

A Psychometric Evaluation of the New NEO-PIR Facet Scales for Agreeableness and Conscientiousness

Ralph L. Piedmont and Harold P. Weinstein
Caliper Corporation

The five-factor model of personality represents one of the more important developments in the area of personality theory and assessment. This empirically derived model consists of the major factors of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Currently there is only one commercially available measure of these dimensions: The NEO Personality Inventory (NEO-PI). The NEO-PI measures each of these global domains as well as more specific facets of Neuroticism, Extraversion, and Openness to Experience. The new revision of the NEO-PI (NEO-PIR) now includes facet scales for Agreeableness and Conscientiousness. The purpose of this article is to provide a psychometric evaluation of these new scales using a sample of working adults and relying on both self-report and observer ratings. The results provide strong support for the reliability and construct validity of these new scales.

One of the more important developments in the area of personality theory and assessment has been the emergence of the five-factor taxonomy (Digman, 1990). This empirically derived model of personality consists of the major factors of Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). These five factors have been shown to be comprehensive, stable over time in adults, and predictive of a wide range of life outcomes (Costa & McCrae, 1988; Miller, 1991; Piedmont, McCrae, & Costa, 1991). In fact, the resurging interest in identifying personality predictors of job performance can be linked to the increasing use of the five-factor model in the employment context. Several meta-analyses have demonstrated not only the heuristic value of this model for understanding personality, but the predictive power that can be gained when instruments are organized into these salient, orthogonal factors (Barrick & Mount, 1991; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990; Tett, Jackson, & Rothstein, 1991).

Although a number of widely available tests have been interpreted in terms of these five factors (see Paunonen, Jackson, Trzebinski, & Forsterling, 1992; Piedmont et al., 1991, 1992), the only commercially available measure designed specifically to capture these five factors is the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985, 1989a). The NEO-PI measures the five factors as well as more specific facet scales for N, E, and O. For example, N comprises the six facet scales of Anxiety, Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability to Stress. These scales are designed to capture more specific traits that underlie these broad factors. Currently, A and C are only represented by a global score. Costa and McCrae (1989c) also identified scales for these two factors; in the new revision of the NEO-PI (the NEO-PIR), these facet scales have been added in an attempt to capture more fully the qualities subsumed by them.

Initial research has shown merit to these new scales. Costa, McCrae, and Dye (1991) gave the NEO-PI and the new facets scales to two samples, and they found solid evidence of validity for the new scales. For example, in a sample of volunteer adults, scores on the new A facet scales were significantly and positively related to Adjective Check List (ACL; Gough & Heilbrun, 1983) scores on the Nurturance, Affiliation, Abasement, Deference, and Intraception scales and negatively related to the Aggression, Autonomy, and Exhibition scales. The C facet scales correlated positively with the ACL scales of Achievement, Dominance, Endurance, Order, Intraception, and Affiliation and correlated negatively with the Change, Succorance, and Abasement scales. However, these findings were based entirely on self-reports. The need exists to evaluate the cross-observer validity of these new facet scales. Using supervisor ratings on the ACL as the criterion measure, we attempted to replicate Costa et al.'s (1991) findings with the ACL in an employment context. Evidencing such convergence would provide powerful evidence of the new facet scales' generalizability and validity. Correlating scores on the new facets with individual ACL items will also provide a personological sketch of the qualities captured by these scales.

METHOD

Subjects

Subjects consisted of 67 women and 169 men who were employed at the time of testing. These subjects were selected as part of a larger study on predicting job performance. Approximately 51% of the sample were employed in a sales position, 25% were in a service role (e.g., customer service representative), and 15% occupied a management role (e.g., supervisor, executive, etc.). No position was identified for the remaining 9%. None of the job testing was done as part of

the job application process. Concerning race, 88% were White, 4% Hispanic, 3% Black, 2% Asian, and the remaining 3% were unknown. For a subsample of these individuals ($n = 186$) supervisor ratings of personality and performance were also available.

