

## The Structure of Empathy

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Factor analysis of Hogan's Empathy Scale, scored in Likert format, yielded four factors: Social Self-Confidence, Even Temperedness, Sensitivity, and Nonconformity. Correlations with 16 different personality measures and a set of 12 adjective rating scales confirmed the factors' unique psychological meanings. Empathy subscales, created from items loading primarily on one factor, accounted for roughly equal amounts of variance in Hogan's original Q-set empathy criterion, although the Sensitivity and Nonconformity factors appeared to be slightly more important. Implications discussed include ways to improve the scoring of the Empathy Scale for future research and several broader measurement issues: the costs and benefits of using sophisticated statistics, the importance of manifest item content, and the importance of scale homogeneity.

Meaningful interaction among people requires that they be willing to construe each other's point of view. Empathy—this tendency to apprehend another person's condition or state of mind—is therefore a central concept in many theories of social behavior (cf. Dymond, 1950; Greenson, 1960; Kelly, 1955; Mead, 1934). Hogan (1969) has suggested that a valid, easily administered measure of empathy would be quite useful in social psychological research but that most attempts to develop such a measure have not been well received. To remedy this situation, Hogan used the following procedure to develop an empathy scale.

### Design and Validation of the Empathy Scale

Hogan first asked both lay persons and psychologists to describe a "highly empathic man" with Block's (1961) California Q-set. He found high agreement among judges on the char-

acteristics of a highly empathic person. These characteristics included the following: (a) skill in imaginative play, pretending, and humor; (b) awareness of the impression one makes on others; (c) ability to evaluate others' motives; (d) insight into one's own motives and behavior; and (e) being socially perceptive.

Hogan next retrieved archival records from the University of California's Institute of Personality Assessment and Research (IPAR). The Q-set description of each individual in the IPAR sample was correlated with the Q-set description of the highly empathic person described above, yielding a set of empathy rating scores. That is, the higher the correlation between the placement of a person's Q-items and the placement of items in the description of a highly empathic man, the higher that person's empathy rating score. Subjects were assigned to high- and low-empathy groups based on this score. After analyzing subjects' responses to items from the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1943), the California Psychological Inventory (CPI; Gough, 1975), and an IPAR item pool, Hogan selected 64 items that best discriminated between the high-empathy and low-empathy groups. These 64 items constitute the final Empathy Scale.

Evidence for the validity of the Empathy Scale is reported in Hogan (1969) and in Greif and Hogan (1973). These articles report sub-

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An earlier version of this article was presented at the 53rd annual meeting of the Eastern Psychological Association, April 1982, in Baltimore, Maryland. We are indebted to two anonymous reviewers who made helpful comments on the version we initially submitted to this journal.

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stantial correlations between the Empathy Scale and social acuity ratings, like ability ratings, communication competence, level of moral maturity, and effective social functioning.

Since the publication of the above two articles, additional research has supported the validity of the Empathy Scale. These research findings are described below.

Daurio (1978) found that the Empathy Scale predicted sociopolitical intelligence (the capacity for mature reasoning about complex social, moral, and political dilemmas) better than did IQ, social intelligence, or Piagetian logical operations. The correlation between empathy scores and sociopolitical intelligence in his sample of 320 gifted adolescents was .23,  $p < .005$ .

Kendall and Wilcox (1980) found a significant relationship between empathy scores and therapist effectiveness. Therapists' scores correlated .43,  $p < .01$ , with improvement in the behavior of the hyperactive and uncontrolled children they were treating. Therapists' empathy scores predicted patient improvement, regardless of whether the therapist used a concrete, behavioral approach or a conceptual, cognitive approach to counseling.

In another clinical setting, Gray (1978) studied the relationships between empathy, stress, and child abuse. Thirty abusive and 30 nonabusive mothers completed the Hogan Empathy Scale, the Mehrabian and Epstein (1972) Measure of Emotional Empathy, and the Holmes and Rahe (1967) Social Readjustment Rating Scale. In a series of separate discriminant analyses, the Hogan Empathy Scale showed an 80% hit rate in identifying abusive and nonabusive mothers; the Mehrabian and Epstein measure showed a 63% hit rate; and the Holmes-Rahe measure of stressful life events showed a 53% hit rate (about chance level). Gray concludes that lack of empathy, not the presence of stress, predisposes mothers toward child abuse.

In his original paper, Hogan (1969) reported a number of significant relationships between the Empathy Scale and measures of psychological health, including a correlation of  $-.40$  between the Empathy Scale and the Anxiety scale of the MMPI. Similarly, Deardoff, Kendall, Finch, and Sitarz (1977) reported a  $-.36$ ,  $p < .01$ , correlation between empathy and trait

anxiety (measured by the Spielberger, Gorsuch, & Lushene, 1970, scale). Generally, research shows that empathic persons are psychologically healthy, not self-absorbed and anxious. What would happen, though, if a highly empathic person should take the perspective of an anxious person? This question was addressed by Kendall, Finch, and Montgomery (1978) in a study described below.

A group of 30 undergraduates were administered the Hogan Empathy Scale and the Spielberger et al. measure of *state* anxiety. Later in the semester, a confederate of the experimenters, posing as an eminent guest speaker, came to class to give a speech. In the first few minutes of the speech, the speaker lost his notes, spilled coffee, and repeated himself several times. After the speech, students were asked to retake the Spielberger et al. measure of state anxiety. As predicted, highly empathic persons' levels of state anxiety had increased significantly above their previous level, whereas persons low in empathy showed no such increase. This finding was replicated with another group of 40 undergraduates, and in a control study in which the guest speaker performed well, anxiety scores did not vary as a function of empathy.

Another type of empathy research concerns social acuity. Although Hogan (1969) explicitly states that the disposition to apprehend another person's state of mind says nothing about the accuracy of the perception, the relationship between Empathy Scale scores and accuracy in person perception is an empirical question. Three studies provide answers to that question.

