

Structures of Personality and Their Relevance to Psychopathology: II. Further Articulation of a Comprehensive Unified Trait Structure

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ABSTRACT There is increasing agreement that the current categorical system of personality disorders (PDs) in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV*; American Psychiatric Association, 2000) should be replaced by a trait dimensional scheme in *DSM-V*. In particular, the consensus appears to be converging on a hierarchical Big Four model. The broad factors that form the apex of this hierarchy are essentially maladaptive variants of the Big Five traits of normal personality, minus Openness. We argue that this Big Four model is incomplete, however, in that it fails to model characteristics related to the “odd or eccentric” Cluster A PDs adequately. We report the results of three studies that examine these odd, eccentric characteristics in relation to basic dimensions of normal and abnormal personality. The results of these studies establish the existence of an Oddity factor that is (a) broader than the Cluster A traits and (b) distinct from Openness and the other Big Five dimensions. Consequently, its addition yields an alternative five-factor model of personality pathology (considering only abnormal traits) and an expanded, integrated Big Six taxonomy that subsumes both normal and abnormal personality characteristics.

In a special issue on personality and psychopathology in the *Journal of Abnormal Psychology*, Watson, Clark, and Harkness (1994) argued that structural models of personality have extremely important implications for the conceptualization and assessment of psychopathology, as well as for the etiology of disorder. They reviewed three

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major structural subtraditions within personality, including both higher and lower order models, and proposed an integrative hierarchical model—composed of four higher order traits that subsume multiple lower order dimensions—that encompasses all three of these structural schemes.

In this article, we revisit these issues in light of recent advances in our understanding of the multilevel structures of normal and pathological personality. We first review major developments in this area and then report the results of three studies that help to articulate a broader, more comprehensive trait taxonomy. This expanded structural scheme includes the four higher order dimensions identified by Watson et al. (1994) and replicated by others, plus a fifth dimension—Oddity—that replaces normal-range Openness in abnormal trait structure. Putting all of this evidence together, we propose a comprehensive six-factor hierarchical structure—the four previous traits, plus Openness and Oddity—that subsumes both normal and pathological manifestations of personality.

REVIEW OF PREVIOUS EVIDENCE

Watson, Clark, and Harkness (1994)

The hierarchical structure of personality. Over the course of several decades, trait psychologists produced countless studies of personality structure that seemed to yield confusing and contradictory results. Finally, starting in the 1980s, considerable progress was made toward the development of a consensual, comprehensive taxonomy of traits. Watson et al. (1994) offered an integrative Big Four structure based on the accumulating evidence. They emphasized the importance of two key developments that had facilitated articulation of this synthetic model. The first major development was the explicit recognition that personality traits are ordered hierarchically at different levels of abstraction or breadth (e.g., Hogan & Hogan, 1992; John, Hampson, & Goldberg, 1991), a point for which supportive evidence has continued to accrue (e.g., Digman, 1997; Markon, Krueger, & Watson, 2005; Shiner & Caspi, 2003). For example, the broad, higher order trait of extraversion can be decomposed into several distinct yet empirically correlated traits (see Watson & Clark, 1997), including dominance (i.e., extraverts are assertive and

persuasive and enjoy being the center of attention), sociability (i.e., extraverts seek out and enjoy the company of others), energy (i.e., extraverts are active and full of energy), and positive emotionality (i.e., extraverts are cheerful and enthusiastic).

The development of hierarchical models permitted the integration of general-factor models—such as the prominent Big Three and Big Five schemes—with multidimensional structures that were the focus of most older personality inventories (see Watson et al., 1994). In this regard, it is noteworthy that many prominent personality instruments—including the Revised NEO Personality Inventory (Costa & McCrae, 1992), Multidimensional Personality Questionnaire (MPQ; Patrick, Curtin, & Tellegen, 2002), Hogan Personality Inventory (HPI; Hogan & Hogan, 1992), Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993; and SNAP-2, Clark, Simms, Wu, & Casillas, in press), and HEXACO Personality Inventory (HEXACO-PI; Lee & Ashton, 2004, 2006)—permit the assessment of both higher order “supertraits” and lower order facets. We focus primarily on higher order traits in this article but emphasize that they represent only the upper portion of a multilevel hierarchy.

Integration of the Big Three and Big Five. The second key development was the recognition that the major apparently competing superfactor schemes actually define similar trait structures. Watson et al. (1994) focused in particular on an integration of the influential Big Three and Big Five models. They began by noting that two higher order traits—Neuroticism/Negative Emotionality and Extraversion/Positive Emotionality—are included in both models. Then, using correlational and factor-analytic evidence, they demonstrated that the final Big Three dimension (Disinhibition vs. Constraint) essentially combines the Big Five dimensions of Conscientiousness and Agreeableness (Watson et al., 1994, Table 2). Clark and Watson (1999) further documented these relations, demonstrating that factor scores on Disinhibition (vs. Constraint) correlated $-.54$ and $-.50$ with scores on Conscientiousness and Agreeableness, respectively. The final Big Five factor (i.e., Openness, Imagination, or Culture) is virtually unrelated to the Big Three (Clark & Watson, 1999; Watson et al., 1994).

An integrative Big Four model. Based on these findings, Watson et al. (1994) concluded that the Big Three and Big Five define a

common “Big Four” structure (excluding Openness) that could be used as the basis for an integrative trait taxonomy, in which each of these traits is decomposed into several component facets (see their Table 3). First, Neuroticism/Negative Emotionality reflects individual differences in the extent to which an individual perceives and experiences the world as threatening, problematic, and distressing. Extraversion/Positive Emotionality assesses one’s willingness to engage the environment, especially the social environment. The third higher order trait, Conscientiousness, or Constraint (vs. Disinhibition), focuses on the basic issue of impulse control: Whereas disinhibited individuals are swayed primarily by the immediate sensations of the moment, conscientious individuals are controlled more by the broader, long-term implications of their behavior. Finally, Agreeableness centrally involves the nature of one’s relations with others: Agreeable people are kind, empathic, and altruistic, whereas antagonistic individuals are deceptive, self-centered, and manipulative. As mentioned, this consensual Big Four structure subsequently has been replicated by others in analyses of both adults (e.g., Markon et al., 2005) and children and adolescents (Caspi, Roberts, & Shiner, 2005; Shiner & Caspi, 2003).

Markon, Krueger, and Watson (2005)

Further integration of the superfactor models. Markon et al. (2005) reexamined much of this earlier evidence and extended it in two significant ways. First, using the results of two studies—one based on a meta-analysis and the other an analysis of a large undergraduate student sample—they developed a multilevel hierarchical model that neatly integrated several prominent superfactor schemes by examining the effects of extracting an increasing number of factors from the same data. Extracting two factors revealed the Big Two dimensions of Alpha (i.e., Agreeableness and Conscientiousness vs. Neuroticism) and Beta (i.e., Extraversion and Openness) that were identified first by Digman (1997). When three factors were extracted, Alpha split apart to form the basic dimensions of the Big Three (i.e., Neuroticism, Extraversion, and Disinhibition). In the four-factor solution, Disinhibition split apart to define the separate factors of Agreeableness and Conscientiousness, thereby recreating the Big Four taxonomy of Watson et al. (1994). Finally, when five factors were extracted, Beta split to form separate dimensions of

Extraversion and Openness, thereby forming the familiar Big Five. Thus, the Big Two, Three, Four, and Five all can be modeled fully in the same multilevel, hierarchical structure.

Integration of normal and abnormal trait structures. Second, Markon et al. (2005) established that normal and abnormal personality traits can be subsumed within a single structural framework (see also O'Connor, 2002; Saulsman & Page, 2004). Their structural analyses included measures of both normal personality (e.g., the NEO-PI-R and MPQ) and traits relevant to PD (including the SNAP and the Dimensional Assessment of Personality [DAPP]; Livesley & Jackson, in press). Accordingly, these results established that basic research on normal-range trait structure can be used to inform our understanding of abnormal personality and PD as well (see Clark, 2005, 2007).

The Big Four Model of Personality Disorder

Axis II of the *Diagnostic and Statistical Manual of Mental Disorders, Text Revision (DSM-IV-TR*; American Psychiatric Association, 2000) includes ten specific PDs (e.g., borderline PD, narcissistic PD, schizotypal PD). Dissatisfaction with this categorical scheme is widespread and has been increasing for many years, and it is now broadly perceived to be scientifically untenable (e.g., Clark, 2005, 2007; Livesley, 2003; Widiger & Samuel, 2005). Widiger, Trull, Clarkin, Sanderson, and Costa (2002), for example, declared that “Official diagnoses are substantially arbitrary, often unreliable, overlapping, and incomplete and have only a limited utility for treatment planning” (p. 435).

The most obvious and frequently mentioned alternative is a hierarchical trait-based dimensional scheme. Indeed, the American Psychiatric Association—with the support of the World Health Organization and funding from the National Institute of Mental Health, the National Institute on Alcohol Abuse and Alcoholism, and the National Institute on Drug Abuse—held a *DSM-V* planning conference titled “Dimensional Models of Personality Disorder: Etiology, Pathology, Phenomenology, & Treatment” in December, 2004 (Widiger & Simonsen, 2005b). The consensus recommendation of the attendees was that the current categorical Axis II system be replaced by a hierarchical dimensional scheme in *DSM-V*.

Although other alternatives have been proposed (see Widiger & Simonsen, 2005a, for an integrative examination of 18 alternative dimensional models), the consensus seems to be converging on a hierarchical Big Four model that closely resembles those discussed by Watson et al. (1994) and Markon et al. (2005). The higher order factors that form the apex of this hierarchy essentially are maladaptive variants of the Big Five personality traits, minus Openness (e.g., Livesley, Jang, & Vernon, 1998; Widiger, 1998; Widiger & Samuel, 2005; Widiger & Simonsen, 2005a). For instance, Livesley (2005) marshals impressive support for a dimensional scheme based on the four higher order dimensions of Anxious-Submissive (i.e., Neuroticism-Emotional Stability), Psychopathic (i.e., Agreeableness-Antagonism), Socially Withdrawn (i.e., Extraversion-Introversion), and Compulsive (i.e., Conscientiousness-Constraint) that has been replicated with an independent set of descriptors (Parker, Hadzi-Pavlovic, & Wilhelm, 2000). Of course, each of these higher order factors can be decomposed into several specific primary dimensions. However, there currently is less agreement about the organization and composition of these primary traits, which clearly need specification through future research (Clark, 2007).

Overview of the Current Research

The articulation of this hierarchical Big Four model represents an important step in the conceptualization and assessment of personality pathology. We believe that it is incomplete, however, in that it fails to model characteristics related primarily to the “odd or eccentric” Cluster A PDs (schizoid PD, schizotypal PD, paranoid PD) in a complete and satisfactory manner. In this regard, Widiger and Simonsen (2005a) noted that a fifth factor of personality pathology has been found by a few investigators “in joint factor analytic studies that provide sufficient representation” of this domain (p. 118). This fifth dimension has been labeled Unconventionality (Tellegen & Waller, in press), Openness (Wiggins & Pincus, 1989), Cognitive-Perceptual Aberrations (Siever & Davis, 1991), Psychoticism (Harkness, McNulty, & Ben-Porath, 1995), and Peculiarity (Tackett, Silberschmidt, Krueger, & Sponheim, 2008). One basic goal of this article is to argue for the necessity of a fifth domain of personality pathology—which we label “Oddity”—to model these Cluster A characteristics adequately.