Measures

NEO-PI. Developed by Costa and McCrae (1985), this 181-item questionnaire was developed through rational and factor analytic methods to measure the five major factors of personality: N, E, O, A, and C. Items are answered on a 5-point scale ranging from *strongly agree* (1) to *strongly disagree* (5), and scales are balanced to control for the effects of acquiescence. Internal consistency for the domain scales range from .76 to .93, and scores for adults are extremely stable, with 3- and 6-year retest coefficients ranging from .63 to .83 (Costa & McCrae, 1988). The NEO-PI has been extensively validated in studies with other self-reports (e.g., McCrae & Costa, 1987; Piedmont et al., 1992) and with alternative measures of the five-factor model (e.g., Goldberg, 1989; Trapnell & Wiggins, 1990). Scales have shown evidence of convergent and discriminant validity across instruments, methods, and observers and have been related to a number of life outcomes including frequency of somatic complaints, ability to cope with stress, and response to psychotherapy (Costa & McCrae, 1989b; Miller, 1991).

Agreeableness and Conscientiousness Facet Scales. To specify more fully the qualities measured by the five factors, Costa and McCrae (1989c) developed facet scales for A and C. (See Costa & McCrae, 1989c, for a fuller treatment of these constructs.) The facet scales for A include: Trust, Straightforwardness, Altruism, Compliance, Modesty, and Tender-Mindedness. For C the facet scales are: Competence, Order, Dutifulness, Achievement, Self-discipline, and Deliberation. These 12 eight-item scales are measured on a 5-point scale ranging from *strongly agree* (1) to *strongly disagree* (5). Of these 96 items, 33 are shared with the original NEO-PI domain scores for A and C. Items are balanced to control for acquiescence. Some preliminary validity evidence does exist (McCrae & Costa, 1992; McCrae, Costa, & Dye, 1991).

ACL. Developed by Gough and Heilbrun (1965, 1983), this 300-item questionnaire is one of the most widely used personality questionnaires (Buros, 1978). The revised form provides scores for 35 scales from diverse theoretical backgrounds, including: Murray's (1938) needs (15 scales), Berne's (1961) Transactional Analysis (5 scales), Welsh's (1975) Intellectence and Origenence Scales (4), several scales developed by Gough and Heilbrun (1965, 1983) to measure salient interpersonal qualities (8 scales), and modus operandi scales (3). The

ACL provides a number of salient constructs that when meaningfully arranged form a rich nomological network. This form was completed by each individual's direct supervisor.

Procedure

Companies were randomly selected from the Caliper Corporation's client list and were invited to participate in this study. If a client agreed, a list of individuals who were hired within the past 12 months were identified and were sent the NEO-PI and the facet scales. These individuals' supervisors were also contacted and were sent the ACL to complete. All information was completed by the individuals at home and the materials were sent directly back to Caliper Corporation for processing.

The ACLs were mailed directly to the supervisors, who also completed the materials in their leisure time. This information was also mailed directly back to Caliper Corporation.

RESULTS

Table 1 presents descriptive statistics and alpha reliabilities for each of the A and C facet scales, separately by gender. Although the mean levels on the A dimension are comparable to data presented by Costa and McCrae (in press),

TABLE 1
Descriptive Statistics and Alpha Coefficients NEO-PI A and C Facet Scales by Gender

NEO-PI Facet Scales	Overall Alpha ^a	Females ^b			Males ^c		
		M	SD	Alpha	M	SD	Alpha
Agreeableness							
Trust	.80	22.3	3.7	.79	22.2	3.7	.80
Straightforwardness	.73	20.4	4.6	.71	20.2	4.7	.74
Altruism	.74	24.8	3.3	.69	23.8	3.6	.76
Compliance	.60	18.3	3.8	.63	17.4	3.8	.58
Modesty	.72	16.4	4.1	.66	16.1	4.4	.75
Tender-Mindedness	.58	20.1	3.1	.37	19.0	3.9	.63
Conscientiousness							
Competence	.69	24.8	3.6	.75	25.0	3.1	.67
Order	.69	20.1	3.4	.55	20.2	4.0	.73
Dutifulness	.64	24.7	3.1	.48	25.4	3.5	.69
Achievement Striving	.75	23.4	3.7	.67	22.8	4.2	.78
Self-Discipline	.86	24.7	4.0	.83	23.7	4.5	.86
Deliberation	.71	19.3	3.9	.67	19.5	4.2	.75