Mills and Hogan (1978) had members of an all-female civic group rate themselves and other members on several psychological traits. The correspondence between self-ratings and observer ratings was significantly higher for women with higher Empathy Scale scores (the  $r$  between Empathy Scale scores and self/observer correspondence across four trait ratings was .86,  $p < .001$ ). Because each woman was rated by three other women, any individual's ratings could be compared to the other two ratings to determine rating accuracy. The correlation between raters' Empathy Scale scores and rating accuracy was .57,  $p < .01$ . These findings imply that persons with high scores on the Empathy Scale can rate both themselves and other persons more accurately than per-

sons with low scores (see also Johnson, 1981b, for supporting research). In an all male sample, Cheek (1982) was unable to replicate Mills and Hogan's finding of greater correspondence between self-ratings and observer ratings for subjects with higher empathy scores; he did find, however, that the conceptually related Acting subscale of the self-monitoring scale (Briggs, Cheek, & Buss, 1980) significantly moderated the degree of correspondence between these ratings among fraternity members.

In a similar study, Rothman, Bussiere, and Kilkelly (Note 1) requested 28 cohabitating couples to take a modified version of the Empathy Scale and then to judge how their partners responded to the items. The correlation between Empathy Scale scores and judging accuracy was .35,  $p < .01$ .

Borman (1979) had 146 subjects judge a videotape of a sales recruiter and a prospective employee on such dimensions as the recruiter's ability to (a) create a favorable impression for the company, (b) organize the interview, (c) provide relevant information about the company, and (d) establish rapport. Unknown to the subjects, the films had been scripted by practicing industrial psychologists to provide examples of different levels of recruiter effectiveness. Thus, subject ratings could be compared to the professional ratings for accuracy. Correlations between the accuracy of subjects' ratings and a number of measures, including the Empathy Scale, were calculated. Empathy scores correlated with overall accuracy in judging recruiter effectiveness at the .05 level ( $r = .17$ ), outperforming other measures of social acuity such as Snyder's (1974) Self-Monitoring Scale.

The above evidence suggests that the Empathy Scale is a reasonably valid measure of empathic disposition and that the empathy construct is related to a number of diverse, important aspects of interpersonal affairs. Given the success of the Empathy Scale in empirical research, one might ask about the internal structure of the scale to better understand *why* the scale is valid.

#### What Makes the Empathy Scale Work?

Greif and Hogan (1973) examined the structure of the Empathy Scale by factor analyzing item responses from 260 male and 99

female undergraduate students. Finding no significant sex differences in factor structure, they combined the data for both sexes in their final analysis. This analysis showed three factors that accounted for 12.2% of the item covariation. Based on the content of items loading highly on the three factors, they labeled these factors *Even-Tempered Disposition*, *Social Ascendancy*, and *Humanistic Sociopolitical Attitudes*.

The factor analysis described above suggested that people who describe themselves as tolerant, even tempered, self-possessed, outgoing, ascendant, and humanistic will most likely be empathic. Unfortunately, neither the atheoretical scale construction procedure nor the equally atheoretical factor analysis of the Empathy Scale can tell us *why* these self-descriptions are related to empathy. Several other unanswered questions remain after the Greif and Hogan (1973) study. First, if three major factors account for only 12.2% of the item covariance, is the remaining 87.8% of the variance irrelevant or unimportant to the empathy construct? Can more variance be accounted for with different statistical procedures? Second, how do we know that the factor labels described in the study are valid? Third, what is the relative importance of the three factors to the empathy construct? Finally, how does this multidimensional conception of empathy square with other multidimensional approaches to measuring empathy (Davis, 1980, 1983)? The present study was designed to answer the above questions by improving on Greif and Hogan's analysis in four ways.

First, the data analyzed by Greif and Hogan were dichotomous (true-false), and many of the items' endorsement frequencies deviated from a 50-50 split. Factor analysts generally agree that it is hazardous to analyze such data (Comrey, 1978; Nunally, 1978). The present study avoids that problem by using a Likert response format (1 = extremely uncharacteristic; 5 = extremely characteristic).

Second, the factor labels supplied by Greif and Hogan were based on an intuitive examination of item content. The present study interprets the meanings of the obtained factors not by item content alone, but by patterns of correlations with established personality measures. These analyses include correlations with Davis's (1980) Interpersonal Reactivity Index,

an explicitly multidimensional measure of empathy.

Third, Greif and Hogan's analysis did not discuss the relative importance of the three Empathy Scale factors. The present study addresses this issue by regressing the Q-set empathy criterion scores originally used by Hogan (1969) on factor subscales to determine how much variance can be accounted for by each factor.

Finally, Greif and Hogan do not explain why three unique content areas of personality—even temperedness, ascendancy, and humanism—are empirically related to a fourth distinct content area—empathy. Granted, a statistical procedure like factor analysis can not answer an essentially conceptual problem, but that does not preclude a conceptual analysis after the statistical analysis. This article concludes with a conceptual analysis of its findings in the context of several broader issues in psychological measurement.

### Method

#### Subjects

Two groups of subjects were used. The first were 168 undergraduates at a private northeastern university (75 male, 51 female, 42 unidentified). They were administered Hogan's Empathy Scale in Likert form. A subsample of 65 men and 42 women also took a battery of personality scales that are described below.

The second group of subjects were the 45 research scientists and 66 student engineers studied by Hogan (1969). Archival records that were retrieved and reanalyzed for this group included the item responses to the Empathy Scale and the subjects' original Q-set ratings of empathy.

#### Personality Measures

Assuming that we might find factors similar to those identified by Greif and Hogan (1973), we selected several personality scales whose psychological meanings were relevant to the content of Greif and Hogan's factors.

*Acting Ability.* Acting Ability (Briggs, Cheek, & Buss, 1980) is a component of Snyder's (1974) Self-Monitoring Scale. The estimated reliability (Cronbach's coefficient alpha) of this 5-item scale was found to be .69 and .67 in two samples, each of which contained over 500 subjects. We hypothesized that this scale would be related to Greif and Hogan's Social Ascendancy factor because ascendant, take-charge persons must be, in a sense, good actors.

