Are Measures of Character and Personality Distinct? Evidence From Observed-Score and True-Score Analyses

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Abstract

Two studies were conducted to investigate redundancy between the character strengths found in the VIA model of character and familiar personality facets. Study 1 used a community sample (*N* = 606) that completed a measure of character strengths, four personality inventories, and 17 criterion measures. The second study used Mechanical Turk workers (*N* = 498) who completed measures of the HEXACO and VIA models and 111 criterion variables. Analyses were conducted using both observed scores and true score estimates, evaluating both predictive and conceptual overlap. Eight of 24 VIA scales proved to be largely redundant with one HEXACO personality facet, but only one VIA scale (Appreciation of Beauty) was largely redundant with Five Factor facets. All strength scales except Spirituality overlapped substantially with at least one personality facet. The results suggest the VIA Classification variables are strongly related to commonly measured personality facets, but the two models are not redundant.

Keywords

personality, character, Five Factor Model, HEXACO model, VIA Classification of Strengths and Virtues

Historically, individual difference psychologists have tended to view the concept of character as an aspect of personality (Allport, 1921; Allport & Vernon, 1930; Watson, 1919). Baumrind and Thompson (2002) have more recently echoed this proposition, calling character "personality evaluated" (p. 12). In recent years, the emergence of positive psychology has revitalized interest in character as a distinct topic of research (Seligman & Csikszentmihalyi, 2000). This interest led to the development of a model of positive traits called the VIA Classification of Strengths and Virtues (Peterson & Seligman, 2004). The central innovation underlying the VIA Classification was the identification of 24 "character strengths" that were intended to provide a comprehensive catalog of socially admired personal qualities. These character strengths have since been the subject of extensive research (Niemiec, 2013) and currently represent the dominant perspective for conceptualizing character.

Though the concept of character has moral and social implications not inherent in the concept of personality, character as a set of attributes of the individual represents a component of the broader concept personality. Several studies examined the overlap between personality measures and variables from the VIA character model. Steger, Hicks, Kashdan, Krueger, and Bouchard (2007) found the largest correlation between scales representing the 24 character strengths and 11 scales from the Multidimensional Personality Questionnaire (Tellegen & Waller, 2008) was

.46. For eight Multidimensional Personality Questionnaire scales with clear conceptual relationships to character, the average correlation was only .14.

Other studies have focused on the Five Factor Model of personality (FFM; Goldberg, 1993). Park and Peterson (2006) examined VIA strengths and FFM variables in adolescents. Their highest correlations were in the range .40 to .50, but they did not provide specifics. Regression analyses conducted by Noftle, Schnitker, and Robins (2011) revealed that the five personality domains as a set accounted for 14% to 46% of variance in each VIA strength score, while 30 lower level FFM scales accounted for 30% to 50% of variance. They also demonstrated that the five personality factors and 24 VIA strengths each demonstrated incremental validity over the other when predicting scores on well-being self-reports, but not on "proxies" for well-being (time orientation, regret, mindfulness). A recent master's thesis also found incremental validity for the VIA strengths as predictors of self-reported well-being (Johnsen, 2014)

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Furnham and Ahmetoglu (2014) correlated the five personality factors with five factors derived using confirmatory factor analysis from single-item measures of the 24 character strengths. The largest of the 25 correlations was .34, and the average was .14. Macdonald, Bore, and Munro (2008) found four components underlying the VIA strengths they labeled Positivity, Intellect, Conscientiousness, and Niceness, and similarly correlated them with brief measures of the five factors. Only 5 of 20 correlations were ≥.50. They also used stepwise regression to predict each strength from the FFM scales plus social desirability. In all but four cases the resulting equation accounted for <40% of variance in the strength scale. Most recently, Lefevor and Fowers (2016) compared kindness from the VIA model and Agreeableness from the FFM. The two correlated highly (.52). Even so, they found kindness predicted helping behavior but Agreeableness did not, suggesting a difference in the moral implications of the two constructs.

Literature raising concerns about the relationship between character and personality has not been limited to the VIA model. Another concept that emerged out of the renewed interest in character is grit, defined as the application of perseverance and passion to goal attainment (Duckworth, Peterson, Matthews, & Kelly, 2007). Two articles have recently explored whether grit is in fact simply a restatement of the FFM Conscientiousness domain. Rimfeld, Kovas, Dale, and Plomin (2016) concluded that the grit-perseverance dimension and FFM Conscientiousness are "to a large extent the same trait . . . phenotypically" (p. 780) based on a correlation between self-report measures of .53 in their sample. Credé, Tynan, and Harms (2017) conducted a meta-analysis of studies focusing on grit. They found a mean correlation with Conscientiousness after correction for attenuation of .84, a correlation "so strong as to . . . suggest that grit may be redundant with conscientiousness" (p. 502). These articles highlight the importance of evaluating whether the two perspectives should be treated as distinct.

Limitations of the Existing Research

The results as a whole suggest substantial but not complete overlap between personality and strength scales, but the existing studies are limited in several ways. First, none has considered the six-factor HEXACO model of personality (Ashton & Lee, 2005), which represents an acronym for (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness to Experience. With the inclusion of the sixth Honesty-Humility factor, the HEXACO model potentially provides a more morally attuned perspective on personality, especially since Honesty and Humility/Modesty are both constructs included among the VIA strengths. The HEXACO model therefore provides a more rigorous test than the FFM of

whether character is distinct from the concepts that emerge out of personality research.

Second, the studies that have been conducted often evaluate scales representing constructs at differing levels of granularity. The FFM, HEXACO, and VIA models all encompass two levels of taxonomic rank, called domains and facets in the FFM and HEXACO models, and virtues and strengths in the VIA Classification. However, it should be noted that the two levels differ in their centrality to the models. The FFM and HEXACO models were developed initially at the domain level, from factor analyses of lexical and questionnaire data (Goldberg, 1993). The facets were introduced later by test authors as intuitively important instantiations of the domains. The VIA Classification in contrast was primarily founded at the facet level, through a 3-year process that involved substantial review of literature and input from experts on positive functioning to identify the 24 character strengths (Peterson & Seligman, 2004). The six domains of the VIA model were cultural virtues identified through a separate process of reviewing historical moral texts (Dahlsgaard, Peterson, & Seligman, 2005): Wisdom and Knowledge, Courage, Humanity, Justice, Temperance, and Transcendence (see Table S-1 in the Supplementary Materials). Hierarchical associations between the strengths and the virtues were based on conceptual considerations rather than empirical evidence. At this time, no single factor structure encompassing the entire set of strengths has emerged across measures of the VIA model, though there are movements in that direction (McGrath, 2014, 2015). The VIA can therefore be thought of as a facet-centric model, the FFM and HEXACO as domain-centric.

It is not surprising then that Park and Peterson (2006), Noftle et al. (2011), Johnsen (2014), and Lefevor and Fowers (2016) compared FFM domain scores to VIA facet scores, since these reflect the most thoroughly studied constructs within each model. Only Furnham and Ahmetoglu (2014) and Macdonald et al. (2008) conducted analyses comparing FFM domains to VIA latent traits, while Noftle et al.'s (2011) is the only study that offered a comparison of facet scales.

A third issue is that the extant literature has focused almost exclusively on relationships between character and personality variables. Only three have addressed the practical question whether each offers incremental validity over the other, and the set of criteria used is quite meager. Two (Johnsen, 2014; Noftle et al., 2011) only considered measures of well-being, while Lefevor and Fowers (2016) focused exclusively on helping behaviors.

Measurement Error

One final limitation of the existing research merits more extensive discussion, both because it exemplifies a more

general defect in a good deal of psychological research, and because it inspired the analytic approach used in the studies that follow. All the studies reviewed focused exclusively on relationships at the observed-score level. As a result, they are insufficient to the question of whether the personality and character constructs underlying those scores are equivalent. Most psychologists are at least familiar with the process for addressing this problem in the context of correlational analysis via the correction for attenuation. However, many if not most are unaware of the parallel correction relevant to the context of regression. The need to correct for what is known as regression dilution is accepted in certain other fields of study, with epidemiology offering a good example (e.g., Knuiman, Divitini, Buzas, & Fitzgerald, 1998). Westfall and Yarkoni (2016) have recently argued, correctly we think, the importance of addressing regression dilution in incremental validity studies in psychology.

Westfall and Yarkoni (2016) described traditional regression methods without correction as resulting in a higher Type I error rate for significance tests when compared with true-score methods. We believe this conclusion does not fully consider the range of circumstances in which psychologists study incremental validity. Incremental validity analyses are often used for purposes of model-building, when the goal is to evaluate whether some latent construct contributes to the prediction of some variable over other latent constructs. For example, one way to evaluate whether character is distinct from personality is by evaluating whether character constructs, regardless of measurement model, predict socially desirable behaviors over personality constructs. In this context, the statement that true-score analyses provide more accurate significance test results is correct.