^aN = 236. ^bn = 67. ^cn = 169.

absolute values on C are about 2 points higher on each scale in this sample. As can be seen for men, alphas range from .58 for Compliance to .86 on Self-Discipline. For women, alphas range from a low of .37 on Tender-Mindedness to a high of .83 on Self-Discipline. Nine of the 12 facets are above .60 for women, and 11 exceed this value for men. Overall these short facets evidence adequate internal consistency, with alphas based on the entire sample ranging from .58 to .86. Although item homogeneity is not the major strength of these scales, these values are consistent with those presented by Costa et al. (1991). Gender differences were noted for the Altruism, $t(234) = 1.99, p < .05$, and Tender-Mindedness, $t(234) = 2.13, p < .05$, scales, with females scoring significantly higher.

Given the theoretical basis of this instrument, some evaluation of the overall factor structure of the NEO-PI with the new facet scales is necessary. It is possible that the previously determined five-factor structure of the NEO-PI may be compromised by the inclusion of these new facets. To test this hypothesis, a joint factor analysis of the 18 NEO-PI scales and the 12 new A and C facet scales was performed on the combined sample. A principal components analysis with varimax rotation was used. Five factors were extracted and rotated. The results are presented in Table 2.¹

As can be seen in Table 2, all the NEO-PI facet scales have substantial loadings on their intended factor, and none of the A or C facet scales have significant secondary loadings. Congruence coefficients (Wrigley & Neuhaus, 1955) among the factor loadings in this sample and those presented by Costa et al. (1991) are extremely high: .96, .97, .96, .98, and .97 for the N, E, O, A, and C factors, respectively. Some of the N and E facet scales have loadings on the C and A factors, and this may represent some kind of response artifact in the data, although the possibility of some conceptual overlap needs to be explored and some fine-tuning may be necessary. Interestingly, Costa et al. (1991) noted similar overlap in their sample and argued that these associations are understandable; high C individuals are also very active, surgent, and emotionally hardy. High A individuals are affectionate and amiable, and high E individuals are also emotionally responsive. Factor analyzing observer reports may provide the best test of whether this overlap is substantive or reflects some type of response set.

To evaluate the construct validity of the new facet scales, the facets were correlated to scores on the ACL scales completed by the subjects' immediate

¹Seven factors emerged with an eigenvalue greater than 1, although the scree test clearly indicated that only five should be extracted. When seven factors were extracted and rotated, the first four were C, N, A, and O. The E domain broke into two factors: one consisting of the three facet scales of Warmth, Assertiveness, and Positive Emotions; and the other comprising the facets of Gregariousness, Activity, and Excitement Seeking. The former factor possibly reflects some type of leadership, whereas the latter expresses outgoingness. Factor 7 was a doublet consisting of the Trust and Openness to Values scales.