Our second basic goal is to clarify the placement of this Oddity dimension within an integrated taxonomy of normal/abnormal personality. One possibility is that Oddity essentially represents a pathological variant of Openness (e.g., Wiggins & Pincus, 1989; see Widiger & Simonsen, 2005a, for a discussion of this issue), just as the traits in the proposed Big Four scheme represent maladaptive variants of the other Big Five personality traits. If so, this would create a joint Big Five model for both normal and abnormal traits. We report the results of three studies, however, that establish the existence of an Oddity factor that is distinct from—indeed, only modestly related to—the Big Five. Consequently, its addition yields an alternative five-factor model of personality pathology (considering only abnormal traits) and an expanded, integrated Big Six taxonomy that subsumes both normal and abnormal personality dimensions.

STUDY 1

In Study 1, we report an expanded analysis of data that previously were analyzed by Markon et al. (2005, Study 2). As discussed earlier, Markon et al. explored the effects of extracting an increasing number of factors in their data, examining two- through five-factor solutions. These results were based on four trait instruments: the NEO-PI-R, the Big Five Inventory (BFI; John & Srivastava, 1999), the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975), and the SNAP. One noteworthy limitation of these analyses, however, is that they included very few measures of odd/eccentric Cluster A characteristics, making it difficult for an Oddity factor to emerge. Markon et al. (2005) did, in fact, extract a sixth factor in these data, noting that this dimension “seemed to reflect paranoid mistrust, having largest loadings on SNAP Eccentricity, Mistrust, and Manipulativeness” (p. 143) and “appeared to be hierarchically related” to the Openness factor in the five-factor solution.

Fortunately, the participants in this sample also completed several measures of dissociation. Previous research has established very strong links between measures of dissociative tendencies and markers of schizotypy and schizotypal personality (e.g., Merckelbach & Giesbrecht, 2006; Startup, 1999; Watson, 2001). Consequently, these dissociation scales would be expected to com-

bine with other relevant variables in the dataset—including SNAP Eccentric Perceptions (relevant to schizotypal PD) and Mistrust (relevant to both schizotypal and paranoid PDs)—to form a separable Oddity dimension.

Method

Participants and Procedure

This study's participants have been described previously (Markon et al., 2005; Clark & Watson, 1999, and Watson et al., 1994 also report on portions of these data). The sample consisted of 327 students (113 men, 214 women) recruited from introductory psychology classes at Southern Methodist University ($N = 185$; 57 men, 128 women) and the University of Iowa ($N = 142$; 56 men, 86 women). Participants completed the measures in two small-group sessions separated by a 1-week interval.

Measures

Basic personality measures. As noted earlier, participants completed four basic personality inventories. Two of these were Big Three instruments. (1) The widely used 90-item EPQ (Eysenck & Eysenck, 1975) includes scales assessing Neuroticism, Extraversion, and Psychoticism (which, despite its name, is better viewed as a measure of disinhibition vs. constraint; see Markon et al., 2005; Watson et al., 1994). Items are rated using a dichotomous yes-no format. (2) The 390-item SNAP (Clark et al., in press) measures trait dimensions relevant to the Axis II PDs, using a dichotomous true-false format. The SNAP is a hierarchical Big Three instrument that contains three temperament scales (Negative Temperament, Positive Temperament, and Disinhibition) that assess the core of the higher order dimensions, and 12 more specific trait scales (e.g., Aggression, Dependency, Entitlement, Manipulativeness).

The students also were assessed on two Big Five instruments. (1) The 54-item version of the BFI (John & Srivastava, 1999) contains an 18-item scale to assess Openness and 9-item scales to measure each of the other Big Five traits. Participants responded to each item on a 7-point scale ranging from *very uncharacteristic of myself* to *very characteristic of myself*. (2) The 240-item NEO-PI-R (Costa & McCrae, 1992) is a widely used hierarchical measure of the five-factor model; its items are rated using a 5-point scale ranging from *strongly disagree* to *strongly agree*. The NEO-PI-R contains six 8-item facets to measure each of the Big Five,

for a total of 30 facets overall. For example, the Neuroticism facets are Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability; those for Openness are Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values.

Dissociation measures. Participants completed three measures of dissociation (see Watson, 2001, 2003a, for a more detailed discussion of these scales): (1) The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; Carlson & Putnam, 1992) is a widely used 28-item questionnaire designed to measure dissociative tendencies in both nonclinical and clinical samples. Respondents are presented with a variety of experiences and asked to estimate “what percentage of the time this happens to you”; ratings are made on an 11-point scale (0%, 10%, 20%, etc.). (2) The Questionnaire of Experiences of Dissociation (QED; Riley, 1988) is a 26-item scale with a true-false format. The QED items were drawn from the clinical literature, and the instrument was intended primarily for research on dissociative disorders. (3) The Dissociative Processes Scale (DPS; Harrison & Watson, 1992) consists of 33 items that are rated on a 5-point scale ranging from *strongly disagree* to *strongly agree*. The DPS includes three factor-analytically derived subscales: Obliviousness (e.g., “I will sometimes walk into a room, and not remember why I went in there”; “At times people have told me that I seemed to be off in a world of my own”), Detachment (e.g., “Sometimes when I am looking in the mirror I feel like I am seeing someone else”), and Imagination (e.g., “If I want to, I can imagine some things so vividly that they hold my attention like a good movie or book does”; “I have an interesting fantasy life”).

Results and Discussion

General Overview

We examined a total of 58 variables: 30 NEO-PI-R facets, 15 SNAP trait and temperament scales, 5 BFI scales, the Big Three scales from the EPQ, and 5 measures of dissociation (DES, QED, and three DPS subscales). Paralleling the analyses reported in Markon et al. (2005), to explicate the structure defined by these variables, we examined the effects of extracting an increasing number of factors and present results for the two- through six-factor solutions. In each case, we conducted a principal factor analysis with squared multiple correlations as the initial communality estimates and rotated the factors to oblique simple structure using promax.

Factor Solutions

Two-factor solution. Table 1 presents the loadings of the two-factor solution. Consistent with the results reported in Markon et al. (2005), these dimensions represent the Big Two factors of Alpha and Beta, respectively, that were identified originally by Digman (1997). Consistent with Digman's findings, the Openness measures tended to load primarily on Beta. Specifically, BFI Openness (.53), NEO-PI-R Feelings (.48), NEO-PI-R Ideas (.42), and NEO-PI-R Aesthetics (.34) all had moderate-to-strong loadings on Beta. Two additional Openness facets—Actions and Values—had low loadings

Table 1
Promax-Rotated Factor Loadings in the Two-Factor Solution (Study 1)

Scale	I	II
QED	.68	.29
SNAP Manipulativeness	.66	.10
SNAP Negative Temperament	.65	.03
EPQ Neuroticism	.64	-.05
SNAP Mistrust	.63	.03
SNAP Eccentric Perceptions	.63	.33
NEO-PI-R Depression	.62	-.24
DPS Imagination	.61	.32
DPS Detachment	.60	.24
NEO-PI-R Angry Hostility	.60	-.13
DPS Obliviousness	.58	.17
Dissociative Experiences Scale	.56	.29
SNAP Aggression	.55	.02
SNAP Self-Harm	.54	-.19
SNAP Impulsivity	.51	.04
BFI Neuroticism	.51	-.13
SNAP Disinhibition	.50	.02
NEO-PI-R Vulnerability	.50	-.30
NEO-PI-R Impulsiveness	.49	.12
NEO-PI-R Fantasy	.46	.35
NEO-PI-R Self-Consciousness	.45	-.23
EPQ Psychoticism	.45	-.03
NEO-PI-R Anxiety	.42	-.01

(Continued)

Table 1 (Cont.)

Scale	I	II
SNAP Dependence	.29	-.09
NEO-PI-R Order	-.29	.06
BFI Agreeableness	-.45	.17
NEO-PI-R Compliance	-.45	-.03
NEO-PI-R Deliberation	-.45	-.03
BFI Conscientiousness	-.47	.27
NEO-PI-R Dutifulness	-.47	.22
NEO-PI-R Straightforwardness	-.48	-.13
NEO-PI-R Trust	-.49	.19
NEO-PI-R Discipline	-.50	.33
SNAP Positive Temperament	-.09	.75
EPQ Extraversion	.02	.68
NEO-PI-R Activity	-.07	.68
BFI Extraversion	-.06	.60
NEO-PI-R Assertiveness	-.10	.60
NEO-PI-R Positive Emotions	-.19	.58
SNAP Exhibitionism	.26	.55
NEO-PI-R Warmth	-.30	.55
BFI Openness	.17	.53
NEO-PI-R Competence	-.37	.51
SNAP Entitlement	.23	.49
NEO-PI-R Excitement Seeking	.17	.48
NEO-PI-R Feelings	.27	.48
NEO-PI-R Achievement	-.23	.45
NEO-PI-R Gregariousness	-.09	.42
NEO-PI-R Ideas	.05	.42
NEO-PI-R Altruism	-.36	.37
SNAP Workaholism	.00	.36
NEO-PI-R Aesthetics	.22	.34
SNAP Propriety	-.11	.29
NEO-PI-R Actions	.03	.22
NEO-PI-R Tendermindedness	.00	.20
NEO-PI-R Values	.00	.15
NEO-PI-R Modesty	-.19	-.32
SNAP Detachment	.26	-.37

Note. $N = 327$. Loadings of $|\geq .40|$ and greater are highlighted. BFI = Big Five Inventory. DPS = Dissociative Processes Scale. EPQ = Eysenck Personality Questionnaire. NEO-PI-R = Revised NEO Personality Inventory. QED = Questionnaire of Experiences of Dissociation. SNAP = Schedule for Nonadaptive and Adaptive Personality.

on both factors. Among the Openness scales, only NEO-PI-R Fantasy (.46) loaded primarily on Alpha.

In contrast, the putative markers of Oddity all joined with measures of Neuroticism to define the pathological end of Alpha. The five dissociation scales had loadings ranging from .56 to .68 on this dimension; SNAP Mistrust (.63) and Eccentric Perceptions (.63) also were strong markers of this factor. Thus, these results emphasize the distinctiveness between putative markers of Oddity and Openness.

Three-factor solution. In the three-factor solution (not shown), the Alpha dimension split apart, with indicators of Agreeableness and Conscientiousness separating off to form a Disinhibition factor. Thus, this solution yielded a modified version of the Big Three, with a hybrid Neuroticism/Oddity dimension emerging as the first factor. The putative markers of Oddity had loadings ranging from .53 (DPS Obliviousness) to .63 (QED) on this hybrid factor.

