agreeableness – FC measure became significant in the multiple regressions after controlling for age and gender. This means that the zero-order correlation coefficients of both

Table 4 Frequency of academic dishonesty behavior during the previous two years ($N = 278$)

	Academic dishonesty behavior	Yes	No
1	Allowed own coursework to be copied by another student	111	167
2	Paraphrased material from a book without acknowledging the source	104	174
3	Signed for someone on the attendance sheet or had someone sign for you.	81	197
4	Turned in someone else's answers for an assignment or homework exercise.	62	216
5	Did another student's coursework for him or her.	63	215
6	Copied from a neighbor during an examination.	54	224
7	Invented data (e.g., entered nonexistent results into database)	51	227
8	Altered data (e.g., adjusted data to obtain a significant result)	48	230
9	Illicitly gained advance information about an exam content.	46	232
10	Took unauthorized materials into an exam (e.g., a crib sheet)	30	248
11	Lied about medical or other circumstances to get an extended deadline or exemption from class work.	32	246
12	Fabricated reference or a bibliography.	33	245
13	Submitted a class project or term paper obtained from an outside source (e.g., friends, Internet)	15	263
14	Turned in the same paper for two classes without instructor approval.	16	262
15	Had someone else take an exam for you	0	278
16	Took an exam for someone else	2	276

agreeableness measures were suppressed and became significant after partialling out the variance in academic dishonesty explained for by age and gender. This finding is important because it suggests that future researchers might want to control for the effect of such demographic variables in conducting their analyses involving personality – academic dishonesty. It also suggests that the non-significant relationships of three Big Five personality traits of Openness to Experience, Emotional Stability, and Extraversion reported in a recent meta-analysis (i.e., Giluk and Postlethwaite 2015) might be due to the age and gender suppression effect.

The SS conscientiousness added incremental variance over and beyond the FC measure OPQ32*r* in predicting academic dishonesty. In other words, the FC conscientiousness as measured by the OPQ32*r* became non-significant when the IPIP conscientiousness was included in the equation. This finding is consistent with meta-analytic results showing conscientiousness as a valid predictor of academic dishonesty (Giluk and Postlethwaite 2015). One reason the conscientiousness is a well-established predictor of academic dishonesty because it has "the closest conceptual connection to cheating" (Williams et al. 2010, p. 295). Because of this, it is reasonable to state that the SS measure of conscientiousness had a closer conceptual connection to cheating than the FC measure of conscientiousness in this study. Another reason conscientiousness successfully predicted self-reported academic dishonesty in this study as well as in past research is because of the time frame for self-reported academic dishonesty criterion (e.g., "Have you ever engaged in any of the following behavior over the past two years" as used in this study vs. "Did you engage in cheating in high school?" vs. "Are you currently engaging in any of the following behavior?") Respondents were more likely to admit to cheating when asking about past behavior, not current academic cheating behavior for fear of repercussion as reported in at least one study (e.g., Williams et al. 2010).

According to the technical manual of the OPQ32*r*, there is a conscientious primary trait scale measuring the conscientious trait among the 32 traits measured. A broader conscientiousness scale score as the one used in this study [representing the Big Five construct of conscientiousness, as defined by Costa and McCrae (1992)] was calculated by averaging five OPQ32 primary scales: achieving, conscientious, detail oriented, forward thinking, and vigorous. The broader conscientiousness scale is what was used for hypothesis testing in this study. However, when a separate hierarchical regression analysis was conducted with just the conscientious trait scale, not the broader conscientiousness – FC measure, the conscientiousness trait scale of the OPQ32*r* became statistically significant after controlling for age and gender ($\beta = -.134$, $t = -2.05$, $p < .05$) while the conscientiousness – SS scale scores became non-significant ($\beta = -.115$, $t = -1.778$, $p = .076$). This finding suggests that the broader conscientiousness scale of the OPQ32*r* covers a larger predictor space that taps a broader construct than just academic dishonesty. Another explanation is the considerable overlap between conscientiousness – SS measure and conscientiousness – FC measure (the correlation between these two measures was .55 as shown in Table 1). When this occurred, the other predictor variable became non-significant and/or irrelevant.

This study was the first to provide empirical evidence of the superior criterion-related validity of a SS personality measure over a FC measure of personality. Given the proprietary nature of the OPQ32*r* employed in this study versus the freely-available IPIP measure, it is recommended that higher education institutions take advantage of the IPIP personality measure in their academic selection.