TABLE 2
Joint Factor Analysis of All NEO-PI Scales and New A and C Facet Scales

NEO-PI Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Anxiety	.79	-.10	.08	-.02	-.20
Hostility	.60	-.14	-.08	-.51	-.13
Depression	.73	-.18	.03	.00	-.36
Self-Consciousness	.79	-.11	-.16	.00	-.16
Impulsiveness	.45	.25	.08	-.25	-.51
Vulnerability	.52	-.12	-.18	-.05	-.51
Warmth	-.24	.71	.03	.41	.03
Gregariousness	-.20	.65	-.05	-.08	.11
Assertiveness	-.31	.41	.12	-.33	.41
Activity	.02	.40	.08	-.29	.51
Excitement Seeking	.01	.46	.18	-.36	.12
Positive Emotions	-.12	.74	.28	.07	.09
Fantasy	.19	.22	.64	-.04	-.19
Aesthetics	-.04	.10	.68	.09	.10
Feelings	.13	.44	.54	.04	.23
Actions	-.38	.27	.43	.00	-.02
Ideas	-.07	-.01	.72	-.04	.31
Values	-.17	-.10	.62	-.03	.02
Trust	-.24	.14	.21	.41	.08
Straightforwardness	.06	-.06	-.21	.70	.15
Altruism	-.15	.37	.07	.69	.26
Compliance	-.18	-.20	.00	.68	.07
Modesty	.16	-.14	-.09	.62	-.07
Tender-Mindedness	-.01	.12	.20	.61	.11
Competence	-.35	.22	.13	.10	.72
Order	.10	.00	.12	.16	.75
Dutifulness	-.15	.10	-.02	.22	.77
Achievement Striving	-.24	.25	.12	-.15	.74
Self-Discipline	-.29	.17	.09	.06	.77
Deliberation	-.18	-.16	-.04	.29	.67

Note. N = 236. Loadings above |.40| are shown in boldface.

supervisors. These correlations across instruments and observers provide a rigorous test of validity for the new facets, having emerged over different instruments and information sources (McCrae & Costa, 1987). Table 3 presents the correlations between the A facet scales and the ACL scales for the entire sample. A composite A score was also computed by simply summing scores for each person over the six facets scales. This composite was also correlated to the supervisor rated scales.

TABLE 3
Overall Correlations Between the A Facet Scales and Supervisor's ACL Ratings

ACL Scales	Trust	Straightforwardness	Altruism	Compliance	Modesty	Tender-Mindedness	Overall Agreeableness
Achievement	.10	-.29**	.02	-.11	-.02	.09	-.09
Dominance	.06	-.34**	-.07	-.16*	-.06	.04	-.16*
Self-Confidence	.07	-.32**	-.03	-.12	-.09	.10	-.14
Self-Control	.05	.25**	.13	.29**	.02	.07	.23**
Personal Adjustment	.05	-.16*	.12	.09	-.07	.11	.01
Ideal Self	.12	-.20**	-.03	.09	-.13	.10	-.05
Masculinity	.06	-.24**	-.13	-.11	-.07	-.03	-.16*
Femininity	.05	.07	.13	.08	.09	.11	.14*
Endurance	.12	-.19**	.03	.02	-.04	.07	.00
Aggression	-.02	-.26**	-.17*	-.28**	-.01	-.07	-.21**
Heterosexuality	.01	-.14*	.05	-.07	-.06	.09	-.05
Affiliation	.08	-.12	.15*	.13	-.07	.10	.05
Military Leadership	.06	-.21**	.07	.07	-.09	.10	-.02
Order	.09	-.15*	-.03	.08	-.06	.02	-.01
Intraception	.03	-.13	.04	.13	-.09	.12	.02
Nurturance	.01	.00	.18*	.19**	-.01	.18*	.14*
Exhibition	-.02	-.25**	-.11	-.22**	-.04	.05	-.18*
Autonomy	.01	-.19**	-.13	-.27**	-.06	-.12	-.21**
Change	-.04	-.17*	.04	-.19**	-.07	.10	-.11
Succorance	-.09	.22**	.07	.05	.16*	-.01	.13
Abasement	-.05	.33**	.19*	.21**	.14*	.09	.26**
Deference	.00	.25**	.18*	.32**	.07	.15*	.27**
Counseling Readiness	-.08	.18*	.00	.14	.02	-.08	.06
Creative Personality	-.01	-.33**	-.14	-.21**	-.15*	-.02	-.25**

Critical Parent	.06	-.13	-.12	-.21**	-.01	-.10	-.13
Nurturing Parent	.06	-.12	.09	.16*	-.07	.15*	.06
Adult	.12	-.18*	.02	.11	-.09	.08	-.01
Free Child	.05	-.28**	-.03	-.15*	-.07	-.13	-.13
Adapted Child	-.06	.24**	.02	.00	.15*	-.04	.10
Welsh 1	-.04	.12	-.07	-.02	-.02	-.10	-.04
Welsh 2	-.11	.01	-.12	-.17*	.03	-.08	-.11
Welsh 3	-.11	-.04	.19**	.12	-.01	.06	.06
Welsh 4	.00	-.24**	-.13	-.11	-.14*	-.03	-.17*
Communality	.04	-.13	.05	.07	-.08	.06	.00
Favorable	.07	-.20**	.02	.09	-.11	.12	-.02
Unfavorable	-.03	.09	-.07	-.10	-.06	-.13	-.04

Note. $N = 186$.

