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ABSTRACT

Factor analysis of Gough's 300-item Adjective Check List identified eight highest-loading items for seven factors of self-perception. These were alphabetized and presented with 5-point scales to 713 females in teacher training. Factor analysis of the 56 self-rating items replicated the original structure, and simple scale sums showed satisfactory internal consistency and test-retest stability. Correlations with another self-description inventory evidenced concurrent validity of the instrument, which should be valuable for rapid, straight-forward, quantified self-description. (Author)

Adjective Rating Scales for Self Description

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This study concerns the development of an instrument to allow economical measurement of the seven personality factors isolated by the authors from Gough's 300-item Adjective Check List. The eight highest-loading words for each of the seven factors were arranged alphabetically and five-point rating scales were used to record the responses of 61 undergraduates in teacher education at the University of Texas. Each subject was tested twice, with a 1-2 week interval.

Internal consistencies of the seven scales ranged from .69 to .91 (alpha coefficients). Item total correlations revealed no "bad" items for any scale. Replication of the original factor structure was successful, although some of the new scale scores were moderately intercorrelated. Test-retest reliabilities ranged from .80 to .92, and substantial evidence of concurrent validity was obtained from correlations with another self-descriptive inventory.

The seven factor variables (somewhat renamed) are: (1) Social Warmth, (2) Social Abrasiveness, (3) Ego Organization, (4) Introversion/Extraversion, (5) Neurotic Anxiety, (6) Individualism, and (7) Social Attractiveness. The 56-item instrument has been designed as a Digitek machine-scoreable answer sheet, and is currently in use as a part of the required assessment battery of the College of Education at the University of Texas. Since the instrument appears to measure with great economy the major dimensions of personality isolated by other researchers, it appears to be a very promising tool for large-scale screening in situations where personality is known to be highly relevant to success and/or of crucial importance for guidance.

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ADJECTIVE RATING SCALES FOR SELF DESCRIPTION[1]

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The Adjective Check List (ACL) was developed by Gough and Heilbrun (1965) to facilitate self-description across a wide variety of traits. Use of the original form, which contains 300 adjectives, typically involves asking subjects to check the terms that they consider to be self-descriptive. The authors of the ACL have defined a variety of scales, the majority of which were of rational or a priori derivation, and some factor analyses of these variables have been reported (Scarr, 1966; Parker & Megargee, 1967). To avoid any assumptions about higher-order trait clusters among the 300 items, Parker and Veldman (1969) carried out a factor analysis of the entire item pool, using a sample of 5017 university freshmen. They extracted and rotated seven major orthogonal factors, at least one of which represented a trait dimension unlike any that had been previously identified, labeled "Cognitive Independence."

The present investigation was prompted by three major considerations. Administration of the entire 300-item ACL is uneconomic if one wishes only to obtain data for scoring the seven empirical factor variables. There is also reason to question the precision of measurement obtainable with a dichotomous-choice response format (e.g., Anastasi, 1957, p. 543). Finally, we wished to verify the empirical factor structure previously obtained, to determine the stability of the factor measures over time and to obtain some evidence for the validity of the technique.

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Procedure

The eight adjectives which loaded most strongly each of the seven factor variables from the original item analysis were arranged in alphabetical order. Each adjective was followed by the numerals 1-5, with the word "No" over the column of ones, and the word "Yes" over the column of fives. The instructions at the top of the form were as follows: "Circle one of the five numbers after each of the following descriptive words to represent how well each one describes you. Try to describe yourself as you really are -- not necessarily as you would like to be."

This form, to be referred to subsequently as the ASD, was administered to all students enrolled in the introductory (junior year) course in Educational Psychology at the University of Texas as part of the psychological assessment program conducted by the Dean's Office. Subjects in two classes were retested after a one or two-week period.

The protocols of 713 female students and those of the 61 students (8 males, 53 females) who had been tested twice were converted to punch card form with an optical scanning machine. An item factor analysis was carried out with the sample of 713 females, in which seven factors were extracted and rotated by the varimax method. A hypothetical factor structure was then constructed, containing only ones and zeros to represent the selection of items for the original seven factor scales. An analytic technique (Veldman, 1967) was then used to re-rotate the empirical structure to maximize its fit to the theoretical pattern of item vectors.

Scale scores were then computed for each protocol by summing the seven sets of eight item self-ratings. An item analysis was also

computed which yielded alpha coefficients of internal consistency and item-total correlations for each scale. Test-retest stability coefficients were computed with the sample of 61 students, and the intercorrelations of the seven scales were obtained with the larger sample of females.