However, incremental validity analyses can also be used for purpose of building prediction models in applied settings. An example would involve deciding whether it is worth administering test *x*, a measure of character, in addition to test *y*, a specific measure of personality, in the context of employee selection. In the context of applied prediction, true-score analyses will produce a higher Type II error rate than is appropriate.

The model-building question is clearly the more generally important one, and so we will focus primarily on results from true-score analyses in drawing final conclusions about the overlap between character and personality. However, we will also present results from observed-score analyses, with the understanding that they have complementary implications.

The Present Studies

This article summarizes two studies that were conducted to address some of the deficiencies in the existing literature.

The goal was to provide a more comprehensive analysis of overlap between dominant personality and character models, to determine whether the latter represents something that is distinctive from the former. Both studies addressed two issues: the degree of overlap between scales and constructs from the two models, and their relative value as predictors of relevant social behaviors and outcomes. Results will include analyses relevant to the specific instruments included in the studies, as is common in the existing literature, and analyses that correct for measurement error.

We decided to limit our analyses to the facet level. As previously stipulated, the VIA model is less clearly specified at the domain level, and prior research indicates the latent model underlying the VIA strength scales does not correspond with the theoretically derived six virtues. Furthermore, the latent model varies across instruments that have been developed to measure the 24 character strengths (McGrath, 2014, 2015). Few studies have even examined the psychometric characteristics of domain scales for the VIA model. For these reasons, a fair comparison of the models at the domain level did not appear possible at this time.[1]

Study 1

Method

Participants. This study relied on preexisting archival data. In 1993, 1,135 men and women from one metropolitan area in Oregon were recruited for the Eugene-Springfield Community Sample. Participation was limited to adult residents who would agree to complete questionnaires intermittently for remuneration over a period of at least 5 to 10 years. To increase the likelihood of long-term residence in the community, the sample was restricted to homeowners. Since then, members of the sample have completed a number of behavioral and personality measures. Based on criteria described in the Procedure section, the sample for this study consisted of 609 members of the original sample. This subsample was 58% female and 81% married; 16% did not attend college, 49% had college experience, and 35% had education at the graduate level. Given the demographics of the Eugene-Springfield area when they were recruited, the subsample was 98% White. In 1993, their average age was 50.37 years (*SD* = 12.21).

Measures. This study focused on five sets of predictor variables that provided measurement of personality and character variables. The NEO-Personality Inventory–Revised (NEO-PI-R; Costa & McCrae, 1992) was administered to the Eugene-Springfield sample during the summer of 1994. This 240-item inventory is one of the most widely used measures of the FFM and provides six 8-item facet scales for each of the five domains. The HEXACO Personality

Inventory (HEXACO-PI; Lee & Ashton, 2004) consists of 192 items, with four 8-item facet scales for each of the six domains. The HEXACO was administered during the spring of 2003.

Between 1994 and 2004, participants completed approximately 2,500 original items as part of the development of the International Personality Item Pool (IPIP; Goldberg et al., 2006), a set of over 3,000 self-report items in the public domain intended to offer broad coverage of personality variables. Included among these were 240 items based on items from the VIA Inventory of Strengths (VIA-IS; Peterson & Seligman, 2004), the most commonly used measure of the VIA Classification. The VIA-IS is composed of 24 scales representing the VIA Classification character strengths, each scale consisting of 10 positively keyed items. These items were rewritten to be consistent in format with the rest of the IPIP, and on each scale 3 to 4 items were rewritten to be negatively keyed. Participants were administered an additional 102 items intended to measure the 24 strengths and other positive attributes. After data were collected, 39 of the rewritten VIA-IS items were deleted from the scoring and 12 of the new items were added based on corrected item–total correlations. This reduced the mean number of items per scale from 10 to 9.04, with a range of 7 to 11 items and 1 to 6 negatively keyed items per scale. This revised inventory has been referred to as the IPIP-VIA.

Similar strategies were used to generate inventories of IPIP items that include scales paralleling each scale on the NEO-PI-R and HEXACO (Ashton, Lee, & Goldberg, 2007). These inventories will be referred to here as the IPIP-NEO and IPIP-HEX, respectively. The IPIP-NEO and IPIP-HEX facet scales all include 10 items. On the IPIP-NEO, at least two items on each scale are reverse-keyed, while the number of reverse-keyed items on the IPIP-HEX varied from 0 to 9. Scoring keys for the IPIP inventories may be found at http://ipip.ori.org. The NEO-PI-R, HEXACO, and IPIP items are all completed on 5-point scales

Table 1 provides reliability estimates from the current sample for all predictor variables, ordered from lowest to highest within each inventory. Lower reliability values suggest greater capacity for deviation between results from observed-score and true-score analyses. Though we follow standard practice in the use of coefficient alpha for this purpose, note that alpha is considered a relatively conservative estimate of reliability, increasing the potential for overcorrection of true scores compared to less commonly used reliability statistics (Revelle & Zinbarg, 2009).

The criterion measures used in this study were previously described by Grucza and Goldberg (2007). In 1997, participants reported the frequency with which they participated in 400 different behaviors (e.g., Played chess, Bought a book) on a 5-point scale from *Never in my life* to *More than 15 times in the past year*. Out of 60 available clusters of related behaviors, Grucza and Goldberg (2007) chose six that they thought were particularly relevant as criteria for personality inventories, demonstrated adequate reliability (α = [.70, .89]), and were relatively unrelated to demographic variables. These included drug use (14 acts), undependability (7), friendliness (8), erudition (6), communication (8), and creativity (11).

For the second set of criteria, in 1998 members of the sample were asked to distribute test booklets to three people who knew them "very well" for purposes of describing the sample member. The booklet included the 44-item Big Five Inventory (John & Srivastava, 1999) and the 40-item Mini-Markers of the Big Five (Saucier, 1994). Both measures were completed using 5-point items. Principal components analysis of the 84 items identified an 18-item Agreeableness scale, 17-item Conscientiousness scale, 16-item Extraversion scale, 15-item Neuroticism scale, and 18-item Openness scale. On average, 2.69 informants (SD = 0.60) rated each participant. The most common informants were relatives (28%), friends (27%), and spouses (24%); 63% were female. Scores were averaged across available informants for each sample member.

The third set of criteria consisted of global scores from six measures of clinical phenomena administered between 1997 and 2000. These included the Borderline Personality Inventory (Leichsenring, 1999); the Levenson Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995), which has been found to be a valid predictor of antisocial and violent tendencies; the Magical Ideation Scale (Eckblad & Chapman, 1983), which measures unconventional causal beliefs potentially reflective of schizotypal tendencies; the Center for Epidemiological Studies–Depression Scale (Radloff, 1977); the Curious Experiences Survey (Goldberg, 1999), which measures dissociative experiences; and the Obsessive-Compulsive Inventory (Foa, Kozak, Salkovskis, Coles, & Amir, 1998). Reliability information for the criterion measures may be found in Grucza and Goldberg (2007).

Procedure. Members of the Eugene-Springfield sample were sent and returned questionnaires by mail and were compensated for each wave of data collection on receipt of the completed materials. Scale scores were set to missing if respondents did not complete at least 75% of items. To be included in the study, members of the sample had to have nonmissing results on the IPIP-VIA, either or both the NEO-PI-R or IPIP-NEO, either or both the HEXACO or IPIP-HEX, and at least one of the criterion variables. IPIP-NEO data were available for 416 participants; at least 500 respondents completed each of the other personality measures. Pairwise deletion was used in all analyses. Scale scores were generated by averaging across items.

Table 1. Study 1: Reliability Estimates for Predictor Variables.