* $p < .05$. ** $p < .01$. All two-tailed tests.

As can be seen there are numerous, conceptually relevant correlations between the facet scales and the ACL scales. The notable exception is found for the Trust scale, which appears orthogonal to all the ACL scales. The high reliability coefficients reported earlier rule out one explanation for this finding. Two others remain: Either the ACL does not contain personological information relevant to the Trust facet scale or the facet scale does not capture the intended construct. These considerations are addressed in the Discussion section.

In comparing our results with the ACL to those presented by Costa et al. (1991), one can notice a number of replicated correlations. The Deference, Abasement, Nurturance, and Aggression scales show the most numerous associations. However, the Affiliation scale only correlates with the Altruism facet, and Intraception is not associated with any of these facet scales. Although fewer significant associations with these ACL scales are found in this data set as compared to Costa and McCrae, those that are obtained are all theoretically relevant and support the validity for each of these new facet scales (except for the Trust scale). For example, Straightforwardness is associated with high Deference and Abasement and low Aggression and Exhibition, portraying the high scorer on this scale as not being manipulative or wily. Altruism is associated with high scores on the Nurturance and Affiliation scales and low scores on the Aggression scale, clearly portraying the caring and helping concern for others that a high score on this scale is intended to represent. In fact, the correlations of these facet scales (except Trust) with the remaining ACL scales creates an informative pattern of theoretically relevant convergent correlations.

Table 4 presents the correlations between the C facet scales and the ACL scales. Again, the associations are numerous and meaningful: All of the facets have abundant nomological connections. Unlike Costa et al. (1991), the Abasement and Change scales show no correlation with the facet scales for C. However, the correlations between the Succorance, Achievement, Dominance, Endurance, Order, and Intraception scales overwhelmingly replicate the findings observed in the self-reports. Of the 34 significant associations presented by Costa and associates for these six ACL scales, 25 are found here. The total pattern of correlations with the ACL provides strong convergent validity for each of the facet scales. For example, the Achievement facet scale correlates positively with ACL scores on the Achievement, Dominance, and Endurance scales, associations that highlight the drive, persistence, and ambitiousness characterized by high achievement-oriented individuals. The Deliberation facet scale correlates positively with the Self-Control, Order, and Deference scales of the ACL and negatively with the Exhibition scale, associations reflecting the caution, planning, and thoughtfulness characteristic of the deliberate individual.

Table 5 presents the correlations between individual ACL items and each facet scale for A. Only significant correlations are presented. Given the defini-

TABLE 4
Overall Correlations Between the C Facet Scales and Supervisor's ACL Ratings