*Sociability and Agreeableness.* Sociability and Agreeableness are two scales on the Guilford-Zimmerman Temperament Survey (GZTS; Guilford, Zimmerman, & Guilford, 1976). We hypothesized that Sociability would be related to Greif and Hogan's Social Ascendancy factor and that Agreeableness would be related to their Even-Tempered Disposition factor.

*Shyness.* Shyness (Cheek & Buss, 1981) is a 9-item scale designed to measure tension and inhibition in the presence of other people. The coefficient alpha estimate of reliability was found to be .79 in a sample of 912 subjects. We speculated that this scale would be related inversely to Greif and Hogan's Social Ascendancy factor.

*Moral and political attitudes.* The Survey of Ethical Attitudes (SEA; Hogan, 1970) measures two personal syndromes associated with political attitudes and moral reasoning (Hogan, Johnson, & Emler, 1978; Laufer, Johnson, & Hogan, 1981). Low scorers (political liberals) tend to be complicated, cynical, speculative, sentimental, spontaneous, rebellious, and uninhibited; or, in Jung's terms (Myers, 1962), they are "intuitive-feeling-perceptive" types. High scorers (political conservatives) tend to be conscientious, conventional, factual, good-natured, helpful, planful, and responsible; in Jung's terms, they are "sensation-thinking-judging" types.

Parallel-form reliability estimates reported by Hogan (1970) are .97 and .88 in samples of 149 and 94 subjects, respectively. Form C, a 24-item version of the scale used in the present study, correlates .90 with the longer forms (Hogan, Note 2). We predicted that Greif and Hogan's Humanistic Sociopolitical Attitudes factor would be related to the low (politically liberal) end of the SEA.

*Facets of empathy.* Davis's (1980, 1983) Interpersonal Reactivity Index contains four 7-item subscales developed through factor analysis to measure both cognitive and emotional aspects of empathy. Standardized alpha reliability estimates range from .68 to .79 in separate samples of 201 males and 251 females. A number of meaningful convergent and discriminant relationships with other personality measures supports the following descriptions of the four subscales. The Perspective-Taking subscale measures the tendency to adopt others' perspectives. The Fantasy subscale measures respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays. Empathic Concern assesses feelings of sympathy and concern for unfortunate others. Personal Distress measures dissociative tendencies in tense interpersonal situations.

Davis (1983) reports the following correlations between the Hogan Empathy Scale and each of the subscales described above. (Values to the left of "/" are for 225 males, to the right, for 235 females; all correlations are significant at the .05 level.) Perspective Taking, .42/.37; Fantasy, .15/.15; Empathic Concern, .11/.25; Personal Distress, -.25/-.40. We felt, however, that each of Davis's subscales would have a unique pattern of relationships with the Greif and Hogan factors. We refrained from making specific predictions about the patterns.

*Socioanalytic scales.* Finally, we used a set of adjective rating scales developed to assess several personality dimensions described by socioanalytic theory (Hogan, 1982; Hogan & Johnson, Note 3). These dimensions, adapted from Norman's (1963) definitive study of the trait-descriptive universe, are as follows: Intellectence (how bright one appears); Adjustment (absence of anxiety, depression, and guilt); Ascendancy (ambition, energy, initiative, leader-like qualities); Likeability (tolerance, cooperativeness, warmth); Sociability (an inclination to seek out and enjoy other people), and two kinds of Conformity—Rule Attunement (deference to authority and respect for established rules and contracts) and Self-Control (suppression of impulses, imagination, and spontaneity—cf. Block &

Block's, 1979, ego control). (These two types of Conformity are nearly impossible to separate psychometrically with self-report data—cf. Johnson, 1983—and in fact are not scored separately on the most recent version of these rating scales—cf. Hogan, 1982. However, because we used an earlier version of the rating battery, both types of Conformity were scored separately.)

Each rating scale consists of four 7-step Likert-style items anchored on each end by opposing adjectives. For example, anxious–calm is one item on the Adjustment scale. Uncorrected item-total correlations range from .31 to .94; scale alphas range from .56 for Self-Control to .91 for Sociability.

We predicted that Greif and Hogan's factors would show the following pattern of correlations with the socioanalytic scales. Even-Tempered Disposition should correlate most highly with Likeability and Adjustment, and negatively with Ascendance. Social Ascendancy should correlate primarily with Ascendance and Sociability. Humanistic Sociopolitical Attitudes should correlate negatively with the two types of Conformity (Rule Attunement and Self-Control) because humanistic reformers tend to be unconventional, imaginative, and antagonistic toward authority and established rules (cf. Hogan, 1970).

To maximize the explanatory utility of the socioanalytic scales, individual adjective scales were scored separately, in addition to the seven primary scales described above. As an indication of the reliability and validity of the individual 7-step adjective scales, we present 2-week test-retest correlations (value to the left of "/") for a group of 39 subjects and correlations between self-ratings and pooled observer ratings (value to the right of "/") for a group of 17 subjects. Unavailable data are indicated by "-". This reliability and validity information is presented only for those adjective scales that proved to be most useful in the present study: Not Shy–Shy (.48/.69), Assertive–Passive (.70/.88), Outgoing–Reserved (.74/.51), Cheerful–Depressed (.61/.66), Good Natured–Irritable (–/.36), Even Tempered–Hot Tempered (.68/.26), Rule Abiding–Rule Avoiding (.65/.53), Caring–Aloof (–/.35), Emotional–Unemotional (–/.44), Unconventional–Conventional (.44/.32), Rebellious–Cooperative (.45/.38), and Experimenting–Traditional (.55/.46). These data indicate that contrary to the adage that one-item scales are inherently unreliable, these individual adjective rating scales are not totally without psychometric worth and are a potentially useful adjunct to the other personality scales.

