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ABSTRACT

The Tennessee Self Concept Scale (TSCS) contains 100 items and 12 scales designed to assess self concept in three areas: total self esteem, self-criticism, and self-consistency. One hundred and seventeen females and three males, 75% of whom were black, attending a Work Incentive training program were administered the TSCS to examine its construct validity within a target rehabilitation population. The trainees' responses were factor analyzed. From analysis of the scales, self esteem and conflict integration factors were extracted and rotated. The correlation obtained between these two factors was in a negative direction, indicating that as inconsistency increases in the self-configuration, self-esteem decreases, and vice versa. Item analysis produced 21 factors, of which two higher order factors, representing a differential response bias to negative and positive self-statements, were extracted and rotated. Sample items are appended. Factor analysis of items and scales did not support W. H. Fitts' contention that the self esteem component of self concept is composed of internal and external dimensions which individuals use as frames of reference when describing themselves. The complexity of the TSCS is partially attributed to an inherent reponse bias, and rehabilitation counselors are cautioned in the use of the instrument. (Author/JAC)

Tennessee Self Concept Scale: Factor Analysis Using a Rehabilitation Population

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Running Head: Factor Analysis of Self Concept Scale

Abstract

The purpose of the present study was to examine the construct validity of the Tennessee Self Concept Scale (TSCS) within a target rehabilitation population. One hundred and twenty adults (117 females and 3 males) attending a Work Incentive (WIN) training program in New York City were administered the TSCS. The trainees' responses for both the scales and items of the instrument were factor analyzed. The analysis of the twelve scales resulted in two factors being extracted and rotated. The analysis of the items produced 21 factors of which two higher order factors were extracted and rotated. The proposed dimensions for interpretation of the TSCS were not evident when either the scales or the items were factor analyzed. The results suggest that the counselor within a rehabilitation program exercise caution in the use of the instrument.

Tennessee Self Concept Scale: Factor Analysis Using a Rehabilitation Population[1]

An improvement in the efficiency of a rehabilitation program can be accomplished when dispositional factors which moderate program-client interaction are known. According to Fitts (1972), to enhance the effectiveness of a rehabilitation program, counselors should assess the clients' self-concept. Fitts operationalized this factor with the Tennessee Self Concept Scale (TSCS) (1965).

Fitts proposed that the self-esteem component of the self-concept is composed of two dimensions that individuals use as frames of reference when they describe themselves: an internal dimension, and an external dimension. Empirical validation of these two structures would enhance the value of the TSCS as a rehabilitation counseling instrument.

Factor analytic studies attempting to assess Fitts' proposed self-esteem model (Rentz & White, 1967; Vacchiano & Strauss, 1969; and Gable, LaSalle & Cook, 1973) have all failed to validate the two constructs. However, all three studies were restricted to college students as subjects. Therefore, the purpose of the present study is to examine the construct validity of the TSCS within a target rehabilitation population.

Method

Subjects

One hundred and twenty adults (117 females and 3 males) attending a Work Incentive (WIN) training program in New York City

were administered the TSCS. Their ages ranged from 18 to 50 years, with a mean age of approximately 33 years. The ethnic background of the respondents was approximately 75% Black, 19% Hispanic, and 6% White.

The criteria for acceptance into the program were an attained reading level above the sixth grade and receipt of public assistance.

Instrument

The clinical and research form of the Tennessee Self Concept Scale (1964) was used to represent each trainee's self-concept. The instrument contains 100 self-descriptive statements of which ninety items form a 3 X 5 self-esteem matrix. The rows (3) and columns (5) are indicative of the frame of reference the respondents use to convey their self image. The items are responded to on a five-point scale and are equally distributed within the scheme and balanced within each cell in terms of a statement polarity, i.e., there are an equal number of negative and positive self-descriptions. Additionally, the instrument allows the user to generate various scales which reflect intra-self attributes (e.g., conflict) of the respondent.

The 12 scales which compose the self-concept of the TSCS can be grouped into three areas: Total Self Esteem, Self Criticism, and Self Consistency.

The Total Positive (i.e., Total Self Esteem) is composed of, and equal to, the sum of the Row scales: Identity, Self-

Satisfaction and Behavior, or the sum of the Column scales: Physical, Moral-Ethical, Personal, Family and Social Self.

The Self Criticism scale is composed of ten items that were taken from the L-scale of the MMPI and are measures of definsiveness.