ACL Scales	Competence	Order	Dutifulness	Achievement Striving	Self-Discipline	Deliberation	Overall Conscientiousness
Achievement	.24**	.07	.17*	.35**	.27**	.02	.24**
Dominance	.20**	-.03	.09	.27**	.20**	-.04	.16*
Self-Confidence	.19*	.00	.08	.28**	.20**	-.06	.16*
Self-Control	.06	.23**	.11	.01	.11	.23**	.15*
Personal Adjustment	.18*	.11	.07	.15*	.20**	.06	.16*
Ideal Self	.23**	.19**	.08	.27**	.26**	.05	.23**
Masculinity	.18*	-.02	.04	.20**	.17*	.02	.13
Femininity	.01	.08	-.12	-.11	-.08	.01	-.04
Endurance	.27**	.22**	.22**	.36**	.31**	.10	.31**
Aggression	.00	-.16	-.01	.04	-.02	-.13	-.06
Heterosexuality	-.02	-.10	-.14	-.03	-.10	-.20**	-.12
Affiliation	.17*	.07	.06	.12	.13	-.02	.11
Military Leadership	.24**	.15*	.19**	.27**	.30**	.06	.25**
Order	.27**	.29**	.27**	.32**	.31**	.21**	.35**
Intracception	.18*	.19**	.15*	.21**	.22*	.12	.22**
Nurturance	.04	.10	-.01	-.01	.03	-.04	.02
Exhibition	.02	-.16*	-.07	.05	-.02	-.19**	-.07
Autonomy	.01	-.14	-.02	.03	.00	-.07	-.03
Change	-.04	-.10	-.08	.05	.00	.14	-.05
Succorance	-.21**	-.13	-.12	-.20**	-.24**	-.06	-.20**
Abasement	-.14	.03	-.02	-.13	-.12	.03	-.07
Deference	.02	.15*	.08	-.03	.03	.14*	.08
Counseling Readiness	-.15*	-.01	-.01	-.11	-.03	.10	-.05
Creative Personality	.07	.00	-.02	.14*	.12	-.12	.05

(Continued)

TABLE 4 (Continued)

ACL Scales	Competence	Order	Dutifulness	Achievement Striving	Self-Discipline	Deliberation	Overall Conscientiousness
Critical Parent	.08	-.05	.05	.13	.05	-.01	.06
Nurturing Parent	.18*	.21**	.12	.19**	.19**	.04	.20**
Adult	.24**	.22**	.21**	.29**	.32**	.13	.29**
Free Child	.06	-.08	-.05	.13	.04	-.21**	-.01
Adapted Child	-.24**	-.21**	-.15*	-.30**	-.30**	-.10	-.27**
Welsh 1	-.21**	-.13	-.21**	-.19**	-.22**	-.08	-.22**
Welsh 2	-.24**	-.18*	-.22**	-.28**	-.20**	-.10	-.25**
Welsh 3	.03	.05	-.02	-.04	.03	-.03	.01
Welsh 4	.21**	.22**	.24**	.37**	.31**	.10	.30**
Communality	.09	.09	.13	.17*	.15*	.04	.13
Favorable	.18*	.16*	.10	.22*	.21**	.03	.19**
Unfavorable	-.11	-.18*	-.08	-.15*	-.15*	-.02	-.14*

Note. $N = 186$.

* $p < .05$. ** $p < .01$. All two-tailed tests.

TABLE 5
ACL Item Correlations With A Facet Scales

Scale	Positive Items		Negative Items	
Trust	confident daring argumentative courageous active	stubborn wholesome energetic strong	absent-minded unstable preoccupied	easy going humorous unconventional
Straightforwardness	fearful timid reserved conservative whiny	confused forgetful unrealistic inhibited	assertive self-controlled persistent intelligent confident	impatient humorous self-confident enthusiastic initiative
Altruism	sensitive kind cooperative fearful cowardly	infantile feminine considerate timid robust	temperamental snobbish foresighted cold clever	self-controlled cynical arrogant fair-minded original
Compliance	conservative honest sensitive obliging kind	whiny cautious calm contented wholesome	opinionated aggressive cynical assertive sarcastic	unconventional tough hard-hearted tactless emotional
Modesty	fearful pessimistic	unstable	tolerant dependable capable confident deliberate	self-confidence progressive tough self-controlled individualistic
Tender-Mindedness	sensitive cooperative	sincere	opinionated intolerant thankless obnoxious temperamental	hard-headed snobbish cold prejudiced cynical
Overall Agreeableness	sensitive fearful kind obliging	cowardly cooperative timid inhibited	opinionated tough assertive aggressive self-controlled	cold temperamental tolerant individualistic confident

Note. $N = 186$. All ACL items correlated with NEO-PI facets at the $p < .05$ level or below.

tions presented by Costa et al. (1991), many of the ACL correlates are expected. For example, those high on Altruism are rated as being sensitive, kind, cooperative, and considerate. Low scores on this scale are associated with ratings of snobbish, cynical, arrogant, and cold. Compliance is associated with ratings of honest, sensitive, and obliging, whereas low Compliance correlates with ratings of assertive, tough, aggressive, and hard-hearted. Correlations between the global A scale and these ACL items portray the high A individual as

sensitive, kind, obliging, cooperative, and timid. The low A individual is associated with ratings of tough, assertive, aggressive, cold, and opinionated. These empirical correlates are consistent with the stated NEO-PI definition of a high A person: Soft-hearted, good-natured, caring, helpful, gullible versus cynical, rude, ruthless, and manipulative.