The Openness scales exhibited a more complex pattern in these data. BFI Openness and NEO-PI-R Ideas continued to load primarily on a modified version of Beta (loadings = .51 and .40, respectively) and were weakly related to the Neuroticism/Oddity factor (loadings = .18 and .10, respectively). Three other NEO-PI-R Openness facets had very similar loadings on Beta versus Neuroticism/Oddity, respectively: Feelings (.41 vs. .42), Fantasy (.37 vs. .35), and Aesthetics (.32 vs. .26). Finally, the NEO-PI-R Actions and Values facets had low (below |.30|) loadings on all three factors. Thus, indicators of Oddity and Openness again showed distinctive properties in this solution.

Four-factor solution. In the four-factor solution (not shown), indicators of Agreeableness and Conscientiousness split off from each other to form separate factors. Thus, these data yield a modified version of the Big Four structure articulated by Watson et al. (1994); as in the three-factor solution, a hybrid Neuroticism/Oddity dimension emerged as the first factor. The putative markers of Oddity had loadings ranging from .51 (DES) to .64 (QED) on this hybrid factor.

The Openness indicators again yielded more complex results that were very similar to those seen in the three-factor solution. Once again, BFI Openness and NEO-PI-R Ideas (loadings = .50 and .39, respectively) loaded primarily on Beta and were very weakly related to Neuroticism/Oddity (loadings = .13 and .05, respectively). Two other NEO-PI-R facets—Feelings (.37 vs. .44) and Fantasy (.34 vs.

.42)—cross-loaded on Beta and Neuroticism/Oddity, respectively. The three remaining NEO-PI-R Openness facets (Aesthetics, Actions, and Values) had weak (below $|.30|$) loadings on all four factors.

Five-factor solution. Table 2 presents the loadings for the five-factor solution. These data offer a striking contrast to the other solutions. The first four factors now are relatively clear and specific, and can be identified as Neuroticism, Conscientiousness, Agreeableness, and Extraversion, respectively. In sharp contrast to the earlier solutions, the putative Oddity and Openness markers now combine to form a hybrid fifth factor. This hybrid dimension is defined by the five dissociation measures (loadings ranged from $.53$ to $.71$), SNAP Eccentric Perceptions ($.70$), BFI Openness ($.69$), and four of the NEO-PI-R facets (loadings ranged from $.45$ to $.64$); the two remaining facets (Values and Actions) were not clear markers of any factor. Thus, we do see some evidence of a basic affinity between Openness and Oddity in these data.

Six-factor solution. It is instructive, however, to consider the six-factor structure; loadings from this solution are reported in Table 3. The first four factors are very similar to those of the five-factor structure and can be identified as Conscientiousness, Neuroticism, Extraversion, and Agreeableness, respectively. The fifth factor now is a very clear and well-defined Oddity dimension. Its markers include the SNAP Eccentric Perceptions ($.78$) and Mistrust ($.49$) scales, together with the five dissociation measures (loadings ranged from $.55$ to $.76$). The final factor clearly can be identified as Openness, defined by BFI Openness ($.50$) and five of the NEO-PI-R facets (loadings ranged from $.49$ to $.63$). The final facet (Actions) was not a clear marker of any factor in these data.

Factor correlations. How distinctive are the oblique factors in this six-factor solution? Oddity had low-to-moderate associations ($M = |.18|$) with all of the other factors; indeed, its strongest correlation was only $-.38$ (with Agreeableness). It is particularly noteworthy that Oddity correlated only $.14$ with the Openness factor in these data.

Model comparison. Thus, these data show evidence of both (a) separate, distinctive Oddity and Openness factors (Table 3) and (b)

Table 2
Promax-Rotated Factor Loadings in the Five-Factor Solution (Study 1)

Scale	I	II	III	IV	V
NEO-PI-R Anxiety	.85	.20	.16	.04	.07
SNAP Negative Temperament	.83	.17	-.18	.09	.09
BFI Neuroticism	.81	.08	-.02	.00	.00
EPQ Neuroticism	.80	.14	-.12	-.03	.14
NEO-PI-R Vulnerability	.76	-.20	.01	-.01	-.13
NEO-PI-R Self-Consciousness	.73	.02	.10	-.16	.06
NEO-PI-R Depression	.70	-.07	-.06	-.18	.11
SNAP Dependency	.57	-.22	.14	.20	-.14
NEO-PI-R Impulsiveness	.45	-.19	-.06	.25	.09
SNAP Self-Harm	.33	-.19	-.19	-.17	.17
NEO-PI-R Achievement	.03	.81	-.16	.18	.02
NEO-PI-R Discipline	-.20	.70	.02	.09	-.06
SNAP Workaholism	.10	.69	-.14	.01	.23
BFI Conscientiousness	-.18	.69	-.02	.04	-.07
NEO-PI-R Competence	-.19	.66	.04	.21	.11
NEO-PI-R Dutifulness	-.06	.64	.21	-.02	.00
NEO-PI-R Deliberation	.00	.62	.17	-.24	-.08
NEO-PI-R Order	.08	.62	-.12	-.03	-.21
SNAP Propriety	.34	.56	.05	.23	-.07
SNAP Disinhibition	-.11	-. .62	-.39	.22	.06
SNAP Impulsivity	-.11	-. .68	-.29	.22	.13
BFI Agreeableness	-.03	.05	.71	.11	.08
NEO-PI-R Straightforwardness	.08	.11	.69	-.17	-.04
NEO-PI-R Compliance	-.12	-.03	.69	-.12	.09
NEO-PI-R Altruism	.04	.12	.68	.28	.15
NEO-PI-R Modesty	.10	-.08	.57	-.39	.11
NEO-PI-R Trust	-.15	-.06	.55	.26	-.09
NEO-PI-R Tendermindedness	.16	-.08	.51	.12	.27
NEO-PI-R Values	-.04	-.08	.33	.01	.30
SNAP Mistrust	.32	.04	-.37	-.09	.29
EPQ Psychoticism	-.23	-.38	-. .51	-.01	.15
NEO-PI-R Angry Hostility	.53	.06	-. .56	.03	-.13
SNAP Manipulativeness	.08	-.34	-. .56	.21	.13
SNAP Aggression	.14	.00	-. .70	.06	.00
EPQ Extraversion	-.03	-.06	-.03	.82	-.02
NEO-PI-R Gregariousness	.18	-.17	.16	.77	-.27
BFI Extraversion	-.16	-.04	-.07	.70	-.03

(Continued)

Table 2 (Cont.)

Scale	I	II	III	IV	V
SNAP Exhibitionism	.10	-.02	-.24	.66	.03
NEO-PI-R Warmth	.08	.07	.51	.61	.01
NEO-PI-R Activity	.00	.39	-.08	.57	.08
SNAP Positive Temperament	-.11	.34	.03	.56	.22
NEO-PI-R Positive Emotions	-.01	.05	.39	.56	.14
NEO-PI-R Excitement Seeking	.05	-.11	-.01	.53	.13
NEO-PI-R Assertiveness	-.28	.29	-.33	.52	.01
SNAP Entitlement	-.07	.17	-.35	.38	.18
SNAP Detachment	-.09	.16	-.26	-.73	.33
QED	.20	-.15	.02	-.02	.71
SNAP Eccentric Perceptions	.14	.03	-.11	-.06	.70
BFI Openness	-.30	.14	.07	.04	.69
DPS Detachment	.07	-.04	-.11	-.13	.67
DPS Imagination	.15	-.13	.01	.03	.66
NEO-PI-R Aesthetics	-.09	-.03	.27	-.03	.64
NEO-PI-R Fantasy	.05	-.29	.21	.13	.63
NEO-PI-R Ideas	-.36	.17	.10	-.06	.62
Dissociative Experiences Scale	.16	.03	-.14	.00	.55
DPS Obliviousness	.20	-.14	-.02	-.04	.53
NEO-PI-R Feelings	.27	.11	.26	.27	.45
NEO-PI-R Actions	-.27	-.30	.22	.11	.32

Note. $N = 327$. Loadings of $|\geq .40|$ and greater are highlighted. BFI = Big Five Inventory. DPS = Dissociative Processes Scale. EPQ = Eysenck Personality Questionnaire. NEO-PI-R = Revised NEO Personality Inventory. QED = Questionnaire of Experiences of Dissociation. SNAP = Schedule for Nonadaptive and Adaptive Personality.

an integrated Oddity/Openness dimension (Table 2). Does the former model fit the data significantly better than the latter scheme? That is, do we obtain a better model fit by specifying distinct Openness and Oddity factors?

To test this issue, we used confirmatory factor analysis to compare two contrasting models of the structure defined by the 11 clear markers of the combined Openness/Oddity dimension that emerged in the five-factor solution: (1) a one-factor model in which they all reflected a single undifferentiated dimension and (2) a two-factor model specifying distinct dimensions representing Openness (defined by BFI Openness, and the NEO-PI-R Aesthetics, Fantasy, Ideas,

Table 3
Promax-Rotated Factor Loadings in the Six-Factor Solution (Study 1)

Scale	I	II	III	IV	V	VI
NEO-PI-R Achievement	.80	.05	.18	-.19	-.02	.05
NEO-PI-R Discipline	.71	-.18	.09	.02	-.07	-.03
SNAP Workaholism	.70	.10	.02	-.11	.24	.04
BFI Conscientiousness	.69	-.16	.05	-.02	-.07	-.03
NEO-PI-R Competence	.66	-.16	.19	-.02	-.02	.15
NEO-PI-R Dutifulness	.65	-.04	-.02	.18	-.04	.03
NEO-PI-R Deliberation	.64	-.02	-.22	.23	.03	-.16
NEO-PI-R Order	.63	.08	-.01	-.07	-.08	-.21
SNAP Propriety	.60	.29	.27	.20	.19	-.29
NEO-PI-R Actions	-.30	-.26	.10	.18	.14	.27
EPQ Psychoticism	-.36	-.26	.02	-.35	.31	-.14
SNAP Disinhibition	-. 62	-.14	.24	-.28	.17	-.09
SNAP Impulsivity	-. 69	-.11	.22	-.28	.09	.09
NEO-PI-R Anxiety	.18	.83	.02	.09	.08	.05
BFI Neuroticism	.04	.82	-.04	-.15	-.08	.13
SNAP Negative Temperament	.16	.81	.08	-.19	.16	.00
EPQ Neuroticism	.14	.77	-.03	-.12	.23	-.01
NEO-PI-R Vulnerability	-.20	.72	-.01	.02	.00	-.14
NEO-PI-R Self-Consciousness	.02	.70	-.16	.09	.15	-.04
NEO-PI-R Depression	-.08	.68	-.18	-.06	.19	-.02
SNAP Dependency	-.20	.51	.22	.25	.09	-.26
NEO-PI-R Impulsiveness	-.23	.47	.21	-.21	-.08	.24
SNAP Self-Harm	-.18	.30	-.16	-.12	.28	-.06
EPQ Extraversion	-.04	-.06	.83	.07	.09	-.10
NEO-PI-R Gregariousness	-.17	.16	.76	.16	-.22	-.10
BFI Extraversion	-.03	-.16	.70	-.04	-.03	.00
SNAP Exhibitionism	-.02	.09	.66	-.20	.07	-.02
NEO-PI-R Warmth	.06	.08	.60	.46	-.10	.13
SNAP Positive Temperament	.36	-.12	.57	.10	.23	.05
NEO-PI-R Activity	.38	.01	.56	-.11	.00	.12
NEO-PI-R Positive Emotions	.04	.00	.54	.32	-.03	.23
NEO-PI-R Assertiveness	.29	-.27	.52	-.30	-.01	.01
NEO-PI-R Excitement Seeking	-.13	.05	.51	-.05	.02	.17
SNAP Entitlement	.19	-.09	.40	-.24	.28	-.06
SNAP Detachment	.16	-.08	-. 72	-.24	.32	.09
NEO-PI-R Compliance	.03	-.17	-.08	.83	.23	-.14
BFI Agreeableness	.10	-.08	.14	.82	.19	-.11

(Continued)

Table 3 (Cont.)