Self Consistency is measured on three scales: Total Variability, the variance of the self image from one area of self perception to another; Total Conflict, differences in self perception within the same area; and Certainty, the certainty respondents have of their self image.

Procedure

The TSCS was group administered to five groups of trainees during the early stages of the program (approximately the fourth week). The experimenter, upon distributing the test to each group, instructed the trainees to read the instructions silently. In addition, the experimenter carefully verbalized the instructions to ensure comprehension. Trainees were also informed that there were no consequences if they did not wish to participate and that all responses would be kept confidential.

Analyses

Two correlation matrices were developed from the trainees' responses. The first matrix represents the 12 scales of the TSCS and the second represents the 100 self-descriptions. The means and standard deviations for the 12 scales are shown

in Table 1. In general, the self perceptions of the trainees

Insert Table 1 about here

are quite similar to those of the group used to standardize the instrument (Fitts, 1965, p. 14).

The two matrices were analyzed with a principal component procedure and rotated to an oblique simple structure[3] (Harris-Kaiser Technique, Harris and Kaiser, 1964). Latent roots greater than one was the criterion used to extract factors from the scale matrix; for the item matrix, a combination of criteria were used: latent roots greater than one, and discontinuities in the distribution of latent roots (Gorsuch, 1974).

Results and Discussion[4]

The analysis of the twelve scales resulted in two factors being extracted and rotated; however, these factors were not consistent with Fitts' internal/external dimension. The strong similarity between the obtained pattern matrix (see Table 2)

Insert Tables 2 & 3 about here

and those that have been reported in previous investigations (see Table 3) suggest that the two factors, Self-Esteem and Conflict-Integration, are invariant across both samples and analytic techniques. The first factor, Self-Esteem (47% of

the total variance), consists of the eight self-esteem scales and the certainty scale. The second factor, Conflict-Integration (17% of the total variance), consists of the self-criticism scale and the self-consistency scales. The correlation obtained between the two factors in the present study was in a negative direction (-.48), indicating that as inconsistency increases in the self-configuration, self-esteem decreases, and vice versa. This reciprocal relationship between the two factors is in agreement with contemporary self-conception models (e.g., Festinger's dissonance model), but not in agreement with the postulated bi-dimensionality of the Tennessee Self Concept Scale.

Gable, et al. (1973) suggest that the spurious correlations resulting from items appearing in more than one scale prevent an adequate assessment of the instrument. They suggest that an analysis of the items would bypass this difficulty. Thus, in the present study the correlation matrix developed from the items was factor analyzed.

The analysis of the items produced 21 factors (accounting for 62% of the variance) which were strikingly dissimilar to those factors reported in the 1973 study by Gable, et al. In order to explore these factors further, a principal factor procedure (multiple correlations as estimates of the communalities) was performed on the primary factors. Two higher order factors were extracted and rotated to an oblique simple structure.

These two factors represented a differential response bias to negative and positive self-statements; that is, the polarity of the items defining the primary factors determined under which higher order factor the primary factor loaded. An example of four primary factors with item listings for the two higher order factors is shown in Table 4. Each item in the table has been defined in terms of an internal or external scale, code, polarity (negative or positive statement) and abbreviated description. Primary Factors I & VI, which load on the first

Insert Table 4 about here

higher order factor, are distinct from Factors II & VIII in that the former pair are positive self-statements while the latter pair contain negative self-statements. This tendency, positive statements loading on the first higher order factor and negative statements loading on the second higher order factor, was maintained for most of the remaining 17 primary factors. Thus, the analysis at the item level did not lend support to Fitts' contention but did provide insight into some of the apparent complexities of the instrument.

The extraction of large numbers of factors resulting from the factoring of the items of the TSCS has led researchers (Vacchiano, et al., 1968 and Gable, et al., 1973) to conclude that the TSCS is a "complex" instrument. However, a conclusion

that can be drawn from the present study suggests that the instrument's complexity can be attributed to its inherent response bias. It is assumed that a factor analysis of the items would reconstruct Fitts' 3 X 5 self-esteem matrix (i.e., produce 15 factors), and that higher order factors would reflect his two dimensions. However, if each cell of the self-esteem matrix contains both response bias and unique variation, then we would expect a 30 factor solution at the primary level.

Further complications arise from small sample size, making interpretation of the primary structure of the items difficult. Thus, subsequent studies directed toward the validation of Fitts' constructs need to either control or eliminate the response bias and the statistical tools being used require larger numbers of subjects than have been used.