Finally, to gain some evidence regarding the concurrent validity of the ASD self-descriptions, Self-Report Inventory (SRI) protocols, which had been obtained in the same testing program that produced the ASD data, were utilized. All but 7 of the 713 females had completed both instruments. The SRI (Bown and Richek, 1967) was developed as a screening device and as an adjunct to counseling interviews. It consists of 48 Likert-scaled items which measure attitudes toward eight aspects of the respondent's phenomenological milieu. Correlations were computed for all pairings of the seven ASD and eight SRI scales.

Results

Table 1 lists the eight items selected to measure each of the seven factor variables defined in the original analysis of the ACL. For each factor-scale, the alpha coefficient of internal consistency and the test-retest stability coefficient are indicated. For each item, an estimate of "factorial fit" obtained from the process of empirical-theoretical structure comparison is shown, as well as the correlation between the item and its assigned scale-sum score. It is apparent from these data that the integrity of the seven sets of items is quite satisfactory, and exceeds that of many other personality inventories in common use, despite the brevity of the instrument.

Table 1

ASD Items Grouped as Selected,
With Coefficients of Stability and Internal Consistency

Adjective	Factorial Fit	Item-Total
Factor I. Social Warmth (α=.85, rt=.85)		
3. cheerful	.89	.64
9. gentle	.82	.72
11. good-natured	.90	.70
20. kind	.90	.77
28. pleasant	.88	.68
42. soft-hearted	.92	.66
47. sympathetic	.86	.69
55. warm	.87	.74
Factor II. Social Abrasiveness (α=.75, rt=.86)		
8. foolish	.82	.64
15. indifferent	.59	.48
19. irresponsible	.76	.67
21. lazy	.62	.64
25. obnoxious	.88	.61
33. reckless	.88	.66
36. rude	.87	.61
38. shallow	.86	.57
Factor III. Ego Organization (α=.84, rt=.88)		
6. efficient	.94	.75
17. industrious	.91	.69
26. organized	.95	.74

30.	practical	.90	.66
31.	precise	.89	.71
45.	stable	.66	.62
46.	steady	.76	.68
51.	thorough	.93	.69

Factor IV. Introversion/Extraversion (α=.88, rt=.92)

22.	loud	-.69	-.59
27.	outgoing	-.82	-.75
32.	quiet	.96	.81
35.	reserved	.97	.76
40.	shy	.96	.79
41.	silent	.95	.75
48.	talkative	-.82	-.73
52.	timid	.91	.72

Factor V. Neurotic Anxiety (α=.83, rt=.89)

1.	anxious	.97	.54
7.	emotional	.87	.59
23.	moody	.89	.73
24.	nervous	.94	.73
49.	temperamental	.89	.64
50.	tense	.94	.77
53.	touchy	.87	.67
56.	worrying	.96	.75

Factor VI. Individualism (α=.64, rt=.84)

5.	complicated	.79	.54
13.	idealistic	.83	.51
14.	impulsive	.66	.54
16.	individualistic	.90	.59
18.	insightful	.71	.47
34.	reflective	.79	.53
44.	spontaneous	.74	.52
54.	unconventional	.87	.59

Factor VII. Social Attractiveness (α=.69, rt=.80)

2.	charming	.88	.61
4.	clever	.61	.55
10.	good-looking	.95	.64
12.	handsome	.96	.48
29.	polished	.89	.61
37.	sexy	.91	.54
39.	sharp-witted	.51	.51
43.	sophisticated	.98	.64

Table 2 contains the transformation matrix which carried the empirical varimax loading matrix into maximum item-vector contiguity with the hypothetical (1-0) structure. The "success" of this re-rotation is reflected in the "factorial fit" coefficients of Table 1, but it is obvious from Table 2 that the two structures were very similar even before re-rotation.

Table 2

Correlations Between Empirical and Theoretical

ASD Factors Before Re-rotation

		Empirical Factors						
		I	II	III	IV	V	VI	VII
Theoretical Factors	I	.99	.04	-.06	-.13	.00	-.06	.00
	II	-.07	.97	-.19	-.12	.03	-.02	.01
	III	.05	.19	.97	-.03	-.05	.05	-.03
	IV	.13	.13	.00	.97	.05	.04	.11
	V	.00	-.03	.05	-.05	.99	-.01	-.01
	VI	.05	.00	-.05	-.03	.02	.99	-.1[illegible]
	VII	-.01	-.01	.04	-.11	.00	.13	.99

In Table 3 may be found the intercorrelations of the seven ASD scales, with their means and sigmas, based on 1-5 coding of the item choices (5=yes). Despite their strong internal consistency, the first three scales are far from independent. Skewness of the scale-score distributions probably had little effect here, since the most skewed variable (Social Abrasiveness) had a relatively symmetrical distribution (mean = 13.4, median = 12.8).