Scale	I	II	III	IV	V	VI
NEO-PI-R Altruism	.12	.04	.26	.61	.00	.21
NEO-PI-R Straightforwardness	.10	.10	-.19	.57	-.20	.15
NEO-PI-R Trust	-.06	-.14	.25	.52	-.16	.04
NEO-PI-R Modesty	-.09	.10	-.40	.49	-.01	.15
NEO-PI-R Tendermindedness	-.09	.17	.09	.41	.08	.30
SNAP Manipulativeness	-.32	.03	.24	-.39	.34	-.19
NEO-PI-R Hostility	.02	.55	.00	-.67	-.17	.04
SNAP Aggression	-.03	.15	.05	-.73	.00	.02
SNAP Eccentric Perceptions	.06	.09	-.03	.03	.78	.13
Dissociative Experiences Scale	.08	.09	.05	.08	.76	-.06
QED	-.12	.15	.00	.14	.76	.17
DPS Detachment	-.01	.03	-.10	.03	.74	.12
DPS Obliviousness	-.12	.16	-.03	.08	.58	.12
DPS Imagination	-.13	.14	.02	.02	.55	.32
SNAP Mistrust	.06	.27	-.06	-.22	.49	-.12
NEO-PI-R Feelings	.05	.33	.20	-.01	.01	.63
NEO-PI-R Aesthetics	-.06	-.05	-.07	.10	.27	.58
NEO-PI-R Ideas	.14	-.30	-.10	-.07	.23	.58
BFI Openness	.12	-.27	.02	-.01	.39	.50
NEO-PI-R Values	-.13	.02	-.05	.11	-.09	.50
NEO-PI-R Fantasy	-.31	.07	.10	.10	.35	.49

Note. $N = 327$. Loadings of $|\geq .40|$ and greater are highlighted. BFI = Big Five Inventory. DPS = Dissociative Processes Scale. EPQ = Eysenck Personality Questionnaire. NEO-PI-R = Revised NEO Personality Inventory. QED = Questionnaire of Experiences of Dissociation. SNAP = Schedule for Nonadaptive and Adaptive Personality.

and Feelings scales) and Oddity (marked by SNAP Eccentric Perceptions and the five dissociation measures). These analyses were conducted in EQS (Bentler & Wu, 1995) using covariance matrices and the maximum-likelihood estimation method and revealed that the two-factor model fit the data significantly better than the one-factor model [χ^2 diff (1) = 194.24, $p < .001$]. Nonetheless, these Oddity and Openness factors were moderately correlated ($r = .54$) in the two-factor model. These results establish that these measures are better viewed as defining distinct (but moderately correlated) factors rather than a single broad dimension.

Study 1 Conclusions

Our proposed Oddity markers formed a common dimension with Neuroticism in the two-, three-, and four-factor solutions, merged with Openness to create a hybrid dimension in the five-factor structure, and then split off to define a clear, distinct factor in the six-factor model. This Oddity dimension was defined by the five dissociation measures and SNAP Eccentric Perceptions and Mistrust. Thus, inclusion of these additional dissociation scales allowed us to extract a meaningful sixth factor that (a) reflects key characteristics of the Cluster A PDs and (b) is distinct from the dimensions that typically are identified in standard Big Four and Big Five models. These data, therefore, offer some support for our assertion that an additional factor is necessary to model these Cluster A characteristics adequately.

One limitation of these data, however, is that the Oddity dimension was defined primarily by measures of dissociative tendencies. Although dissociation scales correlate strongly with measures of schizotypy and schizotypal personality (e.g., Watson, 2001)—as is further illustrated here by their strong links to the SNAP Eccentric Perceptions and Mistrust scales—they do not assess characteristics that are part of the formal diagnostic criteria for the Cluster A PDs. Study 2 addresses this limitation by including the Schizotypal Personality Questionnaire (SPQ; Raine, 1991), a widely used instrument that contains scales tapping the nine *DSM-III-R* criteria for schizotypal PD (American Psychiatric Association, 1987).

STUDY 2

Participants in Study 2 completed two Big Five measures, two dissociation inventories (the DPS and a modified version of the DES), and the SPQ. As noted, the SPQ contains nine scales assessing the *DSM-III-R* criteria for schizotypal PD. It is a particularly attractive instrument for our purposes in that it also includes (because of the overlapping diagnostic criteria in the *DSM*) content related to both paranoid PD and schizoid PD. Specifically, the SPQ Suspiciousness and Ideas of Reference scales tap the pervasive distrust and referential thinking that also is characteristic of paranoid PD, whereas its Constricted Affect and No Close Friends scales assess the social

aloofness and interpersonal coldness that are the hallmark of schizoid PD.

The Study 2 respondents were participating in an examination of short-term retest reliability. Accordingly, most of them were retested at a second assessment 2 weeks after the first. Consequently, these data allow us to examine the replicability of the structure across the two assessments.

Method

Participants and Procedure

Participants were 555 undergraduate students (102 men, 453 women) enrolled in various psychology courses at the University of Iowa. They completed the measures either during small-group sessions in the psychology department or at home, returning them during the next class session. Most ($N = 441$, 79.5% of the original sample) completed a second assessment 2 weeks after the first. Students either received compensation of \$10 per session or earned class research exposure credit for participating in the study.

Measures

Big Five measures. Participants completed two Big Five instruments. (1) The 44-item version of the BFI (John & Srivastava, 1999) contains 8-item scales assessing Neuroticism and Extraversion, a 10-item Openness scale, and 9-item measures of Agreeableness and Conscientiousness. Participants were asked to indicate “the extent to which you agree or disagree” with each item on a 5-point scale ranging from *disagree strongly* to *strongly agree*. (2) We selected 45 adjectives from Goldberg’s (1992) list of consistent Big Five markers and created nine-item scales assessing Neuroticism (e.g., anxious, moody), Extraversion (e.g., talkative, assertive), Openness (e.g., artistic, philosophical), Agreeableness (e.g., cooperative, trustful), and Conscientiousness (e.g., efficient, organized). Participants rated how accurately each trait described them on a 5-point scale ranging from *very inaccurate* to *very accurate*.

Dissociation measures. Participants were assessed on the DPS, which was described earlier. In addition, they completed a modified version of the DES. Watson (2004) reviewed evidence suggesting that the standard DES response format—which asks participants to estimate the percentage of time they experienced each statement on an 11-point scale (0%,

10%, 20%, etc.)—may be somewhat confusing, thereby increasing measurement error and reducing the instrument's reliability. We therefore modified the response format to a 5-point, Likert-type scale in which participants rated the extent to which each statement applied to them (1 = *not at all*, 5 = *very well*). In addition, some items were modified slightly to make them more compatible with this new rating format. For example, the item "Some people have the experience of feeling that other people, objects, and the world around them are not real" became "I sometimes feel that other people, objects, and the world around me are not real."

SPQ. The SPQ (Raine, 1991) is a 74-item questionnaire composed of nine subscales that mirror the *DSM-III-R* criteria for schizotypal PD; items are answered using a dichotomous yes/no format. The SPQ was designed to assess schizotypal personality characteristics in the general population, to screen for schizotypal PD, and to research the correlates of individual schizotypal traits (Raine, 1991). The nine SPQ scales are Ideas of Reference, Magical Thinking, Unusual Perceptual Experiences, Odd Speech, Suspiciousness, Constricted Affect, Odd Behavior, No Close Friends, and Excessive Social Anxiety.

Results and Discussion

Factor Similarity

Basic overview. We examined a total of 23 variables—five BFI scales, five Goldberg scales, four dissociation measures (the DES and the three DPS subscales), and nine SPQ scales—and expected to find evidence of six clear factors, with the dissociation measures and most of the SPQ scales forming a large Oddity dimension and the BFI and Goldberg scales jointly defining the Big Five.

This expectation was confirmed. We subjected the Time 1 and Time 2 data to separate principal factor analyses with squared multiple correlations as the initial communality estimates and, as in Study 1, rotated the factors to oblique simple structure using promax. In each case, we found a large Oddity dimension defined by a combination of the SPQ and dissociation scales; the remaining factors clearly could be identified as the Big Five.

Assessment of factor similarity. Before examining these dimensions in greater detail, it is important to establish that the same set of factors emerged in each solution. We examined this issue using both of

the two basic approaches to measuring factor similarity: (a) calculating congruence coefficients based on the factor loadings and (b) computing comparability coefficients (Finn, 1986), which involves deriving regression-based factor scores for each solution (Finn, 1986; Gorsuch, 1983; Harman, 1976). Because the approaches yielded very similar conclusions, we present only the comparability coefficient results here because that method is considered a more stringent test of factor similarity (Everett & Entrekin, 1980).

The six-factor solutions each generated a set of regression-based factor scoring weights, which then were applied to participants' actual item responses at both Time 1 and Time 2, yielding a total of 12 factor scores (6 representing the Time 1 factors, and 6 representing the Time 2 factors), thereby permitting two sets of factor similarity tests. If the two solutions are highly similar, then the corresponding weights for each factor (e.g., the Oddity weights at Time 1 vs. the parallel weights at Time 2) will produce scores that are very highly correlated.

Table 4 presents the correlations between these two sets of factor scores in both the Time 1 ($N = 555$) and Time 2 ($N = 441$) data. As the table illustrates, the factor structures showed a very high level of similarity across the two assessments. In fact, the comparability coefficients (which all are .98 or higher) easily exceed Everett's (1983) factor similarity benchmark of .90. Thus, the same basic factors clearly emerged at both Time 1 and Time 2.

Factor Structure

Time 1 structure. Having established the robustness of the structure, we consider it in greater detail, focusing primarily on the Time 1 results. Loadings from the six-factor solution for the Time 1 data are presented in Table 5. The third through sixth factors are small and specific; they can be identified as Conscientiousness, Openness, Agreeableness, and Neuroticism, respectively. In each case, the factor is defined by the corresponding scales from the Goldberg markers and the BFI.