IPIP-VIA	α	NEO-PI-R	α	HEXACO	α	IPIP-NEO	α	IPIP-HEX	α
Fairness	.64	Tender-Minded	.59	Flexibility	.66	Activity	.71	Greed Avoid	.69
Creativity	.65	Actions	.63	Perfectionism	.73	Dutifulness	.71	Flexibility	.72
Prudence	.69	Excitement Seeking	.63	Sincerity	.76	Compliance	.73	Dependence	.72
Modesty	.71	Dutifulness	.65	Fairness	.77	Tender-Minded	.75	Fairness	.75
Judgment	.71	Achieve Striving	.66	Prudence	.78	Straightforward	.76	Forgivingness	.79
Bravery	.71	Deliberation	.70	Gentleness	.78	Deliberation	.76	Inquisitiveness	.79
Leadership	.72	Competence	.70	Sentimentality	.78	Modesty	.77	Sentimentality	.79
Honesty	.73	Altruism	.72	Unconventionality	.78	Actions	.77	Perfectionism	.79
Perspective	.75	Compliance	.73	Inquisitiveness	.79	Altruism	.77	Prudence	.79
Social Intell	.75	Self-Conscious	.73	Dependence	.79	Excitement Seeking	.78	Gentleness	.79
Teamwork	.76	Impulsiveness	.73	Liveliness	.79	Impulsiveness	.78	Modesty	.80
Self-Reg	.76	Activity	.74	Fearfulness	.80	Achieve Striving	.79	Sincerity	.80
Forgiveness	.76	Order	.74	Sociability	.80	Self-Conscious	.80	Diligence	.80
Beauty	.77	Straightforward	.74	Diligence	.80	Gregariousness	.80	Aesthetic App	.83
Love	.78	Modesty	.75	Patience	.80	Competence	.80	Liveliness	.83
Learning	.78	Feelings	.75	Anxiety	.80	Feelings	.81	Unconventionality	.83
Zest	.78	Vulnerability	.79	Aesthetic App	.80	Pos Emotions	.81	Expressiveness	.83
Curiosity	.79	Self-Discipline	.79	Creativity	.81	Trust	.82	Creativity	.84
Kindness	.79	Angry Hostility	.79	Greed Avoid	.81	Order	.82	Fearfulness	.84
Gratitude	.80	Warmth	.80	Modesty	.81	Vulnerability	.83	Organization	.84
Humor	.81	Values	.80	Forgivingness	.84	Anxiety	.83	Anxiety	.85
Hope	.84	Pos Emotions	.80	Social Boldness	.85	Fantasy	.83	Sociability	.85
Perseverance	.85	Assertiveness	.80	Expressiveness	.85	Assertiveness	.84	Social Boldness	.86
Spirituality	.91	Gregariousness	.81	Organization	.86	Aesthetics	.84	Patience	.88
		Fantasy	.82			Self-Discipline	.85		
		Ideas	.83			Values	.86		
		Aesthetics	.84			Ideas	.86		
		Trust	.84			Warmth	.87		
		Depression	.84			Angry Hostility	.88		
		Anxiety	.84			Depression	.89		
M	.76		.75		.79		.80		.80

Note. IPIP-VIA = International Personality Item Pool-VIA; NEO-PI-R = NEO–Personality Inventory–Revised; HEXACO = (H)onesty-Humility, (E) motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness; Self-Reg = Self-Regulation; Social Intell = Social Intelligence; Tender-Minded = Tender-Mindedness; Achieve Striving = Achievement Striving; Self-Conscious = Self-Consciousness; Straightforward = Straightforwardness; Pos Emotions = Positive Emotions; Aesthetic App = Aesthetic Appreciation. Scales are ordered from least to most reliable within each inventory.

Results

The Overlap Between Personality and Character. Table 2 provides information about the size of correlations between the IPIP-VIA strength scales and personality facet scales. For each strength scale, the largest bivariate correlation is listed for each of the four personality inventories, as is the name of the personality scale associated with that correlation. The multiple *R* resulting from regressing the strength scale on all facet scales is also provided for each personality inventory.

Spirituality was the least effectively represented by a single facet measure, where the largest bivariate correlation accounted for less than 20% of variance. Other scales where no single predictor accounted for as much as 25% of variance included Fairness, Gratitude, and Teamwork. In only

three cases (Creativity, Forgiveness, and Perseverance) did the best single predictor account for as much as half the variance in the strength scale.

While the best FFM or HEXACO predictors of the strengths generally made intuitive sense, it is noteworthy how frequently the best predictor represented a very different concept than the VIA scale. Examples include IPIP-HEX Creativity as the best predictor of Bravery and HEXACO Social Boldness as the best predictor of Leadership. Gratitude was variously most closely associated with Positive Emotions, Sentimentality, and Altruism; and Perspective with Vulnerability (negatively), Liveliness, Competence, and Creativity. Though each of the two HEXACO inventories included a Fairness scale, for neither HEXACO inventory was the Fairness scale the best predictor of the VIA Fairness scale. This finding offers a particularly striking case of how

Table 2. Study 1: Prediction of VIA Facet Scores from Personality Facet Scores.

	NEO-PI-R			HEXACO			IPIP-NEO			IPIP-HEX			
	Maximum r	Scale	R	Maximum r	Scale	R	Maximum r	Scale	R	Maximum r	Scale	R	r*
Creativity	.42	Ideas	.63	.70	Creativity	.78	.52	Fantasy	.73	.72	Creativity	.77	.98
Forgiveness	.45	Compliance	.74	.63	Forgivingness	.74	.46	Compliance	.65	.70	Forgivingness	.74	.90
Perseverance	.54	Achieve Striving	.68	.67	Diligence	.75	.63	Self-Discipline	.76	.73	Diligence	.77	.88
Modesty	.47	Modesty	.73	.49	Modesty	.69	.61	Modesty	.72	.64	Modesty	.73	.85
Beauty	.62	Aesthetics	.68	.61	Aesthetic App	.72	.64	Aesthetics	.72	.68	Aesthetic App	.76	.85
Humor	.47	Pos Emotions	.58	.47	Liveliness	.58	.66	Pos Emotions	.70	.44	Liveliness	.59	.82
Zest	.38	Achieve Striving	.72	.60	Liveliness	.69	−.45	Depression	.68	.64	Liveliness	.73	.79
Learning	.50	Ideas	.64	.56	Aesthetic App	.71	.57	Ideas	.72	.62	Inquisitiveness	.73	.79
Self-Reg	−.53	Impulsiveness	.70	.42	Diligence	.66	−.60	Impulsiveness	.73	.49	Diligence	.65	.78
Prudence	.42	Deliberation	.64	.53	Prudence	.70	.54	Dutifulness	.73	.54	Prudence	.77	.77
Honesty	−.34	Vulnerability	.61	.44	Fairness	.62	.54	Dutifulness	.67	.47	Fairness	.70	.76
Leadership	.51	Assertiveness	.65	.58	Social Boldness	.71	.55	Assertiveness	.70	.57	Social Boldness	.68	.74
Kindness	.40	Warmth	.64	.51	Sentimentality	.67	.57	Altruism	.70	.49	Sentimentality	.67	.73
Perspective	−.40	Vulnerability	.63	.40	Liveliness	.66	.55	Competence	.70	.55	Creativity	.69	.71
Judgment	.36	Deliberation	.58	.53	Prudence	.68	.49	Competence	.71	.46	Prudence	.66	.71
Bravery	.43	Assertiveness	.70	.52	Social Bold	.70	−.50	Self-Conscious	.74	.54	Creativity	.73	.70
Fairness	−.30	Angry Hostility	.61	.43	Gentleness	.61	.49	Altruism	.60	.46	Gentleness	.63	.69
Hope	−.45	Depression	.69	.56	Liveliness	.67	−.57	Depression	.73	.56	Liveliness	.70	.69
Love	.38	Positive Emotions	.60	.44	Liveliness	.63	.57	Warmth	.68	.46	Sociability	.66	.69
Curiosity	.44	Ideas	.67	.53	Inquisitiveness	.75	.46	Aesthetics	.70	.52	Inquisitiveness	.72	.67
Social Intell	.40	Warmth	.59	.49	Social Boldness	.65	.52	Warmth	.67	.50	Social Boldness	.67	.64
Teamwork	.37	Gregariousness	.55	.41	Sociability	.62	.42	Warmth	.60	.47	Sociability	.62	.58
Gratitude	.35	Positive Emotions	.60	.37	Sentimentality	.60	.45	Altruism	.66	.38	Sentimentality	.59	.57
Spirituality	−.44	Values	.75	.32	Fairness	.47	−.42	Values	.65	.29	Fairness	.47	.51
M[a]	.43		.65	.51		.67	.53		.69	.54		.68	.74

Note. NEO-PI-R = NEO–Personality Inventory–Revised; HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness; IPIP-VIA = International Personality Item Pool; Maximum r = largest single correlation with the strength scale; R = multiple correlation resulting from regressing the IPIP-VIA strength scale on all facet scales for the Five Factor Model or HEXACO inventory; r* = maximum correlation between a facet and strength scale after correcting for attenuation. Self-Reg = Self-Regulation; Social Intell = Social Intelligence; Pos Emotions = Positive Emotions; Achieve Striving = Achievement Striving; Aesthetic App = Aesthetic Appreciation; Social Bold = Social Boldness; Self-Conscious = Self-Consciousness. Rows are ordered by r*.
[a]Computed using absolute values.

the same term can be used in very different ways when the goal of scale development is to generate instantiations of broad personality domains rather than markers of social rectitude. The HEXACO Fairness facet falls within the Honesty-Humility domain and has more to do with avoiding fraud and cheating than the typical sense of fairness that underlies the VIA scale. It was only when correlations exceeded .60, a standard met by only 17 of 96 correlations (18%), that the most strongly related personality and character scales seemed to be consistently convergent in terms of the construct measured.