### Procedures

The item response data from the Empathy Scale for the first group of subjects were analyzed with the Reliability Program available in the Statistical Package for the Social Sciences (SPSS; Hadlai & Nie, 1981). The data were then factor analyzed with the PA1 principal-components routine in SPSS (Nie, Hull, Jenkins, Steinbrenner, & Brent, 1975). The limited number of subjects precluded separate analyses by sex; this is probably not crucial given that Greif and Hogan (1973) found no sex differences in factor structure.

To help interpret the factors, all items that loaded primarily on one factor were grouped, forming four factor subscales. Scores on these factor subscales were computed and correlated with the personality scales and adjectives described above, and convergent and discriminant patterns were identified.

The archival records for the second group of subjects were retrieved and rescored to yield the four factor-subscale scores. The subjects' original Q-set ratings of empathy were regressed against the subscale scores, and the relative sizes of the simple correlations and beta weights were compared.

## Results

### Reliability and Factor Analysis

The alpha reliability estimate for the Empathy Scale in the present study was found to be .69—nearly identical to the .71 KR-21 reliability estimate originally reported by Hogan (1969). These internal consistency values are surpassed, incidentally, by the 2-month test-retest correlation of .84 reported by Hogan (1969), indicating that less than perfect homogeneity is not necessarily accompanied by temporal instability of scale scores.

The moderately low homogeneity of the scale can be summarized with several other statistics. The average interitem correlation is .03; the average corrected item-total correlation is .15 ( $SD = .15$ ). Nine items correlated negatively with the total scale score, and an additional 22 items failed to correlate at the .05 level. These statistics are similar to those reported recently by Cross and Sharpley (1982). In a sample of 95, they found 13 items that correlated negatively with the total score and 30 additional items that did not correlate at the .05 level. They reported an alpha reliability estimate of .61.

The above statistics demonstrate lack of overall scale homogeneity, but fail to describe whether the items are all relatively unique or whether they form coherent clusters. Factor analysis was used to answer this question.<sup>1</sup> Based on eigenvalue size, amount of explained variance, and interpretability of content, four factors were retained for final interpretation. The factors accounted for 8.7%, 7.2%, 5.3%, and 4.8% of the variance. The total amount of explained variance (26%) is not large, yet is greater than the amount of variance accounted for in Greif and Hogan's three-factor solution (12.2%).

<sup>1</sup> A complete description of factor loadings is available on request from the first author.

The first factor contained 13 items. The five items with the highest loadings were the following:

- I usually take an active part in the entertainment at parties. (.73)
- I am a good mixer. (.71)
- I have a natural talent for influencing people. (.65)
- I think I am usually a leader in my group. (.64)
- I like to talk before groups of people. (.57).

The content of the remaining items is quite similar to these five and suggests the label *Social Self-Confidence*. The factor resembles closely the second factor in Grief and Hogan's analysis (Social Ascendancy) and in fact contains all of their factor's items.

Fifteen items loaded primarily on the second factor. The five items with the highest loadings were the following:

- I easily become impatient with people. (-.61)
- I am usually calm and not easily upset. (.58)
- I am not usually angered. (.57)
- I am sometimes cross and grouchy without any good reason. (-.55)
- I am often sorry because I am so cross and grouchy. (-.46).

Again, the content of the remaining items corresponds closely to the content of the above items and indicates that the factor could be called *Even Temperedness*. The item content is similar to that found in Greif and Hogan's (1973) first factor (Even-Tempered Disposition) and in fact the present factor contains all of their factor's items.

The third factor contains nine items. The five items with the highest loadings were the following:

- I have at one time or another tried my hand at writing poetry. (.53)
- I have seen some things so sad that I almost felt like crying. (.50)
- What others think of me does not bother me. (-.46)
- I don't really care whether people like me or dislike me. (-.43)
- I like poetry. (.41).

The content of the above and remaining items contains a common psychological theme and suggests the factor label *Sensitivity*. None of these items were reported by Greif and Hogan to define their three factors. However, two Sensitivity items had smaller secondary loadings (about .25, in contrast to .40 to .50) on Even Temperedness (the equivalent of Greif and Hogan's, 1973, Even-Tempered Disposition) and three Sensitivity items had secondary

loadings on the factor described below, which turn out to be similar to Greif and Hogan's Humanistic Sociopolitical Attitudes factor. Perhaps if Greif and Hogan had retained a fourth factor, it would have been Sensitivity.

The fourth factor contained 11 items. The five items with the highest loadings were as follows:

- Disobedience to the government is never justified. (-.53)
- It bothers me when something unexpected interrupts my daily routine. (-.51)
- I like to have a place for everything and everything in its place. (-.43)
- It is the duty of a citizen to support his country, right or wrong. (-.43)
- I don't like to work on a problem unless there is the possibility of coming out with a clear-cut and unambiguous answer. (-.40).

The content of these and the remaining items loading on this factor follow two themes: (a) refractory political attitudes and (b) a preference for situations that are novel, changing, unstructured, or ambiguous. The first theme is similar to that in Greif and Hogan's third factor (Humanistic Sociopolitical Attitudes); in fact, the same items load on both Greif and Hogan's third factor and the present factor. We feel, however, that Greif and Hogan's label is a misnomer. Persons who favor civil disobedience are not necessarily humanists; they are simply political nonconformists. And the second theme, which describes a tendency to avoid conforming to set patterns of behavior, is apolitical. Therefore, we chose the label *Nonconformity* for the fourth factor.<sup>2</sup>

To confirm the psychometric independence of the four factors, we examined the properties of factor-subscale scores created by summing the scores of items loading primarily on one factor. Cronbach's alpha for each subscale was as follows: Social Self-Confidence, .79; Even Temperedness, .74; Sensitivity, .61; and Nonconformity, .66. The correlations among the factor subscales are presented in Table 1. They range from .02 (Social Self-Confidence with Sensitivity) to .22 (Social Self-Confidence with Nonconformity). The latter correlation is sig-

<sup>2</sup> The failure of this factor to split into two distinct factors along political and apolitical themes replicates Johnson's (1983) finding that the two corresponding facets of the socioanalytic Conformity scale (Rule Attunement and Self-Control) are psychometrically indistinguishable.

nificant at the .01 level due to the large sample size but does not indicate a large amount of shared variance.