In summary, this suggests that the applicability of the TSCS for counselors in rehabilitation programs seems questionable. The instrument appears susceptible to response bias and provides no means for the counselor to objectively adjust the self-esteem scales. Further, the proposed dimensions for interpretation of the self-esteem scales were not evident when either the scales or the items were factor analyzed. It is suggested that caution be exercised in the use of this instrument in rehabilitation populations until further research directed toward content and construct validity support the scheme of the TSCS.

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Footnotes

[1] This paper was presented at the Annual Meeting of the Eastern Psychological Association, 1977. The assistance of Susan Bulka, Denise Phillips and Christine Debany is gratefully acknowledged.

[2] Requests for reprints should be sent to John J. Mitchell, Psychology Department, Pace University, New York, New York 10038.

[3] The oblique solution was used in the 1973 study by Gable, et al.

[4] Statistical tables which were not included in the text are available from the authors upon request.

Table 1

Means and Standard Deviations

Scale	M	SD
Self-criticism	34.27	6.23
Total Conflict	37.94	10.83
Total Variability	51.98	13.20
Row Scales - Internal Dimension		
Identity	103.72	9.19
Self-satisfaction	110.98	14.69
Behavior	116.67	12.83
Column Scales - External Dimension		
Physical Self	71.76	8.87
Moral-Ethical Self	73.43	7.49
Personal Self	68.63	7.93
Family Self	73.20	8.79
Social Self	71.35	6.58
Certainty	136.79	22.73

Table 2

Pattern Matrix for Twelve Scales of the TSCS

	Factors	
Scale	Self-Esteem	Conflict-Integration
Self-criticism	-.01	(.59)
Total Conflict	.03	(.70)
Total Variability	-.05	(.55)
Identity	(.88)	.16
Self-satisfaction	(.75)	-.27
Behavior	(.79)	-.15
Physical Self	(.64)	-.25
Moral-Ethical Self	(.79)	.07
Personal Self	(.73)	-.24
Family Self	(.76)	-.09
Social Self	(.78)	-.01
Certainty	(1.01)	(.55)

Note. Entries greater than .40 have been enclosed in parentheses.

Table 3

Rotated Factor Patterns Across Studies

	Rentz, et al., 1967		Gable, et al., 1973		Salbod, et al., 1977	
Scales	Factor I	Factor II	Factor I	Factor II	Factor I	Factor II
Self-criticism		.70		.64		.59
Total Conflict		.64		.64		.70
Total Variability		.76		.84		.55
Identity	.86		.86		.88	
Self-satisfaction	.83		.84		.75	
Behavior	.84		.88		.79	
Physical Self	.76		.51		.64	
Moral-Ethical Self	.76		.84		.79	
Personal Self	.77		.86		.73	
Family Self	.77		.84		.76	
Social Self	.72		.84		.78	
Certainty	.87		.74	.60	1.01	.55

Note. Only loadings greater than .40 are shown.

Table 1

Scale Codes, Item Stems, and Loadings for Four Item Factors

Factor	Scale Codes			Item Description	Loading
	Int	Ext	Polarity		
I	S	Ph	7P	Am neither too fat nor too thin.	.46
	S	Ph	9P	Like my looks just the way they are.	.74
	S	Ph	11N	Like to change some parts of my body.	.48
	S	Pe	43P	Satisfied to be just what I am.	.67
	S	Pe	44P	Am as smart as I want to be.	.47
	S	Pe	45P	Am just as nice as I should be.	.57
	S	F	61P	Satisfied with family relationships.	.49
II	S	M	28N	Wish I could be more trustworthy.	.49
	S	M	30N	Shouldn't tell lies.	.48
	S	F	65N	Should trust my family more.	.51
	S	F	66N	Should love my family more.	.59
	S	S	82N	Should be more polite to others.	.72
	S	S	84N	Ought to get along better with others.	.65
VII	S	Ph	8P	Am neither too tall nor too short.	.43
	I	M	19P	Am a decent sort of person.	.70
	I	M	21P	Am an honest person.	.66
	B	F	69P	Take a real interest in my family.	.56
	I	S	73P	Am a friendly person.	.40
	S	S	79P	Am as sociable as I want to be.	.52
VIII	S	F	64N	Am too sensitive to things my family say.	.54
	B	F	70N	Quarrel with my family.	.53
	B	S	88N	Do not feel at east with other people.	.74
	B	S	90N	Find it hard to talk with strangers.	.53