The final column in Table 2 provides the largest correlation between a facet and strength scale after correcting for attenuation using the formula

$$r^* = \frac{r_{XY}}{\sqrt{r_{XX} r_{YY}}}$$

Rows in the table are ordered from largest to smallest of these values. In several cases the correction for attenuation suggested essential equivalence between personality and character facets. The maximum corrected correlation for six strengths exceeded .80. In contrast, the best predictor of

Gratitude, Spirituality, and Teamwork still accounted for a third or less of variance in the character strength scale, and for 9 of 24 strengths the strongest correlate still accounted for less than half of variance.

For each VIA scale the table identifies at least one personality inventory where the multiple *R* exceeded .60, and for all but five strengths that value exceeded .70 for at least one personality inventory. The findings suggest generally substantial overlap between each strength scale and personality facet scales as a whole. However, it was often the case that no single personality construct was redundant with the strength.

Criterion-Related Validity. The next set of analyses evaluated the five inventories individually as predictors of the criteria using simultaneous regression. Table 3 presents proportions of overlapping variance resulting from regressing each criterion on to the complete set of facet scales from each inventory. Since analyses with the FFM scales involved more predictors than those based on the HEXACO and VIA models, adjusted *R* values are provided in addition to multiple correlations.

As expected, the personality inventories were substantially better predictors of peer ratings of personality than

Table 3. Study 1: Prediction of Criteria With Each Inventory (Observed Scores).

	R					Adjusted R				
	IPIP-VIA	NEO-PI-R	HEXACO	IPIP-NEO	IPIP-HEX	IPIP-VIA	NEO-PI-R	HEXACO	IPIP-NEO	IPIP-HEX
Behavioral criteria										
Drug Use	.58	.59	.48	.60	.53	.55	.56	.45	.56	.49
Undependability	.49	.48	.39	.52	.51	.46	.43	.35	.46	.46
Friendliness	.59	.49	.50	.57	.55	.56	.44	.47	.52	.51
Erudition	.62	.51	.46	.52	.54	.60	.47	.42	.47	.50
Communication	.54	.54	.54	.57	.56	.51	.50	.51	.52	.52
Creativity	.56	.55	.59	.59	.62	.53	.51	.57	.54	.59
M	.56	.53	.49	.56	.55	.53	.49	.46	.51	.51
Peer ratings										
Agreeableness	.44	.51	.51	.51	.53	.39	.46	.47	.44	.48
Conscientiousness	.48	.51	.52	.60	.56	.44	.46	.48	.55	.52
Extraversion	.59	.68	.68	.66	.68	.56	.65	.66	.62	.66
Neuroticism	.35	.54	.52	.54	.53	.28	.50	.49	.48	.49
Openness	.57	.60	.58	.66	.61	.54	.57	.55	.62	.57
M	.49	.57	.56	.60	.58	.44	.53	.53	.54	.55
Clinical criteria										
OBS	.46	.52	.53	.60	.59	.42	.48	.51	.56	.55
Dissociation	.49	.45	.43	.54	.53	.46	.40	.39	.48	.49
Borderline	.67	.64	.57	.69	.69	.65	.61	.55	.66	.67
Psychopathy	.54	.58	.56	.58	.63	.51	.55	.53	.54	.60
Depression	.48	.56	.47	.56	.53	.45	.52	.43	.50	.49
Magical Thinking	.44	.44	.43	.44	.48	.40	.39	.38	.36	.43
M	.51	.53	.50	.57	.58	.48	.49	.46	.52	.54

Note. NEO-PI-R = NEO–Personality Inventory–Revised; HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness; IPIP = International Personality Item Pool; OBS = Obsessive-Compulsive Inventory. Adjusted R = multiple correlation corrected for number of predictors, which varies across inventories.

were character variables, though the mean correlations for the IPIP-VIA were still generally moderate to large. Personality inventories also tended to be superior to the IPIP-VIA as predictors of clinical variables. Given that the latter instrument is the only one that does not include scales directly addressing negative affectivity, means were computed again excluding the criteria measuring obsessive-compulsive and depressive features. The IPIP-VIA was now outperformed only by the other two IPIP measures as a predictor of clinical phenomena, and those differences were attenuated. In contrast, the IPIP-VIA performed as well or better than the personality inventories as a predictor of the behavioral criteria. Though differences can be identified across the inventories, most were quite small and few were >.10.

Incremental Validity. For each criterion, we conducted eight hierarchical regression analyses involving observed scores. Four of these analyses evaluated the incremental validity of the IPIP-VIA over each of the personality inventories, the other four reversed the order of entry. Across 17 criteria, this meant 68 analyses evaluating the incremental validity of IPIP-VIA scales and 68 evaluating the incremental

validity of personality inventories, with 17 analyses devoted to each inventory. Predictors for each criterion consisted of those scales that were associated with significant regression coefficients ($p < .05$) from the simultaneous regression analyses described in the previous section.

Our review of incremental validity analyses focuses on significance test results, since these are directly available for both observed-score and true-score analyses. Table S-2 (Supplementary Materials) indicates the percent of hierarchical regression analyses in which observed scores from the IPIP-VIA scales were associated with a significant increment of fit over each of the four personality inventories, as well as the percent of analyses in which observed scores from each of the four personality inventories provided a significant increment in fit over the IPIP-VIA. The IPIP-VIA provided a significant increment in fit over personality inventories in 96% of the analyses. The IPIP-NEO was associated with a significant improvement over the IPIP-VIA in 94% of analyses. The other three personality inventories significantly improved prediction in 100% of the analyses.

To address the issue of regression dilution, the following procedure was used based on recommendations from

Table 4. Study 1: Significant Increments in Fit for True Score Estimates.

IPIP-VIA		NEO-PI-R		HEXACO		IPIP-NEO		IPIP-HEX	
Scale	%	Scale	%	Scale	%	Scale	%	Scale	%
Prudence	41.18	Excitement Seeking	41.18	Anxiety	35.29	Order	29.41	Sincerity	35.29
Spirituality	39.71	Depression	23.53	Creativity	35.29	Competence	23.53	Anxiety	35.29
Beauty	25.00	Fantasy	23.53	Expressiveness	29.41	Activity	17.65	Organization	23.53
Gratitude	13.24	Anxiety	17.65	Liveliness	23.53	Fantasy	17.65	Unconventionality	23.53
Zest	11.76	Aesthetics	17.65	Patience	23.53	Aesthetics	17.65	Fearfulness	17.65
Curiosity	10.29	Order	17.65	Aesthetic App	23.53	Ideas	17.65	Expressiveness	17.65
Kindness	8.82	Angry Hostility	11.76	Sociability	17.65	Self-Discipline	17.65	Liveliness	17.65
Self-Reg	8.82	Warmth	11.76	Fairness	11.76	Anxiety	11.76	Forgivingness	17.65
Social Intell	8.82	Feelings	11.76	Sentimentality	11.76	Depression	11.76	Aesthetic App	17.65
Creativity	7.35	Values	11.76	Gentleness	11.76	Excitement Seeking	11.76	Fairness	11.76
Modesty	5.88	Altruism	11.76	Organization	11.76	Positive Emotions	11.76	Dependence	11.76
Perspective	5.88	Competence	11.76	Diligence	11.76	Feelings	11.76	Sentimentality	11.76
Bravery	4.41	Vulnerability	5.88	Perfectionism	11.76	Actions	11.76	Social Boldness	11.76
Leadership	4.41	Gregariousness	5.88	Unconventionality	11.76	Values	11.76	Sociability	11.76
Love	4.41	Assertiveness	5.88	Sincerity	5.88	Tender-Mindedness	11.76	Gentleness	11.76
Honesty	2.94	Positive Emotions	5.88	Modesty	5.88	Angry Hostility	5.88	Patience	11.76
Learning	2.94	Straightforwardness	5.88	Fearfulness	5.88	Self-Consciousness	5.88	Perfectionism	11.76
Perseverance	2.94	Compliance	5.88	Dependence	5.88	Impulsiveness	5.88	Prudence	11.76
Fairness	1.47	Modesty	5.88	Social Boldness	5.88	Vulnerability	5.88	Greed Avoid	5.88
Forgiveness	0.00	Self-Discipline	5.88	Forgivingness	5.88	Gregariousness	5.88	Modesty	5.88
Hope	0.00	Self-Consciousness	0.00	Prudence	5.88	Assertiveness	5.88	Diligence	5.88
Humor	0.00	Impulsiveness	0.00	Inquisitiveness	5.88	Straightforwardness	5.88	Inquisitiveness	5.88
Judgment	0.00	Activity	0.00	Greed Avoid	0.00	Altruism	5.88	Creativity	5.88
Teamwork	0.00	Actions	0.00	Flexibility	0.00	Compliance	5.88	Flexibility	0.00
		Ideas	0.00			Achievement Striving	5.88		
		Trust	0.00			Deliberation	5.88		
		Tender-Mindedness	0.00			Warmth	0.00		
		Dutifulness	0.00			Trust	0.00		
		Achievement Striving	0.00			Modesty	0.00		
		Deliberation	0.00			Dutifulness	0.00		
M	8.76		8.63		13.24		10.00		14.22

Note. IPIP-VIA = International Personality Item Pool-VIA; NEO-PI-R = NEO–Personality Inventory–Revised; HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness; % = percent of analyses significant (p < .05), out of 68 analyses for strengths and 17 analyses for personality facets. Self-Reg = Self-Regulation; Social Intell = Social Intelligence; Aesthetic App = Aesthetic Appreciation.