The present analysis indicates that the Empathy Scale contains four components. Each

component appears to be conceptually and psychometrically coherent and, at the same time, distinct from each of the other components. Although the meaning of each component can be intuited from its item content,

Table 1  
*Correlates of Empathy and Its Factors*

Measure	Empathy Full Scale	Social Self-Confidence	Even Temperedness	Sensitivity	Nonconformity
Empathy					
Full Scale	(69) <sup>a</sup>				
Social Self-Confidence	64**	(79) <sup>a</sup>			
Even Temperedness	43**	09	(74) <sup>a</sup>		
Sensitivity	30**	02	06	(61) <sup>a</sup>	
Nonconformity	68**	22**	19*	10	(66) <sup>a</sup>
Personality Scales <sup>b</sup>					
Acting Ability	42**	57**	03	-04	14
Sociability (GZTS)	33**	38**	14	10	04
Intellectence	16*	20*	-11	01	06
Adjustment	48**	63**	36**	-10	14
Sociability (SA)	50**	72**	09	02	16*
Shyness	-54**	-77**	-14	-02	-21*
Personal Distress	-34**	-57**	-26**	14	-13
Self-Control	-37**	-41**	23**	-01	-43**
Agreeableness	-18	-48**	44**	14	-07
Ascendance	06	29**	-30**	10	-05
Perspective-Taking	35**	14	38**	23*	15
Likeability	24**	11	57**	12	00
Fantasy	25*	14	-12	44**	15
Empathic Concern	26**	08	16	42**	10
Rule Attunement	-20*	-12	24**	16	-39**
SEA	-28**	-14	19	03	-44**
Adjectives <sup>c</sup>					
Not Shy	42**	77**	03	-08	12
Assertive	33**	65**	-10	01	09
Outgoing	46**	70**	12	-01	13
Cheerful	36**	43**	40**	-03	08
Good Natured	36**	19*	56**	08	10
Even Tempered	06	-06	61**	-07	01
Rule Abiding	-17	-15	14	31**	-43**
Caring	31**	18	24*	32**	07
Emotional	27**	27**	-16	29**	15
Unconventional	22*	19*	-06	-09	39**
Rebellious	25**	23*	-24*	-11	37**
Experimenting	32**	25**	-01	-09	41**

Note. Decimal points are omitted from all correlation coefficients.

<sup>a</sup> Coefficient alpha reliability estimates for Empathy Scale and subscales.

<sup>b</sup> Acting Ability is a component of Snyder's Self-Monitoring Scale; Sociability (GZTS) and Agreeableness are from the Guilford-Zimmerman Temperament Survey; Intellectence, Adjustment, Sociability (SA), Self-Control, Ascendance, Likeability, and Rule Attunement are Hogan and Johnson's Socioanalytic Adjective Rating scales; Shyness is Cheek and Buss's scale; Personal Distress, Perspective-Taking, Fantasy, and Empathic Concern are subscales in Davis's Interpersonal Reactivity Index; and SEA is Hogan's Survey of Ethical Attitudes.

<sup>c</sup> These adjectives are actually each one pole of a rating scale anchored by two adjectives. Obviously, either end of the two-adjective scale could have been used as a label, and the sign of the correlation coefficient could have been adjusted accordingly. The adjective labels used in the table were chosen for maximal clarity of exposition. The other adjective label for each pole is reported in the text.

\*  $p < .05$ , one-tailed. \*\*  $p < .01$ , one-tailed.

the components were further clarified by correlating factor-subscale scores with the battery of personality measures described earlier.

### *Correlational Interpretation of Factors*

Correlations between each of the four factor subscales and the personality measures were generally in the same direction, but differences in magnitude and sometimes direction of the correlations supported the factors' unique meanings (see Table 1).

Social Self-Confidence correlated highest with Sociability (the four-item adjective scale, .72), Adjustment (.63), Acting Ability (.57), Sociability (GZTS scale, .38), Ascendance (.29), Intellectence (.20), and in the negative direction, Shyness (-.77), Personal Distress (-.57), Agreeableness (-.48), and Self-Control (-.41). Individual adjectives correlating highest with Social Self-Confidence were Not Shy (.77), Outgoing (.70), and Assertive (.65). These results imply that the high scorer on this factor is socially adept, assertive, confident, and perhaps a little impulsive and overbearing; this supports the label *Social Self-Confidence*.

Even Temperedness correlated highest with Likeability (.57), Agreeableness (.44), Perspective-Taking (.38), Adjustment (.36), and in the negative direction, with Ascendance (-.30) and with the adjectives Even Tempered (.61), Good Natured (.56), and Cheerful (.40). This pattern is distinct from the pattern for Social Self-Confidence, and, in fact, Agreeableness and Ascendance show totally opposite patterns with the two factors. Whereas high scorers on Social Self-Confidence tend to score high on Ascendance and low on Agreeableness, high scorers on Even Temperedness tend to score low on Ascendance and high on Agreeableness. The contrast is one between energetic, competitive compulsiveness and relaxed, easy-going complaisance. The above pattern of results differentiates the meaning of the present subscale from the meaning of the first factor subscale and supports the label *Even Temperedness*.

Of the 12 personality scales and the six adjectives that correlate with and define the first two factors, only one has a statistically significant correlation with the third factor: Perspective-Taking correlates with Sensitivity (.23). Sensitivity is better defined by two scales and three adjectives that show the following

correlations: Davis's Fantasy aspect of empathy (.44), Empathic Concern (.42), and the adjectives Rule Abiding (.31), Caring (.32), and Emotional (.29). According to this unique pattern of correlations, the high scorer on the Sensitivity subscale appears to be compassionate, concerned about others, and moral. This description supports the label "Sensitivity" and distinguishes this factor from the first two.