As expected, most of the dissociation and SPQ scales combined to form a large Oddity dimension, which emerged as the first factor in these analyses. Three of the four dissociation scales (DES, DPS Obliviousness, and DPS Detachment) had loadings ranging from .48 to .63 on this factor; however, the other DPS subscale, Imagination,

Table 4
Analyses of Factor Similarity: Factor Score Correlations in Study 2

Study 2 Factor Scores	Study 1 Factor Scores					
	Odd	Extra	Con	Open	Agree	Neur
<i>Time 1 Data</i>						
Oddity	.99	-.30	-.35	.32	-.35	.33
Extraversion	-.24	.99	.09	.20	.30	-.30
Conscientiousness	-.16	.05	.98	-.02	.40	-.22
Openness	.23	.21	-.08	.99	.08	-.17
Agreeableness	-.40	.44	.16	.05	.98	-.34
Neuroticism	.41	-.35	-.19	-.14	-.43	.99
<i>Time 2 Data</i>						
Oddity	.99	-.36	-.37	.33	-.37	.38
Extraversion	-.30	.99	.13	.17	.28	-.33
Conscientiousness	-.19	.09	.98	.00	.44	-.27
Openness	.24	.19	-.07	.99	.11	-.12
Agreeableness	-.41	.41	.21	.07	.98	-.34
Neuroticism	.44	-.38	-.25	-.09	-.43	.99

Note. $N = 555$ (Time 1 data), 441 (Time 2 data). Convergent correlations between parallel factors are highlighted. Odd = Oddity. Extra = Extraversion. Con = Conscientiousness. Open = Openness. Agree = Agreeableness. Neur = Neuroticism. See text for details.

split between the Oddity (.35), Conscientiousness (–.36), and Openness (.34) factors. The Oddity factor also was marked by the six SPQ scales reflecting disorganization, paranoia and cognitive/perceptual anomalies, which had loadings ranging from .42 to .78 on this dimension. These SPQ scales basically assess low-level manifestations of the positive symptom and disorganization dimensions that have been identified in three-factor models of schizophrenia (e.g., Arndt, Alliger, & Andreasen, 1991; Bergman et al., 1996; Lenzenweger & Dworkin, 1996).

In contrast, the three remaining SPQ scales (Constricted Affect, Excessive Social Anxiety, and No Close Friends)—which tap characteristics that are particularly relevant to schizoid PD and to the negative symptom dimension in three-factor models of schizophrenia—split off to form the low end of a bipolar dimension with Extraversion on the high end (loadings ranged from –.49 to –.54). These results yield two important conclusions. First, they

Table 5
Promax-Rotated Factor Loadings in Study 2 (Time 1)

Scale	I	II	III	IV	V	VI
SPQ Unusual Perceptual Experiences	.78	-.03	-.04	-.03	.15	-.05
SPQ Ideas of Reference	.71	.11	.10	-.13	.08	.13
SPQ Odd Speech	.66	-.06	-.11	-.04	-.11	-.07
Dissociative Experiences Scale	.63	.05	-.33	-.04	.01	.00
SPQ Suspiciousness	.63	-.01	.20	-.06	-.20	.16
DPS Obliviousness	.59	.04	-.39	-.01	.10	.08
SPQ Magical Thinking	.56	.10	.07	.01	.13	.01
DPS Detachment	.48	.00	-.31	.19	.01	-.03
SPQ Odd Behavior	.42	-.07	-.05	.20	-.25	-.11
Goldberg Extraversion	.18	.93	.10	.01	-.16	-.09
BFI Extraversion	.21	.91	.12	.01	-.05	-.01
SPQ Constricted Affect	.38	-. 49	.08	.01	-.25	-.09
SPQ Excessive Social Anxiety	.29	-. 52	.05	-.10	.14	.26
SPQ No Close Friends	.31	-. 54	.13	.08	-.27	-.09
Goldberg Conscientiousness	.02	.08	.73	.04	.22	.07
BFI Conscientiousness	-.02	.06	.71	.10	.19	.01
DPS Imagination	.35	.04	-.36	.34	.08	.08
Goldberg Openness	-.09	.01	.10	.84	-.03	.09
BFI Openness	.00	.01	.03	.83	.07	-.02
BFI Agreeableness	.13	-.12	.20	-.01	.76	-.20
Goldberg Agreeableness	.10	-.05	.27	.07	.74	-.06
Goldberg Neuroticism	.03	-.01	-.05	.05	-.21	.75
BFI Neuroticism	.04	-.12	.08	.05	-.07	.74

Note. $N = 555$. Loadings of $|\geq .40|$ and greater are highlighted. BFI = Big Five Inventory. DPS = Dissociative Processes Scale. SPQ = Schizotypal Personality Questionnaire.

suggest that at least some of the Cluster A characteristics are adequately modeled in the existing Big Four scheme. Specifically, the social aloofness and interpersonal coldness that are relevant to both schizoid and schizotypal PD can be subsumed within the broad domain of Extraversion (see also Tackett et al., 2008, who obtained very similar results using the SPQ scales). Second, our findings demonstrate that the *DSM-IV* diagnostic criteria for schizotypal PD are heterogeneous and do not fall within a single higher order domain; rather, the cognitive/perceptual and disorganization symptoms are markers of Oddity, whereas the interpersonal symptoms split off and

essentially represent manifestations of low Extraversion (see also Clark, 1990, 1993; Tackett et al., 2008).

Time 2 structure. We previously established that the Time 2 data yielded a highly similar six-factor solution. Indeed, the only noteworthy difference is that the DPS Imagination scale—which split between three factors at Time 1—was a relatively clear marker of Oddity at Time 2, loading .47 on this factor in this solution.

Factor correlations. Replicating the results of Study 1, Oddity had low-to-moderate associations with all of the other factors in these data ($M = |.29|$ and $|.28|$ in the Time 1 and 2 data, respectively). Its strongest correlations were $-.35$ with Agreeableness at Time 1 and $.37$ with Neuroticism at Time 2. Moreover, Oddity correlated only modestly with Openness ($r = .27$ and $.23$ at Time 1 and Time 2, respectively) in these data.

Model comparisons. As in Study 1, we formally tested whether a model specifying separate Oddity and Openness dimensions fit the data significantly better than a one-factor scheme. Specifically, we conducted confirmatory factor analyses to compare two models of the structure defined by the 11 clear, consistent markers of the Oddity and Openness factors in both the Time 1 and Time 2 solutions: (1) a one-factor model in which they all reflected a single undifferentiated dimension and (2) a two-factor model specifying distinct dimensions representing Openness (defined by the BFI and Goldberg Openness scales) and Oddity (marked by the DES, Detachment and Obliviousness from the DPS, and the SPQ Unusual Perceptual Experiences, Ideas of Reference, Odd Speech, Suspiciousness, Magical Thinking, and Odd Behavior scales). Replicating the Study 1 results, these analyses revealed that the two-factor model fit the data significantly better than the one-factor model at both Time 1 [χ^2 diff (1) = 415.11, $p < .001$] and Time 2 [χ^2 diff (1) = 435.71, $p < .001$]. It is noteworthy, moreover, that these two factors were only weakly related at both Time 1 ($r = .17$) and Time 2 ($r = .18$). Thus, inclusion of schizotypal PD content increased the distinctiveness of the Oddity and Openness factors in these data; this contrasts with the moderately correlated factors in Study 1, in which Oddity was defined largely by measures of dissociation.

Study 2 Conclusions

We found even stronger evidence in this study for a clear, well-defined Oddity factor that (a) captures key characteristics of the Cluster A PDs and (b) is distinct from the dimensions that typically are found in standard Big Four and Big Five models. The factor was defined in this study by the SPQ scales reflecting disorganization and cognitive/perceptual anomalies as well as by the dissociation measures used in Study 1. These data therefore offer strong support for our assertion that an additional Oddity factor is necessary to model characteristics associated with the Cluster A PDs adequately.

Study 2 also yielded two other important findings. First, these results suggest that at least some of the current Cluster A characteristics are adequately captured in existing factor models. Specifically, our factor results indicate that the interpersonal symptoms (social aloofness, excessive social anxiety, interpersonal coldness) of schizoid and schizotypal PDs can be subsumed within the broad domain of Extraversion. Second, our data establish further that the *DSM-IV* diagnostic criteria for schizotypal PD are heterogeneous and do not cohere within a single higher order domain; rather, the cognitive/perceptual and disorganization symptoms are markers of Oddity, whereas the interpersonal symptoms define the low end of Extraversion (see also Clark, 1990, 1993; Tackett et al., 2008).

STUDY 3

The data we have presented thus far establish that Oddity emerges as a separate factor that is distinct from the Big Five. However, these results do not necessarily demonstrate that Oddity represents a sixth higher order domain of personality. In Study 1, for example, markers of Oddity and Openness were moderately correlated ($r = .54$) in a confirmatory factor analysis and combined to form a more general dimension in the five-factor solution. These findings raise the possibility that Oddity is better viewed as a distinctive lower order facet within a broader domain of Openness or Unconventionality rather than as a separate domain. Our basic goal in Study 3 was to test this idea by examining relations between Oddity and factors representing specific facets of Openness. If Oddity is a facet within the broader domain of Openness, then it should be moderately to strongly correlated with these other lower order constructs.

Method

Participants

Participants were members of the Eugene-Springfield Community Sample (ESCS), which was recruited in 1993 from lists of homeowners in the community. These individuals agreed to complete various mailed questionnaires (in return for compensation) for at least 5 years (for more details, see Goldberg, 1999; Goldberg & Strycker, 2002). We report here data on 504 ESCS participants (291 women and 213 men; mean age = 50.7 years) who completed all of the relevant measures.

Measures

Openness. The ESCS participants completed three omnibus personality inventories containing lower-order facets within the broad domain of Openness: (1) The NEO-PI-R (Costa & McCrae, 1992), described in Study 1, contains six Openness facet scales—Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values. (2) The HPI (Hogan and Hogan, 1992) uses a true-false format. The Intellectance domain of the HPI includes six subscales, or “homogeneous item composites”: Science Ability, Curiosity, Thrill Seeking, Intellectual Games, Generates Ideas, and Culture. (3) The HEXACO-PI (Lee & Ashton, 2004, 2006) uses a 5-point agree-disagree response format. The HEXACO-PI Openness domain contains four facets: Aesthetic Appreciation, Inquisitiveness, Creativity, and Unconventionality.