Westfall and Yarkoni (2016). For each criterion, we computed four structural equation models for each combination of the IPIP-VIA and personality inventory. The criterion was treated as a manifest variable in these analyses, while the character and personality predictors were treated as latent variables using the scale items as the manifest indicators. The set of predictors was based on significance in the corresponding hierarchical regression analysis, to reduce the number of latent variables to be estimated. Analyses were conducted using full-information maximum likelihood estimation through the CALIS procedure in SAS Version 9.4 (SAS Institute, 2013).

Table 4 presents the proportion of analyses in which each latent variable significantly predicted the criterion. There were five strength scales that never enhanced prediction: Forgiveness, Hope, Humor, Judgment, and Teamwork. The inclusion of Judgment in this list is particularly interesting given the finding that without correction it was one

of the best predictors among the strengths (see Table S2). The latter finding may in part reflect unreliability given that Judgment had one of the lower reliability coefficients in Table 1, though the less reliable Prudence scale did not demonstrate nearly so dramatic a decline in effectiveness. Examining the other predictors commonly combined with Judgment, Prudence was among the most common. Given similarity in these two constructs, it is reasonable to assume the decline in the effectiveness of Judgment may have had more to do with its overlap with another strength than its overlap with personality constructs.

In contrast, Spirituality and Prudence remained common significant contributors to prediction. With the exception of Excitement Seeking on the NEO-PI-R, none of the personality scales matched those two scales in terms of the rate of significant results. Overall, though, the mean percent for the 24 strengths was smaller than that for three of the four sets of personality facets.

Taking hierarchical regression and structural equation modeling results in tandem, the evidence was consistent that Spirituality and Prudence are differentiated from personality scales whether observed scores or true scores are considered, with Appreciation of Beauty also standing out from the other strengths. In contrast, where observed-scores analyses suggested promising results for Judgment, this finding evaporated when measurement error in Judgment and other predictors was taken into consideration.

Study 2

The first study suffered from several methodological limitations. The use of IPIP inventories as predictors in the same sample in which they were created potentially skewed the results in favor of those measures. In contrast, the collection of questionnaires at different times could have attenuated the strengths of relationships and favored those administered in closer contiguity with the sets of criterion measures. In the incremental validity and path analyses it should also be noted that since the IPIP-VIA was being compared with four personality inventories, the IPIP-VIA scales would have had to prove significant in four times as many analyses as any of the corresponding personality scales to achieve the same percent of significant outcomes.

The outcome measures available in Study 1 were also limited in scope. The relevance of scales reflecting clinical constructs as criteria for personality measures in particular can be questioned. We would note in response that, in a sample of long-term, highly educated homeowners, these measures are best conceived as indicators of clinically relevant traits within a normative population rather than as indicators of psychopathology. As such, there is good reason to expect them to be related to other indicators of personal traits. Consistent with this proposition, Grucza and Goldberg (2007) reported a mean multiple correlation between personality measures and the clinical scales that was within hundredths of the mean for the peer ratings and for orthogonalized behavioral scores. Similarly, the mean correlation in our Table 3 for the clinical criteria is .52 versus .53 for the other criteria.

It may also be the case that these criteria are potentially biased to the benefit of the personality inventories. This was most likely with the peer ratings, but the Neuroticism scales proved particularly relevant to the prediction of clinical criteria, and as noted, Grucza and Goldberg (2007) indicated the six behavioral criteria were chosen because of their expected predictability from personality measures. Of course, the selection of behavioral criteria that are conceptually related to personality dimensions included in the FFM would not preclude character variables from providing incremental validity. In fact, the concept of character as conceptualized within the VIA Classification clearly has relevance to some of the behavioral criteria in Study 1, such

as drug use, creativity, and undependability. However, the addition of criteria selected specifically for their relevance to character would be desirable. The second study represented a replication of the first intended to address these limitations.

Method

Participants. The sample consisted of 498 Mechanical Turk workers who were 18 years or older, living in the United States (since some criteria were specifically relevant to U.S. residents), and English speaking. The sample was 45% female, 55% male, and 0.40% transgender female. The majority were White (80%), followed by Black (7%), and Asian (7%). Hispanics made up 8% of the sample. The sample was better educated than the general population: 86% had attended at least some college courses, 61% had an associate's degree or higher, and 50% had at least a bachelor's degree. The most common marital status was single (59%) followed by married (32%). The majority were employed (63%) or self-employed (24%). Mean age was 34.30 years ($SD = 10.43$). They were fairly equally distributed across the country, with the largest groups living in Southeastern (29%) and Western (22%) states.

Measures. To reduce the length of testing and balance the measurement of personality and character, only one personality inventory was administered. The 200-item revised version of the HEXACO (HEXACO-PI-R; Ashton & Lee, 2008) was chosen for this purpose so that the Honesty-Humility factor was included. The revised version differs from earlier iterations of the instrument in that the Expressiveness facet of the Extraversion domain was replaced by one called Social Self-Esteem. In addition, an interstitial Altruism scale was added that reflects elements of Honesty-Humility, Agreeableness, and Emotionality but is not included in the scoring of any domain. The addition of this facet could be expected to enhance the ability of the HEXACO to predict socially valued attributes. Each of the 25 facet scales is represented by 8 items.

Character was measured using an abbreviated version of the VIA-IS that has been called the VIA-120. For each of the 24 strengths, the VIA-120 consists of the five items from the VIA-IS scale that demonstrated the largest corrected item–total correlations in a large sample. Reliability coefficients for the predictor variables can be found in Table 5. The mean reliability values were higher than any reported in Table 1, and no scales were associated with reliability values less than .71. These results suggest the potential for observed-score and true-score analyses to generate more consistent conclusions than was true in Study 1.

For this study we collected a substantially larger set of criteria. Three doctoral students in psychology who were involved in research on character strengths reviewed each

Table 5. Study 2: Reliability Estimates for Predictor Variables.

VIA-120	α	HEXACO-PI-R	α
Modesty	.71	Unconventionality	.74
Self-Regulation	.73	Flexibility	.75
Learning	.76	Perfectionism	.78
Leadership	.77	Creativity	.79
Curiosity	.79	Inquisitiveness	.81
Teamwork	.80	Altruism	.81
Honesty	.81	Sentimentality	.82
Judgment	.82	Aesthetic Appreciation	.84
Love	.82	Prudence	.84
Social Intelligence	.82	Anxiety	.84
Kindness	.83	Fearful	.84
Prudence	.83	Gentleness	.85
Beauty	.83	Patience	.86
Perspective	.84	Greed Avoid	.86
Hope	.84	Sincerity	.86
Fairness	.84	Fairness	.86
Bravery	.84	Diligence	.86
Gratitude	.84	Modesty	.86
Zest	.85	Dependence	.86
Humor	.86	Sociability	.87
Forgiveness	.88	Liveliness	.88
Creativity	.88	Forgiveness	.88
Spirituality	.89	Organization	.90
Perseverance	.90	Social Boldness	.90
		Social Self-Esteem	.90
M	.82		.84

Note. HEXACO-PI-R = HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness–Personality Inventory–Revised.

of the 400 behavioral acts described by Grucza and Goldberg (2007) and indicated which acts they thought should be related to one or more of the character strengths in the VIA model. There were 75 items considered relevant by at least two of the three raters, and each served as a criterion in this study. They were completed on the same 5-point scale used previously.

The Survey of Dictionary-based Isms (SDI; Saucier, 2013) is a 46-item measure of five broad social attitudes: Tradition-Oriented Religiousness (8 items), Unmitigated Self-Interest (10 items), Communal Rationalism (10 items), Subjective Spirituality (8 items), and Egalitarianism (10 items). All reliabilities exceeded .70 except that for Communal Rationalism (α = .59).