Finally, the Nonconformity subscale correlated most highly—in a negative direction—with the SEA (-.44) and the two socioanalytic Conformity scales: Rule Attunement (-.39) and Self-Control (-.43). This is a unique pattern, for among all the possible correlations between each of these three scales and each of the previous factors, the only similar significant relationship is between Social Self-Confidence and Self-Control (-.41). Even Temperedness shows two significant correlations in the opposite direction, with Rule Attunement (.24) and Self-Control (.23). Sensitivity correlates essentially zero with the three scales. Thus, the Nonconformity factor is very different from the first three factors.

The three adjectives most descriptive of the high scorer on Nonconformity were Unconventional (.39), Rebellious (.37), and Experimenting (.41). The picture that emerges of the higher scorer on Nonconformity is someone who is unconventional, innovative, and politically liberal and who prefers unstructured, ambiguous, and novel situations.

The above results indicate that the structure of empathy, as measured by the Empathy Scale, can be defined by four psychologically distinct components: social self-confidence, even temperedness, sensitivity, and nonconformity. The fact that none of these components is empathy per se raises an important question: How are these components related to the empathy construct (i.e., the tendency to apprehend another person's condition or state of mind)? A conceptual analysis of this problem is reserved for the discussion section. The results below answer a statistical version of the same question: How much variance in total empathy scores is explained by each of the four components?

### *Regression Analysis*

The magnitudes of the simple correlations between Q-set empathy criterion scores in



Hogan's (1969) sample and the four factor-subscale scores were as follows: Sensitivity, .31; Nonconformity, .23; Even Temperedness, .14; and Social Self-Confidence, .16. The beta weights in the multiple regression equation were, respectively, .23, .16, .10, and .10. The overall  $R$  was .37—not much different from the .39 simple correlation, reported by Hogan (1969), between the empathy criterion and the full Empathy Scale (in a cross-validation sample of 70).

Among the simple correlations, only Sensitivity and Nonconformity were significant at better than the .05 level; Social Self-Confidence was marginally significant at the .10 level, and Even Temperedness failed to reach any accepted level of significance. Using McNemar's (1969, p. 158) test of the difference between two correlations involving the same variables, we found the Sensitivity correlation to be greater than the Even-Temperedness correlation,  $t(108) = 2.04$ ,  $p < .05$ , but not greater than the Social Self-Confidence correlation,  $t(108) = 1.56$ , *ns*.

We see that even though the amount of variance in the empathy criterion accounted for by the four components is roughly equal, Sensitivity and Nonconformity appear to be slightly more important. The correlations between these factor subscales and the empathy criterion were statistically significant (in contrast to the other two correlations), and the Sensitivity correlation was significantly larger than the Even-Temperedness correlation. These findings deserve special attention in light of the findings from the factor analysis. That is, Sensitivity and Nonconformity, which in the present regression analysis appear to be the most important factors, were the third and fourth factors in the factor analysis, accounting for far less variance than the first two factors and containing fewer high-loading items. This suggests that perhaps these components should receive more weight, but further studies with additional external criteria of empathy should be undertaken to confirm this idea.

### Discussion

Discussion of the results is divided into two sections. The first deals with the implications of the present findings for interpreting both past and future studies using the Empathy Scale. The second concerns implications for

several broader issues in measurement: the importance of scale homogeneity, manifest item content, and Likert versus dichotomous scoring procedures.

### Research Implications

Knowledge of the factor structure of the Empathy Scale helps us understand the results of previous studies (Greif & Hogan, 1973; Hogan, 1969; introduction to the present article). For example, Hogan (1969) reports that empathy correlates .63 with Extraversion on the Myers-Briggs Type Indicator and  $-.53$  with the  $F$  scale of authoritarianism. The former correlation is most likely a function of the Social Self-Confidence factor, and the latter, a function of the Nonconformity factor.

Another example concerns a factor analysis of full Empathy Scale scores with the 18 standard scales of the CPI (Gough, 1975), reported by Greif and Hogan (1973). In this analysis, empathy loaded primarily on the second factor, often called *Person Orientation*, defined by the CPI scales Dominance, Capacity for Status, Sociability, Social Presence, and Self-Acceptance. Surely the Social Self-Confidence factor of the Empathy Scale was responsible for this finding. The Empathy Scale had a smaller but substantial loading on the third factor, typically called *Capacity for Independent Thought and Action*, which is defined by the CPI scales Achievement via Independence, Flexibility, Tolerance, Intellectual Efficiency, and Psychological Mindedness. In all probability, the Nonconformity factor of the Empathy Scale accounted for this secondary loading.

The factor structure of the Empathy Scale also helps explain some of the findings reported in the introduction of this article. The correlation between empathy and Daurio's (1978) sociopolitical intelligence is probably a function of the political theme in the Nonconformity factor. Surely the abusive mothers identified by Gray were low on Even Temperedness and Sensitivity but not necessarily on Social Self-Confidence. Studies showing a negative relationship between empathy and measures of emotional maladjustment (Dear-doff et al., 1977; Hogan, 1969) can be explained by the Even-Temperedness factor.

The relationship between empathy and accuracy in person perception is one of the most intriguing findings, yet is difficult to explain

in terms of the four factors of empathy. Some help in this matter comes from Rothman (Note 4), who, after conducting an extensive review of the person-perception literature, finds two distinct pictures of the socially perceptive person. The first is one of a warm, affectionate, sympathetic, and socially involved individual. The second picture is one of a socially aware but detached, introspective, introverted, cool personality (cf. Gough's, 1968, description of the high scorer on the CPI Psychological-Mindedness scale). Rothman suggests that the two pictures, though different, are not mutually exclusive; they have in common good emotional adjustment (i.e., Even Temperedness) and openness to variety and change (i.e., Nonconformity). The two pictures contrast in social involvement, suggesting that the Social Self-Confidence factor is not particularly relevant to accuracy in person perception.

With regard to future research with the Empathy Scale, one might consider scoring the factors separately in addition to using the full scale score, to examine the unique contribution of the four components. The discussion above speculated about the contribution of the components in explaining political reasoning, child rearing, adjustment, and person perception. In addition to testing these speculations empirically with future research, one might study the relationship between the four components and other criteria such as communicative ability and general interpersonal competence.