Oddity. Participants completed five potential markers of oddity: (1) The Curious Experiences Survey (CES; Goldberg, 1999) is a revised version of the DES, which was described in Study 1. The revisions included shortening and rewording the items, adding a few new items, and switching to a simpler 5-point response format (Goldberg, 1999). (2) The Somatoform Dissociation Questionnaire (SDQ; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996) contains 20 items assessing classic symptoms of hysteria—including both conversion and dissociative experiences—using a 5-point, Likert-type format. (3) The Creative Experiences Questionnaire (CEQ; Merckelbach, Horselenberg, & Muris, 2001) is a 25-item measure that assesses fantasy proneness and daydreaming using a yes/no format. Previous studies have established substantial relations between the CEQ and measures of both daytime and nocturnal dissociative experiences (Giesbrecht & Merckelbach, 2006). (4) The Magical Ideation Scale (MIS; Eckblad & Chapman, 1983) is a widely used measure of schizotypy. Its 30 true/false items assess peculiar, unconventional beliefs (e.g., “I have had the momentary feeling that

someone's place has been taken by a look-alike"). (5) The Obsessive-Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998) is a widely used measure of symptoms related to obsessive-compulsive disorder (OCD). The ESCS participants completed a 19-item version of the OCI using a 5-point, Likert-type format. Previous research has linked OCD symptoms to both dissociation (Watson, Wu, & Cutshall, 2004) and schizotypy (Chmielewski & Watson, 2008).

Procedure

The ESCS is a longitudinal project, so the assessed instruments were completed over a several-year period. Specifically, the measures included in our analyses were completed in 1994 (NEO-PI-R), 1997 (HPI, CES), 1999 (OCI), 2000 (SDQ, CEQ, MIS), and 2003 (HEXACO-PI).

Results and Discussion

Preliminary analyses of the Openness scales. We began by conducting exploratory principal factor analyses of the 16 Openness scales (6 from the NEO-PI-R, 6 from the HPI, 4 from the HEXACO-PI). The goal of these analyses was to identify clear, well-defined lower order factors that then could be related to the Oddity markers. These analyses revealed two clear lower order factors, each of which was defined by scales from all three instruments: (1) Culture, marked by NEO-PI-R Aesthetics, HEXACO-PI Aesthetic Appreciation, and HPI Culture and (2) Intellectance, defined by NEO-PI-R Ideas, HEXACO-PI Inquisitiveness, and HPI Science Ability. These scales, therefore, were retained for subsequent analyses.

Factor analyses of the Openness and Oddity markers. Next, we subjected the six retained Openness scales and the five Oddity markers to principal factor analyses. Three clear factors emerged, which we rotated to oblique simple structure using promax; the loadings from this three-factor solution are presented in Table 6. These three factors can be identified as Culture, Oddity, and Intellectance, respectively. All five proposed Oddity measures were clear markers of this factor, with loadings ranging from .53 (OCI) to .70 (MIS). Thus, this Oddity dimension contains content related to dissociation, schizotypy, and OCD.

As would be expected of specific facets within the same broad domain, the Culture and Intellectance factors were moderately correlated with one another ($r = .52$). It is noteworthy, however, that they both

Table 6
Promax-Rotated Factor Loadings in Study 3

Scale	I	II	III
NEO-PI-R Aesthetics	.84	.05	-.07
HEXACO-PI Aesthetic Appreciation	.83	-.04	.00
HPI Culture	.67	-.06	.11
Magical Ideation	.13	.70	-.05
Somatoform Dissociation Questionnaire	-.24	.66	.03
Creative Experiences Questionnaire	.28	.65	.02
Curious Experiences Survey	.03	.64	.02
Obsessive-Compulsive Inventory	-.28	.53	-.02
HPI Science Ability	-.14	.02	.74
HEXACO-PI Inquisitiveness	.21	-.03	.65
NEO-PI-R Ideas	.26	.03	.56

Note. $N = 504$. Loadings of $|\geq .40|$ and greater are highlighted. NEO-PI-R = Revised NEO Personality Inventory. HEXACO-PI = Hexaco Personality Inventory. HPI = Hogan Personality Inventory.

were virtually unrelated to Oddity ($r = .08$ for Culture; $r = .04$ for Intellectance). In light of these very low correlations, these data again suggest that Oddity is better viewed as a separate higher order domain rather than as an additional facet of Openness.

Model comparisons. As in previous studies, we conducted confirmatory factor analyses to compare three competing models of the structure defined by these 11 scales: (1) a one-factor model in which they all reflected a single undifferentiated dimension; (2) a two-factor model in which the six openness scales defined one dimension and the five oddity measures marked another; and (3) a three-factor model specifying distinct Culture, Intellectance, and Oddity factors. These analyses indicated that the two-factor model fit the data better than the one-factor model [χ^2 diff (1) = 384.95, $p < .001$] and that the three-factor model provided a significantly better fit than the two-factor model [χ^2 diff (2) = 167.17, $p < .001$]. Furthermore, consistent with the principal factor analyses, whereas the Culture and Intellectance factors correlated strongly with one another ($r = .63$), they both were essentially unrelated to Oddity ($r_s = .09$ and $.08$, respectively). These results again suggest that Oddity represents a different higher order domain.

General Discussion

The Big Six Taxonomy

Proposal for a Big Six structure. Based on these results, we propose an expanded six-dimensional, or “Big Six,” taxonomy that subsumes both normal and abnormal personality traits and that covers the full range of characteristics that currently are subsumed within the Axis II PDs of *DSM-IV*. Four of these factors clearly are quite relevant to both normal-range personality and personality pathology: Neuroticism/Negative Emotionality versus Emotional Stability, Extraversion/Positive Emotionality versus Introversion/Aloofness, Agreeableness versus Antagonism, and Conscientiousness/Constraint versus Irresponsibility.

Things are not quite as clear regarding the two remaining domains, however. On the one hand, although Openness certainly is relevant to the assessment of normal-range personality characteristics, its importance in the domain of personality pathology has not been firmly established (for a discussion, see Widiger & Simonsen, 2005a). On the other hand, although the Oddity dimension needs to be included in any comprehensive assessment of personality pathology, its relevance to normal-range personality is less obvious. Based on our findings, we argue that both of these domains form essential elements in any complete and comprehensive trait taxonomy. At the same time, however, we recognize that they may need to be assessed only in certain contexts and may have a more restricted range of application than the other higher order domains. Thus, it may not be essential to include markers of Oddity in studies of normal-range personality or to assess Openness in examinations of personality pathology.

Is Oddity a “big” domain? Widiger and Simonsen (2005a) point out that some researchers have defined this Oddity dimension rather narrowly, such that resulting structural analyses have extracted “a factor that is so small that it might not appear to be worth identifying” (p. 118). More generally, it is reasonable to ask the question of whether this domain is sufficiently broad and differentiated to represent a sixth higher order factor of personality; in other words, does Oddity actually represent another “big” trait?

Although more research is needed on this topic, we believe that the already available evidence tentatively suggests an affirmative answer. This, then, raises the further problem of defining the nature and scope of the content that is subsumed within this domain. The data from our three studies indicate that—at the very least—it includes phenomena related to both the Cluster A PDs (e.g., magical thinking, perceptual aberrations, mistrust, odd speech, and behavior) and dissociative tendencies (e.g., depersonalization, obliviousness). With regard to the latter, item-level analyses of dissociation measures repeatedly have identified three specific factors: Depersonalization/Derealization (i.e., feeling alienated, strange, and distant from oneself), Absorption/Imagination (i.e., being imaginative and prone to vivid fantasies) and Obliviousness/Amnesia (i.e., being prone to mindlessness and lapses in attention and memory; Carlson & Putnam, 1992; Goldberg, 1999; Watson, 2001).

With regard to the former, Chmielewski and Watson (2008) extracted five replicable factors in item-level analyses of the SPQ: Social Anxiety, Social Anhedonia (i.e., constricted affect and social aloofness), Unusual Beliefs and Experiences (i.e., magical thinking and eccentric perceptual experiences), Mistrust (i.e., paranoia, suspiciousness, and ideas of reference), and Eccentricity/Oddity (i.e., odd patterns of speech and behavior). Our Study 2 results suggest that the first two “negative symptom” factors are subsumed within the existing domain of Extraversion, whereas the latter three “positive symptom” dimensions represent basic components within Oddity. These data, together with the dissociation results discussed earlier, suggest that as many as six distinctive dissociation/schizotypy facets can be identified. Watson (2001), however, found that depersonalization/derealization items from existing dissociation measures were not clearly distinguishable from positive symptoms of schizotypy (see Watson, 2001, Table 3). Moreover, our data suggest that Absorption/Imagination is not a clear, consistent marker of Oddity (see Table 5). Accordingly, we tentatively posit the existence of four distinguishable dissociation/schizotypy facets within Oddity: Obliviousness/Amnesia, Unusual Beliefs and Experiences, Mistrust, and Eccentricity/Oddity.

Moreover, there is good reason to believe that other important characteristics can be subsumed within this domain as well. In Study 3, for instance, we found that a measure of OCD symptoms was a significant marker of Oddity. Similarly, Watson et al. (2004) exam-

ined links between dissociative tendencies and specific types of OCD symptoms. They found that dissociation measures were moderately to strongly correlated with certain types of OCD symptoms—such as obsessive intrusions, checking, and obsessions of doubt—and were more weakly related to others (e.g., washing, ordering, hoarding). Furthermore, Chmielewski and Watson (2008) reported that these same types of OCD symptoms were substantially related to mistrust and eccentricity/oddity. These data strongly suggest that the OCD symptoms of checking, obsessive intrusions, and obsessions of doubt also can be subsumed within the Oddity domain.

Other evidence establishes important links between narcolepsy—a disorder manifested in symptoms such as cataplexy, sleep paralysis, and hypnagogic/hypnopompic hallucinations—and indicators of schizophrenia, schizotypy, and dissociation (Giesbrecht & Merckelbach, 2006; Watson, 2001, 2003b). Howland (1997), for instance, reviewed data indicating that psychotic symptoms are relatively common in narcolepsy, with as many as 30% of narcoleptics reporting prominent hallucinatory experiences. Similarly, Wilcox (1985) found that narcoleptics reported significantly more symptoms of schizophrenia than did a sex- and age-matched control group; moreover, the odds-ratio for schizophrenia (6.72) indicated a substantially elevated risk for this disorder among the narcoleptics. In a related vein, Watson (2001) created the Iowa Sleep Experiences Survey (ISES), which assesses hypnagogic and hypnopompic hallucinations, nightmares, waking dreams, and other sleep-related experiences. Watson (2001, 2003b) demonstrated that the ISES General Sleep Experiences scale was moderately correlated with various indicators of dissociation and schizotypy. These findings suggest that certain types of anomalous sleep-related experiences also can be placed within the Oddity domain.

We currently are conducting additional studies to explicate the nature and scope of this Oddity domain (Stringer, Chmielewski, Clark, & Watson, 2008). One study examines putative markers of Oddity (including measures of schizotypy and schizotypal PD, dissociation, OCD symptoms, and sleep experiences) in relation to internalizing (e.g., depression and anxiety disorders) and externalizing (e.g., substance use) disorders of Axis I. This study addresses two key limitations of the evidence reported here—namely, that it (1) is based solely on self-report data and (2) was collected in nonclinical samples—by (a) including both self-report and interview measures of

these constructs and (b) exploring the structure defined by these variables in a clinical sample.