The remaining criteria represented a large array of constructs, many of which were drawn from a set of "consequential outcomes" described by Ozer and Benet-Martínez (2006) for use in personality research. The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) is a widely used five-item indicator of general life satisfaction. Items are completed on a 7-point scale. Coefficient alpha was .94.

The Duke University Religion Index (DUREL; Koenig & Büssing, 2010) is a five-item measure of religiosity. The first two items have to do with frequency of religious activities and are completed on a 6-point frequency scale. The last three items have more to do with religious experiences and are completed on a 5-point self-descriptive scale. Despite the differences in focus and scale across items, reliability was .92.

The Patient Health Questionnaire–2 (Kroenke, Spitzer, & Williams, 2003) is a two-item depression screen that gauges the frequency of the two key symptoms of depression (depressed affect and anhedonia) on a 4-point scale. Though very brief, reliability for the measure was .89.

The three-item short form of the De Jong-Gierveld Social Loneliness Scale (Gierveld & Van Tilburg, 2006) was used to tap into lack of social involvement. Each item is completed on a 4-point intensity scale. Coefficient alpha for the three items was .91.

A measure of community involvement consisting of five Yes–No items was adopted from Flowers (2010). Coefficient alpha for the five items was .65. Two items reflecting the respondent's community values were taken from Townley and Kloos (2009). Coefficient alpha was .76.

Workers who were currently in a significant relationship with another person (*N* = 286) completed a seven-item measure of relationship satisfaction by Hendrick (1988). Level of satisfaction with various aspects of the relationship was rated on a 5-point scale. Coefficient alpha was .67.

The criteria included a number of other single-item measures in addition to the behavioral acts. Two items were described by Talhelm et al. (2015) to measure political liberality relative to economic issues and social issues. Each is completed on a 7-point scale from *Very liberal* to *Very conservative*. Two items reflecting problems with gambling were taken from Johnson et al. (1997). Three items reflecting exercise were drawn from the National Health Interview Survey Adult Health Behaviors Questionnaire (http://www.cdc.gov/nchs/nhis.htm). Participants with a job (*N* = 375) completed a one-item measure of job satisfaction on a 5-point scale (Dolbier, Webster, McCalister, Mallon, & Steinhardt, 2005).

Several items were appropriated from Paunonen (2003), including a gauge of Popularity on a 9-point scale from *Extremely unpopular* to *Extremely popular*, and items asking the average number of cigarettes smoked per day, the number of alcohol drinks consumed per week, and average monthly spending on lottery tickets in dollars. Respondents with a driver's license completed four questions reflecting imprudent driving such as number of speeding tickets received.

The criterion set also included several single-item measures generated by the authors. One asked about how frequently the respondent eats fast food or junk food on a 5-point scale from *Never* to *Every day*. Another item gauged amount of time per week devoted to community organizations on a

Table 6. Study 2: Prediction of VIA Scores from HEXACO Scores.

Strength	Maximum *r*	Scale	*R*	*r**
Zest	.82	Liveliness	.85	.94
Forgiveness	.79	Forgivingness	.86	.90
Hope	.75	Liveliness	.81	.88
Perseverance	.76	Diligence	.80	.86
Prudence	.70	Prudence	.75	.83
Creativity	.68	Creativity	.78	.82
Curiosity	.64	Liveliness	.79	.77
Kindness	.63	Altruism	.79	.77
Fairness	.62	Altruism	.72	.75
Bravery	.64	Social Boldness	.75	.74
Social Intelligence	.61	Sociability	.79	.73
Beauty	.59	Aesthetic Appreciation	.73	.71
Love	.60	Social Self-Esteem	.75	.70
Judgment	.58	Prudence	.74	.70
Gratitude	.60	Liveliness	.71	.69
Modesty	.52	Gentleness	.67	.67
Honesty	.56	Diligence	.71	.67
Learning	.52	Inquisitiveness	.66	.66
Leadership	.50	Diligence	.72	.62
Humor	.52	Liveliness	.68	.60
Self-Regulation	.47	Diligence	.62	.59
Perspective	.50	Diligence	.68	.59
Teamwork	.44	Gentleness	.71	.55
Spirituality	.36	Liveliness	.52	.41
M	.60		.73	.71

Note. HEXACO-PI-R = HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness–Personality Inventory–Revised; IPIP = Personality Item Pool. Max *r* = largest single correlation with the strength scale; *R* = multiple correlation resulting from regressing the IPIP-VIA strength scale on all facet scales for the HEXACO-PI-R; *r** = maximum correlation between a personality and strength scale after correcting for attenuation.

7-point scale from *None* to *>15 hours*. One asked for number of times arrested as an adult, another number of years of education completed, and another for current annual income. Weight in pounds and height in inches was requested for purposes of computing body mass index. Finally, two items asked about marijuana and other drug use for recreational purposes. In total, 111 criterion variables were used in this study.

Procedure. Mechanical Turk workers received $10 in return for their participation. Initially, 508 individuals completed the questionnaires. However, 12 attention items were distributed across the measures (e.g., *Choose strongly agree*), and 10 participants were eliminated for answering less than 11 of these items correctly. Except for the instances noted above where criteria were completed by a subset of cases, the sample for any one analysis consistently exceeded 490.

Results

The Overlap Between Personality and Character. Table 6 summarizes relationships between the HEXACO-PI-R and VIA-120 scales, paralleling Table 2 in the previous study.

For each strength scale the table lists the most highly correlated HEXACO-PI-R facet scale, the highest correlation after correction for attenuation, and the multiple *R* derived from regressing the strength scale onto all 25 HEXACO-PI-R scales. Compared to the HEXACO in Study 1, the HEXACO-PI-R was a better predictor of character in general, though this may also reflect the simultaneous collection of data. The mean maximum correlation increased from .51 to .60. Where 11 of 24 maximum correlations accounted for <25% of character strength variance in Study 1, that number dropped to 4 in Study 2: Spirituality, Teamwork, Self-Regulation, and Perspective. Even so, it is worth noting again the conceptual distinctions between the best predictor and the strength scale in some cases, for example, Liveliness as the best single predictor of Gratitude, Diligence of Honesty. This was true even in many instances where the correlation exceeded .60. Also, the strongest correlate changed in 13 of 24 cases from Study 1 to Study 2, though for three strengths this was due to changes in the set of HEXACO facet scales.

The mean of the largest correlation for each facet scale increased to .71 after correction for attenuation. However, the largest single correlation for Spirituality only increased

Table 7. Study 2: Prediction of Criteria With Each Inventory (Observed Scores).

Criterion sets	k	R		Adjusted R	
		VIA-120	HEXACO-PI-R	VIA-120	HEXACO-PI-R
Behavioral	75	.39	.40	.33	.34
Social Activities	28	.35	.38	.27	.31
Social Engagement	28	.42	.43	.36	.37
Intellectual Pursuits	19	.41	.41	.35	.34
Identity	9	.59	.51	.56	.47
Consequential Outcomes	27	.38	.38	.30	.29
Combined	111	.41	.41	.34	.34

Note. HEXACO-PI-R = HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness–Personality Inventory–Revised. Adjusted R = multiple correlation corrected for number of predictors, which differs by 1 across inventories; k = number of criteria.

to .41. Those for Teamwork, Self-Regulation, Humor, and Perspective remained <.60.

The combination of scales again accounted for a substantial portion of the variance in each strength scale. Only for Spirituality was the multiple *R* less than .60, and for only five others was it less than .70.

Criterion-Related Validity. Each of the 111 criteria was regressed on the complete set of facet scales from each of the two inventories, resulting in 222 simultaneous regression analyses. Results may be found in Table 7. Though the number of scales only differed by one between the two inventories, adjusted *R* is provided for comparability with Table 3.

As could be expected, the 75 behavioral items reflected a variety of diverse contents. To organize the results, the items were analyzed using Goldberg's (2006) iterative principal components procedure. Specifically, a series of principal component analyses was conducted, initially retaining one component, then increasing the number of components by one in each subsequent analysis. Analyses retaining multiple components were varimax rotated.

The first component reflected social activities (e.g., "Attended a city council meeting" and "Attended a ballet"). The second primarily addressed social engagement (e.g., "Made a new friend" and "Complimented someone"). The third was most strongly associated with intellectual pursuits (e.g., "Read poetry" and "Looked up a word in a dictionary"). After the third component, no additional component accounted for as much as 3% of the total variance, and review of items associated with the highest loadings did not suggest a coherent content. Results for the behavioral acts are grouped according to whether their primary loading was associated with the social activities, social engagement, or intellectual pursuits component.