In addition to the type of research described above, one might conduct research on the developmental antecedents of empathy, which are currently not well understood. Hogan, Johnson, and Emler (1978) suggested that empathy is a function of infant-caretaker attachment bonds, general intelligence, and unspecified genetic factors. These broad generalizations do not significantly further our understanding of the development of empathy. However, the present factor analysis, in conjunction with research reported by Buss and Plomin (1975), sheds some light on these "unspecified genetic factors." Social Self-Confidence, Even Temperedness, and Nonconformity are similar to three temperamental dispositions reported by Buss and Plomin (1975) to have significant heritability: Sociability, Emotionality, and Impulsivity. Future

research on the contribution of genetic factors and early experience on empathy would seem a worthwhile task.

### *Broader Issues*

To this point the article has simply described the factor structure of the Empathy Scale and the implications of this factor structure for future research with the scale. The final section of the article uses the foregoing material as a case in point for discussing several broader issues in the theory of personality assessment.

*Mathematical idolatry.* The present study indicates that the Empathy Scale exhibits the same factor structure regardless of whether a dichotomous or Likert scoring format is used. This empirical finding contradicts a fundamental assumption from the psychometric theory of factor analysis—that factor-analyzing dichotomous data when items deviate from a 50–50 endorsement frequency split will not reveal the "true" factor structure. In fact, 14 Empathy Scale items in Greif and Hogan's (1973) original data deviated from a 25%–75% split, yet somehow they managed to find essentially the same factors we did with our "improved" Likert scoring format. (Note that if they had retained a fourth factor, their solution might have been perfectly identical to ours.)

The broad issue here is not the factor structure of the Empathy Scale but rather the consequences of violating prescriptions from psychometric theory. The consensus—based on our own work and on informal reports from colleagues—is that the consequences are never as serious as the psychometricians would have us believe. Rigorous documentation of this assertion is beyond the scope of this article and is better left to future research.

We are not advocating that researchers ignore that tenet of psychometric theory. To the contrary, we believe that persons involved in psychological measurement should be intimately familiar with psychometric principles so that they can recognize when these principles are important and when they are irrelevant. Psychometrics, like any form of mathematics, is an arbitrary convention designed to give coherence to one's empirical observations. When one forces one's research into an inappropriate mathematical mold, the purpose of mathematics is defeated. When psy-

chometrics becomes an end in itself, the growth of substantive psychological knowledge suffers.

One example of misguided mathematical effort relevant to the data presented here is the relentless struggle to "account for variance" in a study. Researchers often equate the amount of score variation that is accounted for or explained mathematically with the depth of our understanding of the meaning of those scores. Research with the Empathy Scale indicates that accounting for more variance does not necessarily tell us something we didn't already know. Greif and Hogan's (1973) three-factor solution accounted for 12.2% of the item covariation in the Empathy Scale. Our four-factor solution accounted for more variance (26%), but we found the same factors identified by Greif and Hogan (1973).

Finally, a colleague of ours subjected Greif and Hogan's correlation matrix to a BCTRY Open Cluster Analysis (Dean, Note 5). After many computer runs, he was able to account for 63.4% of the covariance with five clusters. The clusters corresponded exactly to the factors found in the present analysis, except that the items on our Sensitivity factor split into two smaller clusters in his analysis. Again, our study is merely a case in point, but we feel that additional studies would confirm our intuition that "explained variance" is orthogonal to, rather than proportional to, conceptual understanding.

Mathematics is certainly indispensable to psychological measurement. Let us not forget, however, the admonition offered by Gardner Murphy (1967), that numbers can lead us into "various types of mysticism which become so fascinating, so enriching, and so sustaining that one finds it difficult indeed to come back to the world of plain things and the immediate world to be dealt with" (p. 428).

*Importance of manifest item content.* Hogan's (1969) and Davis's (1980) empathy scales were constructed differently, and these differences have distinct consequences for manifest item content or "face validity."

Hogan's Empathy Scale was constructed by empirical means through analysis of item responses retrieved from archival records. Because items were selected empirically from an item pool of limited content, not all of the items on the final scale have obvious face validity (e.g., "I prefer a shower to a tub bath").

One consequence of the absence of manifest item content is that the four factors of the scale—Social Self-Confidence, Even Temperedness, Sensitivity, and Flexibility—have no immediate or obvious semantic relationship to the concept of empathy ("A willingness or tendency to put oneself in another person's place and to modify one's behavior as a result," Hogan, 1969, p. 307). It is interesting that the most face-valid item on the scale ("As a rule I have little difficulty in 'putting myself into other people's shoes.'") did not show a significant loading on any of the four factors.

In contrast, Davis designed items whose content clearly relates to either cognitive aspects of empathy ("I try to look at everybody's side of a disagreement before I make a decision.") or affective aspects of empathy ("When I see someone being taken advantage of, I feel kind of protective toward them"). After a factor analysis, he retained items that loaded clearly on his preconceived factors. As a result of Davis's rational and factor analytic procedures, he ends up with scales such as Perspective Taking and Empathic Concern—scales whose content *is* immediately and obviously relevant to the meaning of *empathy*.

When a self-report scale with face-valid items predicts a relevant external criterion, no one is surprised. After all, it is reasonable to assume that if one describes one's self as empathic, one will indeed act empathically. This assumption, which can be traced to a *correspondence* epistemology on which a theory of scale validity can be based. In fact, a correspondence view is incapable of explaining why the four factors of the Empathy Scale are empirically related to observer ratings of empathy when their item contents are semantically unrelated to the construct *empathy*.<sup>3</sup>

<sup>3</sup> An anonymous reviewer suggested that perhaps the Hogan Empathy Scale does *not* measure empathy at all, but rather it measures exactly what the four factor labels suggest—social self-confidence, even temperedness, sensitivity, and nonconformity. These four characteristics contribute to empathic accuracy, rather than to an empathic disposition.