In a second study, we are collecting data on a large set of oddity items that were assembled with the specific goal of explicating the component traits within this domain. Thus, this data set includes items tapping not only core oddity and Cluster A PD content (i.e., magical thinking, perceptual aberrations, ideas of reference, mistrust and interpersonal detachment, and odd or unconventional speech and behavior), but also items assessing all the other content hypothesized to comprise the Oddity factor (i.e., dissociative experiences, obsessive-compulsive symptoms, and unusual sleep-related experiences), as well as markers of Openness.

Why has the Oddity factor been so elusive? If Oddity does, in fact, represent a higher order dimension of personality, why has it failed to emerge consistently in structural analyses? We believe that this inconsistency arises from the classic “garbage in, garbage out” problem in factor analysis—that is, one cannot identify a dimension unless a sufficient number of markers are included (see also Widiger & Simonsen, 2005a). The failure of an Oddity factor to emerge in analyses of normal-range personality reflects three basic considerations. First, as we noted previously, the characteristics subsumed within this domain appear to be less relevant to an understanding of basic, normal-range personality functioning. It is hardly surprising, therefore, that researchers interested in normal functioning have failed to model it adequately.

Second, many of the core aspects of this domain reflect unusual beliefs (e.g., “I have had the momentary feeling that someone’s place has been taken by a look-alike”) or perceptions (e.g., “I have sometimes felt that some part of my body no longer belongs to me”) that cannot be reduced to single words or short phrases. Accordingly, this domain has been systematically underrepresented in lexical analyses of personality.

Third, in their seminal analysis, Allport and Odbert (1936) sorted dictionary words into four broad classes: (a) 4,504 personality traits, (b) 4,541 temporary moods or states, (c) 5,226 social evaluation terms, and (d) a miscellaneous category that included 3,682 terms. Subsequent cluster and factor analyses focused exclusively on the 4,504 trait terms, eventually creating the lexical branch of the Big Five model. It is noteworthy, however, that core Oddity-related words—including *odd*,

eccentric, and *peculiar*—were classified as social evaluations, rather than as traits (see Allport & Odbert, 1936). Consequently, oddity-related content largely was excluded from the initial pool of variables that eventually led to the development of the Big Five.

Finally, an Oddity factor has failed to emerge consistently in analyses of pathological personality because investigators have focused primarily on modeling characteristics related to the current Axis II PDs. Therefore, these analyses have been restricted largely to content relevant to schizotypy and schizotypal personality and have failed to model the full range of characteristics (e.g., dissociative and OCD symptoms) that are subsumed within the Oddity domain. For example, in their Study 2, Markon et al. (2005) examined only two potential markers of Oddity: SNAP Eccentric Perceptions and SNAP Mistrust. Our results highlight the importance of moving beyond the current Axis II PD criteria and assessing a broader range of characteristics in order to model this Oddity dimension adequately.

Clarifying Oddity's relations with other traits. In addition to identifying the basic lower order facets within Oddity, it will be important for future research to explicate how these specific traits relate to the other major domains of personality. Facet-based research should prove very useful in resolving inconsistent findings from previous structural analyses, in that these facets likely correlate differently with other domains. For instance, scales assessing Mistrust (e.g., SNAP Mistrust and MPQ Alienation) correlate not only with other markers of Oddity but also significantly with measures of Neuroticism and Agreeableness (see Widiger & Simonsen, 2005a). Thus, structural results may vary depending on the specific facets that are used to model Oddity.

One interesting inconsistency in our own structural data was that Oddity was more strongly related to Openness in Study 1 than in Studies 2 and 3. For example, confirmatory factor analyses indicated that Oddity correlated .54 with Openness in Study 1; in Study 2, however, these factor correlations were only .17 and .18 at Time 1 and Time 2, respectively. This difference reflects, in part, our use of the NEO-PI-R—which includes Fantasy as a component of Openness—in Study 1. We tested this idea by subjecting the seven Oddity markers in Study 1 (see Table 3) to a principal factor analysis and extracting a single general dimension. This factor was strongly correlated with NEO-PI-R Fantasy ($r = .50$); more moderately related

to Aesthetics ($r = .32$), Feelings ($r = .27$), and Ideas ($r = .22$); and unrelated to Actions ($r = .10$), and Values ($r = .05$).

These results illustrate the value of facet-level analyses. More generally, they demonstrate the importance of creating hierarchical trait models from the “bottom up” (i.e., by first identifying the important lower order components and then modeling the relations among them to yield higher order factors) rather than from the “top down” (i.e., by first identifying higher order factors and then attempting to decompose them into facets). One key advantage of bottom-up models is that they allow facet-level traits to be linked to more than one higher order domain. For example, on the basis of our data, we believe that measures of imagination and fantasy (e.g., NEO-PI-R Fantasy and DPS Imagination) fall at the boundary between Openness and Oddity, with significant links to both domains.

Taxonomic Implications

As discussed earlier, there is a growing consensus that the current categorical Axis II system should be replaced by a hierarchical dimensional model in *DSM-V*, with most researchers arguing for a Big Four scheme (see Widiger & Simonsen, 2005a). Many PD researchers have rejected the need for an additional Oddity factor, arguing that it either is (a) too small to be important or (b) not clearly distinct from the Big Four (see Widiger & Simonsen, 2005a, for a review). We believe our data help to refute both of these arguments.

A third argument against the need for an additional Oddity factor is that characteristics currently subsumed within the Cluster A PDs should be moved to Axis I and placed within Schizophrenia and Other Psychotic Disorders (see Widiger & Simonsen, 2005a). At one level, this idea makes good sense, as scales assessing schizotypy/schizotypal personality have been shown to represent vulnerability factors for the subsequent development of psychosis (Chapman, Chapman, Kwapil, Eckblad, & Zinzer, 1994). Nevertheless, we argue against it for three reasons. First, rather than creating a comprehensive classification scheme that subsumes all personality pathology, it would arbitrarily split relevant characteristics across different portions of the *DSM*. Second, the Oddity factor is broader than the Cluster A PDs and also includes characteristics related to dissociative disorders, sleep disorders, and OCD. This broader content presumably would be ignored if Oddity were placed within the psychotic

disorders. Third, as we have seen, social anhedonia and social anxiety are markers of low Extraversion, rather than Oddity. Accordingly, the most likely scenario would be for the positive symptoms of schizotypy (e.g., magical thinking, eccentric perceptions) to be moved to Axis I but for the negative symptoms to remain within the Big Four scheme. We believe it is preferable to develop an integrated, comprehensive model of personality pathology that includes both the positive and negative symptoms of schizotypy along with other key aspects of the Oddity domain.

Assessment Implications

No existing inventory currently provides valid measures of all of the Big Six factors. Accordingly, an important task for future research is to develop an instrument that provides coverage of all six domains within a common response format. It will be particularly important to develop reliable and valid measures of the specific component traits within this domain, given that existing measures of Oddity were not developed in the context of a hierarchical structural scheme. Moreover, many existing Oddity scales have suboptimal psychometric properties, including low internal consistency and retest reliability (Chmielewski & Watson, 2008; Watson, 2004). For example, Chmielewski and Watson (2008) report 2-week retest correlations for the nine SPQ scales that range from .69 to .80 ($M = .75$). These retest correlations were lower than those obtained for measures of normal personality and various Axis I symptoms completed during the same interval and are unacceptably low for scales designed to assess “enduring patterns” of dysfunction. Similarly, Watson (2004) reported 2-month DES retest correlations that ranged from only .62 to .69 ($M = .66$). Future research on Oddity will be enhanced by the development of better measures that are explicitly constructed within the framework of a hierarchical Big Six scheme.

It also will be important to create non-self-report measures of Oddity. As noted earlier, we already have begun developing interview-based measures of key Oddity-related constructs. Another potential approach is the use of informant ratings. However, many relevant traits represent low visibility characteristics that are difficult for others to rate, at least in nonclinical samples in which manifestations of Oddity are likely to be subtle. For example, Watson and

Wu (2005) examined self-spouse agreement for OCD symptoms and obtained convergent correlations of only .21 (checking), .29 (cleaning), and .28 (rituals/ordering).

Similarly, Ready, Clark, Watson, and Westerhouse (2000) examined self-peer correlations on the SNAP scales in a sample of college students and found that two potential Oddity markers—Eccentric Perceptions and Mistrust—were among the four traits with the lowest agreement ($r_s = .39$ and $.34$, respectively). Moreover, a different student sample provided ratings regarding how easy or hard it would be to rate a friend or relative on each of the SNAP items. Ratings were averaged across all items in a scale to produce a scale-level “ratability” score; Eccentric Perceptions and Mistrust were judged to have the lowest ratability of all 15 SNAP scales. Accordingly, it will be important to use informants only under conditions in which they are likely to produce valid ratings.

Conclusion

We have presented evidence supporting an expanded Big Six taxonomy that subsumes both normal and abnormal personality traits and covers the full range of characteristics that currently are subsumed within the Axis II PDs of *DSM-IV*. Four of these factors (Neuroticism, Extraversion, Agreeableness, and Conscientiousness) clearly are highly relevant to both normal-range personality and personality pathology. The two remaining dimensions—Openness and Oddity—appear to be more specifically related to normal and abnormal personality, respectively. Future research will need to explicate the component traits that make up these higher order dimensions; this is particularly important in the case of Oddity, an understudied domain that remains poorly understood. We hope that our findings will stimulate further taxonomic research that will move us closer to the ultimate goal of a comprehensive unified trait structure.

REFERENCES

- Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycholexical study. *Psychological Monographs*, *47* (1, Whole No. 211).
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Arndt, S., Alliger, R. J., & Andreasen, N. C. (1991). The distinction of positive and negative symptoms: The failure of a two-dimensional model. *British Journal of Psychiatry*, **158**, 317–322.
- Bentler, P. M., & Wu, E. J. C. (1995). *EQS for Macintosh user's guide*. Encino, CA: Multivariate Software.
- Bergman, A. J., Harvey, P. D., Mitropoulou, V., Aronson, A., Marder, D., & Silverman, J. (1996). The factor structure of schizotypal symptoms in a clinical population. *Schizophrenia Bulletin*, **22**, 501–509.
- Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *The Journal of Nervous and Mental Disease*, **174**, 727–735.
- Carlson, E. B., & Putnam, F. W. (1992). *Manual for the Dissociative Experiences Scale*. Unpublished manuscript, Department of Psychology, Beloit College, Beloit, WI.
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, **56**, 453–484.
- Chapman, L. J., Chapman, J. P., Kwapil, T. R., Eckblad, M., & Zinzer, M. C. (1994). Putatively psychosis-prone subjects 10 years later. *Journal of Abnormal Psychology*, **103**, 171–183.
- Chmielewski, M., & Watson, D. (2008). The heterogeneous structure of schizotypal Personality disorder: Item-level factors of the Schizotypal Personality Questionnaire and their associations with obsessive-compulsive disorder symptoms, dissociative tendencies, and normal personality. *Journal of Abnormal Psychology*, **117**, 364–376.
- Clark, L. A. (1990). Toward a consensual set of symptom clusters for assessment of personality disorder. In J. N. Butcher & C. D. Spielberger (Eds.), *Advances in Personality Assessment* (Vol. 8, pp. 243–266). Hillsdale, NJ: Erlbaum.
- Clark, L. A. (1993). *Manual for the Schedule for Nonadaptive and Adaptive Personality*. Minneapolis: University of Minnesota Press.
- Clark, L. A. (2005). Temperament as a unifying basis for personality and psychopathology. *Journal of Abnormal Psychology*, **114**, 505–521.
- Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and emerging conceptualization. *Annual Review of Psychology*, **58**, 227–257.
- Clark, L. A., Simms, L. J., Wu, K. D., & Casillas, A. (in press). *Manual for the Schedule for Nonadaptive and Adaptive Personality—2nd Edition (SNAP-2)*. Minneapolis: University of Minnesota Press.
- Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 399–423). New York: Guilford.
- Costa, P. T. Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Digman, J. M. (1997). Higher-order factors of the Big Five. *Journal of Personality and Social Psychology*, **73**, 1246–1256.