It should be noted that the academic dishonesty variable used in this study covers a broad range of dishonesty behavior (16 behaviors) whereas most previous studies on the subject only

focused on one or two behaviors (e.g., cheating on a test by copying someone else's work in Williams et al. 2010; Wilks et al. 2016). It is also important to note that academic dishonesty was likely to be underestimated in this study due to the self-reported nature of this variable. Thus it is likely that the magnitude of the relationships found in this study is also underestimated.

A recent meta-analysis on the predictive validity of forced-choice personality measures reported the validity of forced-choice personality measures to be higher than that of SS measures in predicting job performance (Salgado and Táuriz 2014). This study showed that the SS measure, specifically the Big Five IPIP was at least equally if not more valid than the forced-choice OPQ32*r* in predicting academic dishonesty. One reason this study was inconsistent with the above meta-analysis is that the criterion was academic dishonesty in this study whereas the criteria utilized in the above cited meta-analysis were job performance ratings and training (Salgado and Táuriz 2014). Another reason is that this finding might have been specific to this sample. Future studies replicating this one are needed to reach a more affirmative conclusion. It is hoped that this study adds to the body of primary studies of forced-choice measures predicting academic dishonesty for future meta-analyses.

It is important to note that agreeableness – forced choice scale scores were found to be positively related to self-reported academic dishonesty. This was an unexpected finding and needs to be replicated by future studies using other measures of forced choice agreeableness as well as academic dishonesty (e.g., objective measures of academic cheating). One reason for the unexpected finding concerning the FC measure of agreeableness might have been the characteristic of the ipsative OPQ scores for this personality trait. For example, if a student selected B out of 3 given statements of A, B, and C per the OPQ32*r*; if B was correlated with academic dishonesty, then A and C would also be correlated with academic dishonesty, but with an opposite sign, which might have explained the finding in this study. In fact, a recent meta-analysis of FC measures in predicting job performance also reported an unexpected finding concerning agreeableness; i.e., less agreeable individuals were found to perform better at sales jobs compared to more agreeable individuals (Salgado et al. 2015).

Another reason for the unexpected finding concerning the FC agreeableness measure is the instability of the agreeableness factorial structure as documented in a large-scale study covering 7 countries (Beaujouan 2000) compared to the more stable factorial structure of the SS agreeableness measure. The instability factorial structure of FC agreeableness measure means that content that is outside agreeableness dimension, such as conscientiousness might have been included in the FC agreeableness measure, which explains the unexpected positive relationship with academic dishonesty found in this study.

Limitations of the Current Study

Several limitations of the current research should be mentioned. First, the statistical test employed in the study, i.e., the test for differences between two correlations is inherently low in statistical power, thus, a large sample or a large difference is needed to get a statistically significant difference as shown in the testing of Hypothesis 3. Second, because only one FC measure and one SS measure were used in this study, the type of measure (SS vs. FC) might have been confounded with measures used. That is, the present findings may not generalize to other SS and FC measures of personality. Third, this study included self-reported data collected at the same time. Thus, it was possible that common method bias might have played a role in this study's findings.

This study contributed to management education in particular and higher education in general in several ways. First, this study provided further support to the call for higher education institution to profile students who are likely academic cheaters (e.g., Giluk and Postlethwaite 2015). For example, high conscientiousness has been well established as a valid predictor of academic performance, and this study adds to that body of literature by showing that highly conscientious students will not likely engage in academic dishonesty. On the other hand, the combination of conscientiousness and agreeableness has been established as a proxy of integrity (e.g., Ones 1993; Ones et al. 1993); which is relevant in preventing academic dishonesty. College-bound students can be screened using a personality-related test such as the IPIP used in this study that serves as a covert integrity test. Second, with the boom in online education, it is reasonable to expect that academic dishonesty will become more prevalent because it was reported in a previous study that the Internet made it easier for students to cheat (Roberts and Wasieleski 2012**).** Therefore, academic institutions might want to invest in technical, human, and financial resources to prevent students from engaging in academic cheating. For example, computerized programs such as Signum and S-Check are available to combat multiple choice test cheating (e.g., Harpp et al. 1996; Wesolowsky 2000). To detect essay plagiarism, there are computer software programs such as Turn-it-in and SafeAssign that might be costly but give higher education institutions an effective tool to detect academic cheating.

Conclusion

This study was among the first to examine the role of forced-choice personality in predicting self-reported academic dishonesty. It was found that the forced-choice format did not exhibit a higher validity than the single stimulus and freely-available IPIP personality scales. It is hoped that this study paves the way for future studies to replicate these findings and examine academic dishonesty using other forced-choice personality measures as well as objective measures of academic dishonesty.

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