Table 6 provides the ACL item correlations with the facet scales for C. Again, the ACL items are clearly reflective of the qualities intended for these scales. For

TABLE 6
ACL Item Correlations With C Facet Scales

Scale	Positive Items		Negative Items	
Competence	dependable	assertive	dependent	forgetful
	alert	clear-thinking	absent-minded	self-punishing
	strong	efficient	confused	worrying
	resourceful	logical	impulsive	reflective
Order	conscientious	considerate	moody	frivolous
	dependable	inventive	disorderly	forgetful
	logical	thorough	high-strung	rebellious
			immature	resentful
Dutifulness			absent-minded	moody
			impulsive	frivolous
	efficient	dependable	careless	confused
	mature	resourceful	dreamy	good-looking
Achievement Striving	logical	intelligent	warm	sharp-witted
	thorough	mannerly	dependent	immature
	fault-finding	organized	flirtatious	impulsive
	clear-thinking	enterprising	absent-minded	self-punishing
Self-discipline	ambitious	initiative	disorderly	frivolous
	efficient	energetic	dreamy	queer
	logical	alert	leisurely	lazy
	intelligent	active	forgetful	resentful
Deliberation	dependable	mature	dependent	self-punishing
	capable	alert	absent-minded	unambitious
	resourceful	clear-thinking	forgetful	lazy
	considerate	efficient	worrying	confused
Overall Conscientiousness	assertive	conscientious	moody	queer
	cautious	silent	impulsive	persistent
	conservative	logical	high-strung	autocratic
	mannerly	alert	talkative	witty
Overall Conscientiousness	mature		warm	progressive
			loud	good-looking
	dependable	capable	absent-minded	high-strung
	logical	alert	dependent	disorderly
Overall Conscientiousness	efficient	mannerly	impulsive	confused
	mature	resourceful	forgetful	frivolous
	clear-thinking	precise	moody	careless

Note. $N = 186$. All ACL items correlated with NEO-PI facets at the $p < .05$ level or below.

example, high scores on the Dutifulness scale are positively associated with ratings of efficient, mature, dependable, and mannerly and are negatively related to careless, confused, and impulsive. Scores on the Order scale are positively correlated with ratings of dependable, logical, and thorough and are negatively related to ratings of disorderly, impulsive, and frivolous. Correlations between the global C score and the ACL items portray the high conscientious individual as dependable, capable, resourceful, logical, and precise and the low conscientious individual as impulsive, disorderly, frivolous, and careless. Again, these correlates are consistent with the intended NEO-PI definition of C: reliable, hard working, ambitious, persevering versus aimless, unreliable, careless, and negligent.

DISCUSSION

Overall, the evidence presented here supports the psychometric utility of the new A and C facet scales. The new scales appear to be reliable and valid indicators of the constructs they are intended to measure. The results of this study closely parallel findings presented by Costa et al. (1991). The alpha reliabilities and factor structure they present are almost identical in both pattern and magnitude to the values found here. However, this study demonstrates that impressive validity evidence is also obtained when observer ratings on a different instrument are used as the criterion. Thus, the new facet scales of the NEO-PI appear to represent psychometrically stable qualities reliably found in multiple samples and across different information sources.