- Eckblad, M., & Chapman, L. J. (1983). Magical ideation as an indicator of schizotypy. *Journal of Consulting and Clinical Psychology*, **51**, 215–225.
- Everett, J. E. (1983). Factor comparability as a means of determining the number of factors and their rotation. *Multivariate Behavioral Research*, **18**, 197–218.
- Everett, J. E., & Entekin, L. V. (1980). Factor comparability and the advantages of multiple group factor analysis. *Multivariate Behavioral Research*, **15**, 165–180.
- Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire*. San Diego, CA: Educational and Industrial Testing Service.
- Finn, S. E. (1986). Structural stability of the MMPI in adult males. *Journal of Consulting and Clinical Psychology*, **54**, 703–707.
- Foa, E. B., Kozak, M. J., Salkovskis, P. M., Coles, M. E., & Amir, N. (1998). The validation of a new obsessive-compulsive disorder scale: The Obsessive-Compulsive Inventory. *Psychological Assessment*, **10**, 206–214.
- Giesbrecht, T., & Merckelbach, H. (2006). Dreaming to reduce fantasy? Fantasy proneness, dissociation, and subjective sleep experiences. *Personality and Individual Differences*, **41**, 697–706.
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, **4**, 26–42.
- Goldberg, L. R. (1999). The Curious Experiences Survey, a revised version of the Dissociative Experiences Scale: Factor structure, reliability, and relations to demographic and personality variables. *Psychological Assessment*, **11**, 134–145.
- Goldberg, L. R., & Strycker, L. A. (2002). Personality traits and eating habits: The assessment of food preferences in a large community sample. *Personality and Individual Differences*, **32**, 49–65.
- Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Harkness, A. R., McNulty, J. L., & Ben-Porath, Y. S. (1995). The Personality Psychopathology Five (PSY-5): Constructs and MMPI-2 scales. *Psychological Assessment*, **7**, 104–114.
- Harman, H. H. (1976). *Modern factor analysis* (3rd ed.). Chicago: University of Chicago Press.
- Harrison, J. A., & Watson, D. (1992). *The Dissociative Processes Scale*. Unpublished manuscript, Department of Psychology, University of Iowa, Iowa City.
- Hogan, R., & Hogan, J. (1992). *Hogan Personality Inventory Manual*. Tulsa, OK: Hogan Assessment Systems.
- Howland, R. H. (1997). Sleep-onset rapid eye movement periods in neuropsychiatric disorders: Implications for the pathophysiology of psychosis. *Journal of Nervous and Mental Disease*, **185**, 730–738.
- John, O. P., Hampson, S. E., & Goldberg, L. R. (1991). The basic level in personality-trait hierarchies: Studies of trait use and accessibility in different contexts. *Journal of Personality and Social Psychology*, **60**, 348–361.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality* (2nd ed., pp. 102–138). New York: Guilford.

- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research*, **39**, 329–358.
- Lee, K., & Ashton, M. C. (2006). Further assessment of the HEXACO Personality Inventory: Two new facet scales and an observer report form. *Psychological Assessment*, **18**, 182–191.
- Lenzenweger, M. F., & Dworkin, R. H. (1996). The dimensions of schizophrenia phenomenology: Not one or two, at least three, perhaps four. *British Journal of Psychiatry*, **168**, 432–440.
- Livesley, W. J. (2003). Diagnostic dilemmas in classifying personality disorder. In K. A. Phillips, M. B. First, & H. A. Pincus (Eds.), *Advancing DSM: Dilemmas in psychiatric diagnosis* (pp. 153–190). Washington, DC: American Psychiatric Association.
- Livesley, W. J. (2005). Behavioral and molecular genetic contributions to a dimensional classification of personality disorder. *Journal of Personality Disorders*, **19**, 131–155.
- Livesley, W. J., & Jackson, D. (in press). *Manual for the Dimensional Assessment of Personality Pathology—Basic Questionnaire*. Port Huron, MI: Sigma Press.
- Livesley, W. J., Jang, K.L., & Vernon, P. A. (1998). Phenotypic and genetic structure of traits delineating personality disorder. *Archives of General Psychiatry*, **55**, 941–948.
- Markon, K.E., Krueger, R. F., & Watson, D. (2005). Delineating the structure of normal and abnormal personality: An integrative hierarchical approach. *Journal of Personality and Social Psychology*, **88**, 139–157.
- Merckelbach, H., & Giesbrecht, T. (2006). Subclinical dissociation, schizotypy, and traumatic distress. *Personality and Individual Differences*, **40**, 365–374.
- Merckelbach, H., Horselenberg, R., & Muris, P. (2001). The Creative Experiences Questionnaire (CEQ): A brief self-report measure of fantasy proneness. *Personality and Individual Differences*, **31**, 987–995.
- Nijenhuis, E. R. S., Spinhoven, P., Van Dyck, R., Van der Hart, O., & Vanderlinden, J. (1996). The development and psychometric characteristics of the Somatoform Dissociation Questionnaire (SDQ-20). *Journal of Nervous and Mental Disease*, **184**, 688–694.
- O'Connor, B. (2002). The search for dimensional structure differences between normality and abnormality: A statistical review of published data on personality and psychopathology. *Journal of Personality and Social Psychology*, **83**, 962–982.
- Parker, G., Hadzi-Pavlovic, D., & Wilhelm, K. (2000). Modeling and measuring the personality disorders. *Journal of Personality Disorders*, **14**, 189–198.
- Patrick, C. J., Curtin, J. J., & Tellegen, A. (2002). Development and validation of a brief form of the Multidimensional Personality Questionnaire. *Psychological Assessment*, **14**, 150–163.
- Raine, A. (1991). The SPQ: A scale for the assessment of schizotypal personality based on DSM-III-R criteria. *Schizophrenia Bulletin*, **17**, 555–564.
- Ready, R. E., Clark, L. A., Watson, D., & Westerhouse, K. (2000). Self- and peer-reported personality: Agreement, trait ratability, and the “self-based heuristic.” *Journal of Research in Personality*, **34**, 208–244.

- Riley, K. C. (1988). Measurement of dissociation. *Journal of Nervous and Mental Disease*, **176**, 449–450.
- Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review*, **23**, 1055–1085.
- Shiner, R., & Caspi, A. (2003). Personality differences in childhood and adolescence: Measurement, development, and consequences. *Journal of Child Psychology and Psychiatry*, **44**, 2–32.
- Siever, L. J., & Davis, K. L. (1991). A psychobiological perspective on the personality disorders. *American Journal of Psychiatry*, **148**, 1647–1658.
- Startup, M. (1999). Schizotypy, dissociative experiences and childhood abuse: Relationships among self-report measures. *British Journal of Clinical Psychology*, **38**, 333–344.
- Stringer, D. M., Chmielewski, M., Clark, L. A., & Watson, D. (2008). *Explicating the nature of the Oddity domain*. Manuscript in preparation.
- Tackett, J. L., Silberschmidt, A., Krueger, R. F., & Sponheim, S. (2008). *A dimensional model of personality disorder: Incorporating DSM Cluster A characteristics*. *Journal of Abnormal Psychology*, **117**, 454–459.
- Tellegen, A., & Waller, N. G. (in press). Exploring personality through test construction: Development of the Multidimensional Personality Questionnaire. In S. R. Briggs & J. M. Cheek (Eds.), *Personality measures: Development and evaluation* (Vol. 1). Greenwich, CT: JAI Press.
- Watson, D. (2001). Dissociations of the night: Individual differences in sleep-related experiences and their relation to dissociation and schizotypy. *Journal of Abnormal Psychology*, **110**, 526–535.
- Watson, D. (2003a). Investigating the construct validity of the dissociative taxon: Stability analyses of normal and pathological dissociation. *Journal of Abnormal Psychology*, **112**, 298–305.
- Watson, D. (2003b). To dream, perchance to remember: Individual differences in dream recall. *Personality and Individual Differences*, **34**, 1271–1286.
- Watson, D. (2004). Stability versus change, dependability versus error: Issues in the assessment of personality over time. *Journal of Research in Personality*, **38**, 319–350.
- Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 767–793). San Diego, CA: Academic Press.
- Watson, D., Clark, L. A., & Harkness, A. R. (1994). Structures of personality and their relevance to psychopathology. *Journal of Abnormal Psychology*, **103**, 18–31.
- Watson, D., & Wu, K. D. (2005). Development and validation of the Schedule of Compulsions, Obsessions, and Pathological Impulses (SCOPI). *Assessment*, **12**, 50–65.
- Watson, D., Wu, K. D., & Cutshall, C. (2004). Symptom subtypes of obsessive-compulsive disorder and their relation to dissociation. *Journal of Anxiety Disorders*, **18**, 435–458.

- Widiger, T. A. (1998). Four out of five ain't bad. *Archives of General Psychiatry*, **55**, 865–866.
- Widiger, T. A., & Samuel, D. B. (2005). Diagnostic categories or dimensions? A question for the Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition. *Journal of Abnormal Psychology*, **114**, 494–504.
- Widiger, T. A., & Simonsen, E. (2005a). Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personality Disorders*, **19**, 110–130.
- Widiger, T. A., & Simonsen, E. (2005b). Introduction to the Special Section: The American Psychiatric Association's research agenda for the *DSM-V*. *Journal of Personality Disorders*, **19**, 103–109.
- Widiger, T. A., Trull, T. J., Clarkin, J. F., Sanderson, C., & Costa, P. T., Jr. (2002). A description of the *DSM-IV* personality disorders with the five-factor model of personality. In P. T. Costa Jr., & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 89–99). Washington, DC: American Psychological Association.
- Wiggins, J. S., & Pincus, A. L. (1989). Conceptions of personality disorders and dimensions of personality. *Psychological Assessment*, **1**, 305–316.
- Wilcox, J. (1985). Psychopathology and narcolepsy. *Neuropsychobiology*, **14**, 170–172.