The remaining criteria were divided into two groups. The first consisted of those variables thought to be representative of the respondent's identity. These included the five scales derived from the SDI, the DUREL score, the community values scale, and the two political liberality items. The remaining 27 criteria were grouped as consequential outcome variables.

Across all sets and the criteria as a whole, mean values were extremely similar for the two inventories. The largest discrepancy was the superiority of the VIA-120 scales as predictors of the identity measures, though the mean difference was still small. Review of the analyses in this set indicated the finding largely resulted from the inclusion of three criteria reflecting spirituality/religiosity and one reflecting a conservative political view on social issues. In each of these cases the VIA-120 Spirituality scale seemed to play a central role in the outcome.

Incremental Validity. As in the prior study, hierarchical regression analyses were conducted evaluating the significant predictors from each inventory over the significant predictors from the other. Results for observed-score analyses may be found in Table S-3 of the Supplementary Materials. The VIA-120 significantly improved fit in 93% of analyses versus 91% for the HEXACO-PI-R. Table 8 presents results from structural equation models conducted in the same manner as in the first study. The results are consistent with those from the hierarchical regression analyses provided in Table S-3, as was predicted based on the higher reliability values reported in Table 5. Probably as a result of marked differences in the focus of the criteria across the two studies, the relative contribution of the individual scales varied substantially from Study 1, but were more stable for the VIA measure than the HEXACO measure. The percent of analyses in which the VIA scales offered incremental validity in the two studies correlated .31 when based on hierarchical regressions and .34 when based on latent trait analyses; the corresponding values for the 23 shared HEXACO scales were only .14 and .10, respectively.

Table 8. Study 2: Significant Increments in Fit for True Score Estimates.

VIA-120		HEXACO-PI-R	
Scale	%	Scale	%
Honesty	23.96	Social Boldness	19.79
Learning	21.88	Aesthetic Appreciation	17.71
Fairness	18.75	Sincerity	16.67
Judgment	18.75	Modesty	15.63
Spirituality	17.71	Sociability	12.50
Teamwork	16.67	Diligence	11.46
Prudence	12.50	Fairness	10.42
Kindness	11.46	Greed Avoidance	10.42
Love	11.46	Social Self-Esteem	10.42
Self-Regulation	10.42	Fearful	9.38
Beauty	8.33	Creativity	7.29
Humor	8.33	Flexibility	6.25
Forgiveness	5.21	Prudence	6.25
Hope	5.21	Inquisitiveness	6.25
Perseverance	5.21	Altruism	6.25
Zest	5.21	Dependence	5.21
Perspective	4.17	Unconventionality	5.21
Curiosity	3.13	Anxiety	4.17
Leadership	3.13	Liveliness	4.17
Social Intelligence	3.13	Organization	4.17
Bravery	2.08	Sentimentality	3.13
Creativity	2.08	Forgiveness	2.08
Gratitude	2.08	Gentleness	2.08
Modesty	0.00	Patience	2.08
		Perfectionism	2.08
M	9.20		8.04

Note. HEXACO-PI-R = HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness–Personality Inventory–Revised. % = percent of analyses significant ($p < .05$), out of 101 analyses.

Combined Results

A key question to be addressed in this study is whether, or in what cases, the strength scales are redundant with facets from the personality scales. Table 9 aggregates the correlational/regression statistics found in Tables 2 and 6 that bear directly on this question, with the 24 strengths ordered from smallest to largest maximum correlation. The implications of these findings are discussed below.

Discussion

Making sense of these studies requires addressing three questions. First, are measures of character and personality distinct? Second, does measuring character have value over the measurement of personality? Third, what is the relationship between the constructs of character and personality? The first question is addressed by those analyses addressing the prediction of character variables from personality variables, the second by the analyses that examined character and personality variables as relative predictors of consequential criteria. The third requires considering the definitions of personality versus character, and the implications of each for measurement practice.

Are Measures of Character and Personality Distinct?

Table 9 indicates a range of results in terms of degree of overlap between personality facets and character strengths, from relatively poor representation of Spirituality and Teamwork by any one facet of the FFM and HEXACO inventories to corrected correlations for Perseverance and Forgiveness approaching 1.0. Interpreting these results requires some standard for distinguishing between a correlation that indicates substantial overlap versus one indicating redundancy.

We suggest two approaches to this issue. The first is based on results provided by Pace and Brannick (2010), who conducted a meta-analysis of personality scales that were intended to measure the same construct. For scales developed in light of the FFM, mean correlations uncorrected for reliability were generally greater than .60. The one exception was Openness, with a mean of .48. The authors did not speculate on this outlier, but Goldberg (1993, Footnote 5) indicated greater disagreement about the structure of this factor than is true of the other FFM domains and that uncertainty seems to have translated into distinct though related measures despite the use of a common name.[2]

A second approach to setting guidelines for evaluating overlap was available because of the inclusion of multiple measures of the same personality constructs in the first study. Specifically, there were 30 scales on the NEO-PI-R and IPIP-NEO intended to measure the same construct, and 24 on the HEXACO and IPIP-HEX. Correlations were computed between these scales. The mean correlation proved to be .68, with a 95% confidence interval [CI] [.65, .71]. After correction for attenuation, this mean increased to .86 (95% CI [.83, .89]).

Another useful feature of the multiple personality measures for the present purposes is the inclusion of scales that are intended to measure distinct but related facets of personality. For each personality domain, the NEO-PI-R and IPIP-NEO provided six facets while the HEXACO measures provided four. Correlating each facet from one measure with the nonredundant facets of the same domain from the other produced 111 correlations. The mean for these correlations proved to be .31 (95% CI [.28, .34]), and .39 (95% CI [.36, .43]) after correcting for attenuation.

These results provide support for treating correlations of .60 or higher, and a corrected correlation of .80 or higher, as

Table 9. Summary of Correlational Analyses Across Studies.

	Maximum *r*			Maximum *r**			Maximum *R*		
	Study 1	Study 2	*M*	Study 1	Study 2	*M*	Study 1	Study 2	*M*
Spirituality	.44	.36	.40	.51	.41	.46	.75	.52	.63
Teamwork	.47	.44	.45	.58	.55	.57	.62	.71	.67
Gratitude	.45	.60	.52	.57	.69	.63	.66	.71	.68
Perspective	.55	.50	.53	.71	.59	.65	.70	.68	.69
Self-Regulation	.60	.47	.54	.78	.59	.69	.73	.62	.67
Leadership	.58	.50	.54	.74	.62	.68	.71	.72	.72
Honesty	.54	.56	.55	.76	.67	.71	.70	.71	.71
Judgment	.53	.58	.55	.71	.70	.70	.71	.74	.72
Fairness	.49	.62	.56	.69	.75	.72	.63	.72	.67
Social Intelligence	.52	.61	.57	.64	.73	.68	.67	.79	.73
Learning	.62	.52	.57	.79	.66	.73	.73	.66	.70
Modesty	.64	.52	.58	.85	.67	.76	.73	.67	.70
Love	.57	.60	.58	.69	.70	.69	.68	.75	.72
Curiosity	.53	.64	.58	.67	.77	.72	.75	.79	.77
Bravery	.54	.64	.59	.70	.74	.72	.74	.75	.74
Humor	.66	.52	.59	.82	.60	.71	.70	.68	.69
Kindness	.57	.63	.60	.73	.77	.75	.70	.79	.74
Prudence	.54	.70	.62	.77	.83	.80	.77	.75	.76
Beauty	.68	.59	.63	.85	.71	.78	.76	.73	.74
Hope	.57	.75	.66	.69	.88	.79	.73	.81	.77
Creativity	.72	.68	.70	.98	.82	.90	.78	.78	.78
Zest	.64	.82	.73	.79	.94	.87	.73	.85	.79
Forgiveness	.70	.79	.74	.90	.90	.90	.74	.86	.80
Perseverance	.73	.76	.74	.88	.86	.87	.77	.80	.78

Note. IPIP = Personality Item Pool; HEXACO-PI-R = HEXACO = (H)onesty-Humility, (E)motionality, E(x)traversion, (A)greeableness, (C)onscientiousness, and (O)penness–Personality Inventory–Revised. Maximum *r* = largest single correlation with the strength scale; Maximum *r** = largest correlation between a facet and strength scale after correcting for attenuation; Maximum *R* = largest multiple correlation resulting from regressing the IPIP-VIA strength scale on all facet scales for the Five Factor Model or HEXACO inventory.

evidence for likely redundancy, while correlations less than .50 are likely to be more reflective of closely related but distinct constructs. We note this standard would suggest Rimfeld et al.'s (2016) conclusion of phenotypic equivalence between grit-perseverance and Conscientiousness based on a correlation of .53 is questionable.