Table 3

Means, Sigmas and Intercorrelations of the ASD Scales

		I	II	III	IV	V	VI	VII
I.	Social Warmth		-.44	.31	-.09	-.10	.16	.22
II.	Social Abrasiveness	-.44		-.54	.01	.29	.07	-.12
III.	Ego Organization	.31	-.54		.01	-.24	-.04	.19
IV.	Introversion/Extraversion	-.09	.01	.01		.14	-.08	-.21
V.	Neurotic Anxiety	-.10	.29	-.24	.14		.13	-.07
VI.	Individualism	.16	.07	-.04	-.08	.13		.24
VII.	Social Attractiveness	.22	-.12	.19	-.21	-.07	.24	
	Means	34.6	13.4	31.3	21.3	24.1	27.9	25.8
	Sigmas	4.2	4.1	5.0	6.7	6.4	4.6	4.4

Table 4 contains the cross-correlations between the seven ASD and eight SRI variables. Although the primary focus of the SRI scales is upon attitudes toward the "external world" rather than aspects of self, these relationships do afford some logical support for the validity of ASD measures.

The Social Warmth scale correlates strongly with SRI attitudes toward other people, particularly children, but parents only slightly. It is also related to optimism about the future.

The Social Abrasiveness scale is negatively correlated with all of the SRI scales, particularly Self and Work.

The Ego Organization scale is very strongly related to attitude toward work, as well as self-esteem, authority figures, and optimism. It has little relationship to the measures of attitudes toward children or peers.

The Introversion/Extraversion scale is related negatively to attitudes toward self and others, but only mildly.

The Neurotic Anxiety scale is negatively related to all aspects of the SRI, especially self-esteem, but not significantly with attitudes toward children or peers.

The Individualism scale seems to measure an aspect of self-perceived personality not tapped by the SRI scales.

The Social Attractiveness scale is related to self-esteem and optimism, but only mildly.

Table 4

Significant ($p<.05$) Correlations

Between the Scales of the ASD and SRI Instruments

SRI Scale	I	II	III	IV	V	VI	VII
Self	.28*	-.35*	.34*	-.20*	-.34*	-.03	.24*
Others	.44*	-.16*	.08	-.27*	-.01	.02	.13
Children	.40*	-.21*	.17*	-.11	-.12	.05	.11
Authority	.28*	-.29*	.34*	-.13	-.20*	-.11	.09
Work	.12	-.39*	.51*	.02	-.23*	.02	.07
Reality	.11	-.07	.08	-.08	-.26*	.08	.01
Parents	.16*	-.26*	.25*	-.07	-.16*	-.13	.08
Hope	.37*	-.27*	.31*	-.13	-.22*	.05	.18*

Discussion

The relationships between the empirical and hypothetical factor structures shown in Table 2 confirm the integrity of the trait factors derived from the original item analysis of the complete ACL. To a remarkable extent, this factorial invariance holds across changes in item format, as well as subject populations, suggesting that these seven factor variables may be useful as dimensions of personality organization, at least among college students.

The factor scores used for the intercorrelations shown in Tables 3 and 4 were computed as the simple sums of the self-ratings on the eight adjective items which loaded each factor most heavily in the original factor analysis of the ACL. As Glass and Maguire have noted (1966), "factor scores" calculated in this manner are often highly correlated, and may not represent the pure factor dimensions very accurately. In a reply to Glass and Maguire, Schweiker (1967) pointed out that for many research purposes the crude sort of unit-weighted factor measures may have advantages over orthogonal regression-weighted scores. Among these advantages are ease of computation, less susceptibility to distortion in application to a new sample of subjects, and more direct interpretation.

In the context of the present investigation, orthogonal factor scores seemed less desirable than the more direct Likert-type scale scores. Despite the rather strong relationships that exist among three of the seven scales, the alpha coefficients and item-total correlations support their integrity as measures of distinctly different aspects of self-perception. However, we did calculate regression-weighted factor scores using the re-

rotated factor loadings discussed earlier. As expected, these factor variables had negligible intercorrelations. When correlated with the corresponding scale-sum variables, coefficients ranging from .77 to .97 were obtained, but when correlated against the SRI variables, most of the significant coefficients shown in Table 4 were substantially reduced.

As an alternative to standard questionnaires and self-descriptive checklists, the instrument described here has a number of advantages. First of all, the traits were extracted from the actual self-descriptive behavior of a large group of subjects, rather than posited on the basis of intuition about personality structure. The traits have been identified reliably on the basis of two different measurement procedures. Also, the device is capable of fast and straightforward administration, and arouses a minimum of subject resistance. It is easily scorable by hand, and could be adapted to machine answer-sheet requirements with little difficulty.

The present investigation has confirmed the integrity of the seven major traits of self-description obtained from the full ACL, and has demonstrated the internal consistency and test-retest stability of the scale scores. Evidence for the concurrent validity of the measures against an independently derived and validated self-descriptive instrument was also reported. The technique has many theoretical and practical features which warrant further research regarding its validity relative to other psychological assessment procedures.

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