We found this theory interesting, but it is not supported by the evidence because the Empathy Scale does indeed correlate with ratings of empathic disposition, not just with empathic accuracy. Within the framework of dust-bowl empiricism, the scale by definition measures empathy.

An alternative view of scale validity, based on a *coherence* epistemology (Johnson, 1981a), assumes that individual aspects of personality (in this case, Social Self-Confidence, Even Temperedness, Sensitivity, and Nonconformity) can interact with each other to form larger coherent patterns of personality (in this case, an empathic disposition). This is not a new idea in personality and can be found in sources such as Allport (1961) and MacKinnon (1944). A proposal concerning the relationship between empathy and the factors of the Empathy Scale is presented below. As an interpretive account (Hancher, 1970), the presentation is intrinsically speculative and probably biased; nonetheless, future research can examine these proposals.

First, the items in the Sensitivity factor indicate both emotional reactivity (e.g., "I have seen some things so sad that I almost felt like crying.") and a concern with social approval (e.g., "I don't really care whether people like me or dislike me." [scoring reversed]). This suggests that, in order to avoid having one's feelings hurt, the high scorer on this factor will attempt to construe and conform to others' expectations, and this is precisely what it means to be empathic. In another words, sensitivity is a motive for acting empathically.

Second, we noticed that the Nonconformity factor is related to the Judging-Perceiving dimension on the Myers-Briggs Type Indicator. More precisely, Nonconformity correlates  $-.44$  with the SEA, which in turn correlates  $.79$  with Judging and  $-.76$  with Perceiving (see Hogan, 1970). As perceptive types, high scorers on Nonconformity are always open to new information, including cues about another person's state of mind. Low scorers on Nonconformity (i.e., judging types) tend to jump to conclusions quickly, based on their own biases, and may overlook or ignore the nuances or behavior necessary to apprehend another person's state of mind.

An alternative way of looking at the relationship between Nonconformity and empathy is to note that Nonconformity is inversely related to authoritarianism (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; nonconformity correlates  $-.44$  with the SEA, which in turn correlates  $.45$  with the California *F* Scale—see Hogan, 1970). This indicates that the high scorer on Nonconformity has an in-

traceptive, as opposed to a projective, intellectual style; that is, the high scorer on Nonconformity uses a relatively complex and differentiated set of interpersonal concepts rather than a set of bias-ridden stereotypes (cf. Janis, Mahl, Kagan, & Holt, 1969, p. 661). Consequently, Nonconformity is related to interpersonal perceptiveness (i.e., empathy).

Even Temperedness and Social Self-Confidence are harder to explain, as well they should be, given that they had the lowest correlations with the original empathy criterion. Even Temperedness might be best understood by examining its low end—grouchiness and irritability. Grouchiness and irritability can be regarded as part of a neurotic interpersonal style, a way of seeking attention in an undesirable way. The grouchy person, rather than obtaining social attention by construing others' expectations and behaving accordingly, says, in effect, "Look, I'm not feeling well, I need special consideration—you can't expect me to be sensitive to your needs when I'm the one who needs attention" (cf. Hogan, 1982). The even-tempered person, on the other hand, is more likely to consider social expectations and is therefore more empathic.

The relationship between social self-confidence and empathy is the most difficult to understand. One might speculate that someone who is socially perceptive and sensitive to social expectations (i.e., is empathic) would consequently be popular with other people and that this in turn would engender social self-confidence. Yet one can easily imagine someone who is egocentric, ruthless, and selfish and, at the same time, self-assured in interpersonal affairs.

Perhaps the relationship between social self-confidence and empathy is the other way around: Social self-confidence may be a precursor, rather than a sequela, of empathy. More precisely, social self-confidence may be a useful, but neither necessary nor sufficient, factor in attaining empathy. Social self-confidence can give a person the courage to enter the interpersonal world and practice empathic skills, yet that doesn't guarantee that one will become empathic.

An important question that cannot be answered here is, What kind of scale best measures empathy: one with face-valid items, like Davis's scale, or one constructed empirically,

like Hogan's scale? In theory, each kind of scale has its own special strengths and weaknesses (cf. Hase & Goldberg, 1967). To definitively answer the question about measuring empathy, we suggest that the Davis and Hogan scales be used side by side in many empirical studies to determine the relative merits of each.

*Scale homogeneity.* From a practitioner's perspective, Hogan's Empathy Scale appears to be a valuable assessment tool. It predicts such things as mature moral reasoning, therapist effectiveness, child abuse, and social acuity. From a psychometrician's viewpoint, however, the Empathy Scale at the very least needs some "tuning up." Internal consistency estimates of scale reliability have ranged from .61 to .71, and a Likert scoring format does not increase that value. This lack of scale homogeneity led Cross and Sharpley (1982) to conclude, "Tests which rely (as did this one) on empirically developed scales that do not meet accepted standards of homogeneity are of doubtful worth to researchers and clinicians" (p. 62).

Two responses can be made to this kind of criticism. The first is that this is just another example of mathematical idolatry. A practitioner is more concerned with how well the scale works than how closely it approximates certain arbitrary statistical criteria. Granted, reliability is important, but the Empathy Scale has shown an acceptable test-retest reliability of .84, and it can be argued that this type of reliability is more useful to practitioners than is internal consistency reliability.

A second response would be to take seriously these psychometric data as guides for improving a scale whose validity is already substantial. Cross and Sharpley found 13 items with negative item-total correlations; we found nine such items. Surely these items should be scored in the opposite direction or discarded. Future research (and reanalysis of data from past research) can help determine whether items from the different factors contribute equally or disproportionately to the validity of the scale and whether items that did not load on one of the four factors are irrelevant or significant for the validity of the scale. Finally, following the leads of Davis (1980) and Briggs et al. (1980), researchers might habitually score the Empathy Scale for its four factors, in addition to using the total score, be-

cause each factor has a unique psychological meaning and may yield different results in different types of research.

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