By the standard we are proposing, the last eight scales in Table 9 could be considered essentially redundant in focus with one of the personality facet scales, though the average correlation for Kindness was only .75 after correction for attenuation. This conclusion is reinforced by review of the personality facets that were associated with the maximum correlation, in that they represent equivalent or strongly related constructs to the strengths. The most extreme exceptions to this pattern involved Hope and Zest, both of which correlated most strongly with Liveliness. However, item-level factor analyses of the VIA-IS reported by McGrath (2014) revealed these two strengths tended to collapse into a single factor that was labeled positivity, which seems consistent with the concept of liveliness. It is interesting to note that in all eight cases, it was a HEXACO scale that

correlated most highly with the strength. The two models would have looked more distinct, with only Appreciation of Beauty meeting the .60 standard, if only measures of the more popular FFM had been included.

Spirituality and Teamwork were particularly poorly represented by any single personality facet. Though not fully redundant, the remaining 14 strength scales in the table could be interpreted as demonstrating substantial overlap with at least one facet scale. These scales could not be considered interchangeable, but it is likely they tap into similar elements of personality.

Multiple correlations from the two studies (the maximum multiple correlation in the case of Study 1) are also provided in Table 9. The eight scales demonstrating the greatest redundancy with a single facet all were associated with a mean multiple *R* value of .74 or higher. Prediction of Curiosity and Bravery achieved the same level, suggesting these scales were also well-represented by a combination of facet scales. These may represent interstitial constructs between constructs reflected in the facet scales. Seven other scales were associated with mean multiple correlations of

.70 or higher, again suggesting substantial overlap with the set of facet scales.

The failure to find clear evidence for redundancy in more than half of the strengths is not completely surprising. Many of the strength constructs do not map directly onto any construct found in the dominant personality inventories. Though the linear combination of the personality facets often predicted 50% or more of variance in strength scales, this does not imply traditional personality scales are an optimal approach to the measurement of key character construct. The most extreme case was Spirituality, for which there was no evidence that dominant personality inventories incorporate a construct or set of constructs that are roughly comparable. This finding is consistent with Piedmont's (1999) proposal that spirituality is a distinct element of personality poorly represented by existing personality measures. However, other character strengths such as Teamwork, Gratitude, Perspective, Self-Regulation, and Fairness similarly emerged as poorly represented by personality constructs in either study.

Incremental Validity

The results generally support the conclusion that character scales improved the prediction of consequential criteria, even when unreliability in the personality scales was discounted, though there were exceptions. The personality facets associated with Neuroticism or Emotionality seem particularly absent in the conceptualization of character. As a result, character variables did not offer much incremental value to the prediction of clinical variables. This finding potentially raises a challenge to recent efforts attempting to reframe clinical phenomena in strength terms (Rashid, 2015; Seligman, 2014). However, it should be noted that these efforts consistently call for examining curvilinear relationships between strengths and clinical symptoms, an analysis outside the scope of the present investigation.

In contrast, character did as well as personality scales when predicting more generally applicable behaviors and outcomes. An interesting question arises whether there are other classes of possible criteria not commonly observed in personality research for which character variables would be particularly relevant. One candidate might be self- or other-perceptions of personal competence across domains of performance, for example.

Note that the current research consistently awards primacy to the personality constructs, that is, we were more interested in whether character scales have incremental value over personality variables than vice versa. Some readers may object to this asymmetrical approach, but given the much better established tradition of personality research and the greater breadth of the concept of personality, the unique contribution of character theory is the more appropriate question.

Are Character and Personality Distinct?

The results suggest the majority of constructs that emerge out of character theory—at least as conceptualized by the VIA Classification, which has been the dominant framework for character in recent years—are not strictly reducible to constructs that have emerged out of the Five Factor or HEXACO models, though they demonstrate substantial overlap. They also suggest that, in general, the strength scales contribute uniquely to accuracy in the prediction of important social variables. These findings could be taken as suggesting that character and personality are distinct. This conclusion merits consideration in terms of what we mean by personality, by character, and even by the word distinct.

By any reasonable definition of personality, the entire set of character strengths encompassed by the VIA Classification are elements of personality. For example, McAdams and Pals (2006) associated personality with unique variation expressed in the development of dispositional traits, adaptations, and life narratives in a cultural context. This is a broad domain, but it encompasses all elements of personal and social identity as an enduring set of attributes. Nothing in this article should be taken as implying that character strengths are anything more than a subset of personality dimensions. In fact, the degree of overlap between a reasonable measure of global character and global personality may be no less than that found for any two reasonable measures of personality facets.

However, the subset of personality facets that comprise key elements of character are a particularly important subset, in that they encompass the set of dimensions used to evaluate whether one is a "good" person (McGrath, 2015) and therefore worth measuring as a distinct set when research is interested in the topic of goodness. The evidence that most of the strengths are not redundant with the most widely measured personality facets indicates the contemplation of character results in focusing on a distinct set of constructs from the contemplation of personality more generally. The study of personality would probably never have resulted in suggesting concepts such as gratitude or fairness as core constructs. The omission of items about belief in the existence of a higher power from the personality measures when many individuals consider that a key element of identity, for example, illustrates the limitations for a global measure of personality to capture all potentially important components of that construct.

At the same time, the present findings should not be taken as implying that global models or measures of personality should be expanded to encompass dimensions of character, as Piedmont (1999) suggested for spirituality. Current personality theory has emerged out of extensive evidence for the domains that have become its focus as the key elements of comprehensive person perception. Broadening personality theory to address other goals attenuates its value

for that purpose. Instead, it is reasonable to recognize that research on the global description of the individual will tend to rely on a different set of constructs than research interested in the individual as a contributor to the social good. In particularly, the latter has inherent to it a judgment about good and bad qualities that is not relevant to personality description in general.

Limitations and Conclusions

Several limitations may be noted to this research. With the exception of the peer ratings, the criteria consisted solely of self-report measures, a feature likely to enhance the size of correlations with the criteria, and therefore to increase the potential for character variables to enhance prediction over personality variables. In response, it may be noted that the correlations with peer ratings in Study 1 were on average slightly higher than those reported for the behavioral and clinical criteria. That said, future research on the distinctiveness of character measures would benefit from a more diverse set of criteria reflecting other sources besides the respondent.

The study could have benefitted from the inclusion of criteria less common to personality research but more relevant to character, such as perceptions of competence or trustworthiness. Though it is the dominant model of character in current research on individual differences, it should also be recognized that the VIA Classification need not be the only perspective on character. For example, the conception of character captured by the VIA Classification is broader than the conception of character as personality evaluated suggested by Allport and Vernon (1930) and others. While Peterson and Seligman (2004) identified a moral quality as the most salient feature for distinguishing character strengths from other individual difference variables, which is consistent with Allport's perspective, the Aristotelian framework that seems to have grounded their work includes elements of good citizenship beyond the moral. A model of character that restricts inclusion to moral concepts might strengthen the differentiation between personality and character further.

It is also important to remember that analyses were limited to the facet level and should not be assumed to be valid at higher levels of generality. In fact, a recent study has suggested greater convergence between personality domains and character virtues than was evident at the facet level in the present study (McGrath, Greenberg, & Hall-Simmonds, 2017). This would seem consistent with Loevinger's (1954) classic attenuation paradox, in which more heterogeneous scales, such as domain or virtue scales, can be expected to demonstrate greater convergence because of the enhanced potential for overlap in item contents.

With these caveats in mind, we return to the question that starts this article: Are measures of personality and character distinct? The results of these two studies provide reasonable evidence that the VIA-IS strengths demonstrate substantial overlap with personality facets. This finding is unsurprising given that character is a component of personality, though a particularly important one. That said, 16 of 24 strength scales were not fully accounted for by personality facets. As a result, strengths contributed significantly to the prediction of consequential outcomes even after correcting for unreliability. The VIA Classification and its measures provides at least a starting point for the examination of character as a special topic with social and moral implications within the broader field of personality research.

Supplementary Material

Supplementary material is available for this article online.

Notes

1. We did conduct analyses using six virtue scores computed by averaging across the strengths considered subordinate to each virtue for exploratory purposes. Copies of these results are available from the first author on request.
2. Another possible standard was provided by Bukumiric et al. (2016). They aggregated results from nine studies correlating two of the most popular self-report measures of depression, the Montgomery–Asberg Depression Rating Scale (Montgomery & Åsberg, 1979) and Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The authors found a mean correlation at baseline of .70 and at final observation of .86. These higher values may make sense in a context such as depression, where the universe of possible markers is substantially smaller, than for personality domains. Facet constructs tend to be broader than depression, but they are also more circumscribed than the domains that were the basis for Pace and Brannick's (2010) findings, suggesting .60 might be too low a standard for considering measures redundant. We use .60 as our standard within the broad realm of personality constructs with this caveat in mind.

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