One scale that is in need of further evaluation is the Trust facet scale. Although possessing very good reliability and factorial convergence, its lack of association with any of the ACL scales is noteworthy. Although it is possible that the ACL may not contain any personologically similar scales, this does not seem likely given that Costa et al. (1991) presented several significant correlations between self-reported scores on both this facet scale and select ACL scales. Because our findings with the ACL parallel those presented by Costa et al. for the remaining facet scales, the null results found with the Trust scale cannot be attributed to unique features of our sample. An examination of the ACL item correlates in Table 5 adds further to this puzzle. Positively correlated items such as confident, daring, argumentative, and courageous and negatively correlated items such as absent-minded, unstable, and preoccupied do not seem to portray qualities that are consistent with the stated definition of the scale: "... the tendency to attribute benevolent intent to others; distrust as the suspicion that others are dishonest or dangerous" (Costa et al., 1991, p. 888). Future research needs to evaluate systematically the qualities captured in this scale.

Although the ACL item correlates of the C facet scales all seem quite appropriate, some of the associations for the A facet scales seem misplaced. For

example, individuals who score high on the Compliance scale are whiny, those who score high on the Modesty scale are unstable and pessimistic, and those who score high on the Altruism scale are fearful and cowardly. It is possible that some of these correlates are a function of the kind of sample included here. Supervisors (particularly those managing salespeople, who constitute half our sample) may be biased in favor of disagreeable people, seeing them as aggressive and assertive, whereas agreeable individuals may be stigmatized as timid and fearful. Nonetheless, these associations are not the expected correlates of A in most samples, and users should be cautious in applying these labels.

Another issue worth highlighting is the numerous, significant correlations between self-reported scores on the NEO-PI facets and supervisor ratings on the ACL. In fact, many of these correlations replicate the results obtained by Costa et al. (1991) with only self-reports. Using supervisors as raters entails many more "risks" than when either spouses or friends are used as information sources. Supervisors may only see the target person at work, and then only periodically under certain circumstances (e.g., meetings, conferences, and performance reviews). Because an individual's behavior may be greatly constrained by the demands of these particular environments, supervisors may not be able to develop as wide or deep a personological perspective of the target person. Supervisors may also be biased in terms of how they come to interpret the behaviors they do witness, in that individuals may be evaluated only in terms of how their temperaments relate to their work performance. More than just a halo effect (e.g., you are only as good as your last sales figures), supervisors may be prone to misinterpret the psychological significance of the observed behavior. For example, an anxious individual may appear to be very busy at work, rechecking tasks twice, darting around the office, and being involved in many projects. This level of activity may be interpreted as reflecting high energy and activity (facets of E) or high drive (a facet of C) rather than as being a manifestation of personal insecurity and vulnerability. Despite the great potential for bias inherent to supervisor ratings, the numerous, *replicated*, cross-observer, cross-method correlations presented here are indeed strong evidence for the validity of these new facet scales in particular and of the larger five-factor model in general. Further, given that subjects were rated by only one supervisor, perhaps more meaningful correlates may have been seen with aggregated ratings.

That there were many more correlations found between the ACL and C facet scales than between the ACL and A facet scales may be a function of the former construct being much more salient in the working environment (Barrick & Mount, 1991). As just noted, the emphasis placed on productivity and quality performance by an organization may make supervisors particularly sensitive to traits associated with drive, organization, and follow-through (all facets of C). Because one's interpersonal orientation may be less germane to the kinds of evaluations supervisors must make of their subordinates, supervisors may be less

likely to form as precise or detailed impressions of others on this dimension. Therefore, it may be possible to enhance correlations between measures of personality and performance ratings by having supervisors become aware of all five major personality dimensions and then provide ratings that query job-related tasks associated with these traits.

In conclusion, the new facet scales are welcome additions to the NEO-PIR, and they will provide users with a tremendous amount of additional interpretive information. The data presented here confirm the psychometric value of these measures and demonstrate their utility in a sample of working adults. These data also provide some preliminary validity information that may be useful for interpreting scores from these scales. Future research needs to determine whether the NEO-PIR can predict salient work-related outcomes (e.g., job performance) and whether it is just as useful with an applicant population as it is with a currently employed sample.

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Ralph L. Piedmont
1202 Brixton Road
Baltimore, MD 21239-1218

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