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ABSTRACT

Fundamental Interpersonal Relations Orientation Behavior Scale for Children (FIRO-BC) is a self-report measure of 9- through 13-year-old children's interpersonal behavior on six dimensions: expressed-inclusion, wanted-inclusion, expressed-control, wanted-control, expressed-affection, and wanted-affection. This investigation examined the factor structure and factor stability of the FIRO-BC. Additionally, an attempt was made to empirically determine the concurrent validity of the three interpersonal behavior areas measured by the FIRO-BC (inclusion, control, and affection) using peer-nomination data. Data were collected from public school students in two administrations, one year apart (n=282; n=226). Approximately 39 percent of the subjects took part in both. It was determined that a six factor solution was stable across test administrations, but that the FIRO-BC scales do not appear to adequately measure the theoretical constructs which were hypothesized by Schutz (1958). (Author/BS)

The Factor Structure and Concurrent Validity of the FIRO-BC

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Abstract

The current FIRO manual (Schutz, 1978a) presents no data on the validity of the FIRO-BC; reliability data have recently been provided (Burton & Goggin, 1984). This investigation examined the factor structure and factor stability of the FIRO-BC. Additionally, an attempt was made to empirically determine the concurrent validity of the three interpersonal behavior areas measured by the FIRO-BC (i.e., Inclusion, Control, and Affection) using peer-nomination data. Data were collected using two test administrations, which were separated by a 12-month period. It was determined that a six factor solution was stable across test administrations, but that the FIRO-BC scales do not appear to adequately measure the theoretical constructs which were hypothesized by Schutz (1958).

The Factor Structure and Concurrent Validity of the FIRO-BC

Schutz (1978b) developed the Fundamental Interpersonal Relations Orientation Behavior Scale for Children (FIRO-BC), which is a self-report measure of 9-13 year old children's interpersonal behavior on six dimensions (i.e., Expressed-Inclusion, Wanted-Inclusion, Expressed-Control, Wanted-Control, Expressed-Affection, and Wanted-Affection). The current manual (Schutz, 1978a) presents no data on the questionnaire's reliability or validity. Recently, reliability data were provided (Burton & Goggin, 1984). The purpose of this investigation was two-fold. First, data were obtained in order to examine the factor structure of the test. Secondly, peer-nomination data were obtained in order to assess the concurrent validity of the areas of interpersonal behavior that are measured by the FIRO-BC (i.e., Inclusion, Control, and Affection).

Dobson and Gray (1976) provided validity data on the FIRO-BC Inclusion scales with fifth-grade subjects. Children nominated peers from their own classrooms whom they would choose: (a) "to work with on a school project," (b) "to play with at recess," and (c) "to invite to their birthday party." From a pool of 437 children, 15 were identified as "isolates" and 13 as "stars." Dobson and Gray found that the two groups

differed significantly on the two Inclusion scales, but not on the other four scales. These findings support the notion that the Inclusion scales measure "popularity" or inclusion, as theorized.

The present study was an attempt to replicate Dobson and Gray's findings regarding the Inclusion scales, as well as to provide validity data on the remaining two behavioral areas measured by the FIRO-BC, i.e., Control and Affection. Peer-nominations were obtained in the present study on the dimensions of popularity, leadership, and affection.

It was hypothesized that: (a) the popularity measure would correlate positively with the Inclusion scale score (Wanted-Inclusion + Expressed-Inclusion); (b) the leadership measure would correlate positively with the Expressed-Control scale; (c) the leadership measure would correlate negatively with the Wanted-Control scale; and (d) the friendship measure would correlate positively with the Affection scale score (Expressed-Affection + Wanted-Affection).

METHOD

Subjects

The subjects were 9- through 13-year-old children, who were enrolled in a public school system which is located in southern Mississippi. The first test administration included 282 subjects; the second

administration included 226 subjects.

Instrument

The FIRO-BC has 54 Likert-type items. Each item was scored as "accepted" or "rejected" in a Guttman scaling procedure, as described in the manual (Schutz, 1978a).

Procedure

The children, in their classrooms, were presented with a consent form, which was to be completed by a parent. One week later, the first author returned to the classrooms to reissue consent forms as needed. One week later, the FIRO-BC was administered as described in the manual (Schutz, 1978b); the testing-groups ranged from 20-25 children each. One year later, the above procedure was again followed for the second administration of the FIRO-BC. Approximately 60% of the parents consented to their children's participation in this investigation. Approximately 39% of the subjects took part in both administrations.

The second administration also included the collection of peer-nomination sociometric data on three dimensions. The subjects were asked to nominate, within their classrooms: (a) "the five most popular children," (b) "the five best leaders," and (c) "their five best friends." The use of peer-nomination data has been previously shown to be a valid means of categorizing children's behavior (Dobson & Gray, 1976; Lefkowitz & Tesiny, 1980).

RESULTS

The peer-nomination data were used to assess the FIRO-BC's concurrent validity; each child's score on each of the three sociometric measures was transformed to a standard score in order to facilitate intersubject comparisons. In contrast to Dobson and Gray (1976), who restricted the comparison to extreme scores, the present study employed a regression strategy in analyzing the data, thereby examining the entire range of the relationship between the sociometric measures and the FIRO-BC scale scores.

Stepwise multiple regression analyses revealed significant relationships, between the children's FIRO-BC scale scores and their rankings on the sociometric measures. As hypothesized, the Inclusion scale score accounted for the largest portion of the variance for the Popularity measure, $R=.25$, $F(3,222)=4.82$, $p<.005$. The single best predictor of Leadership was Expressed-Control, $R=.30$, $F(5,220)=4.37$, $p<.005$, as hypothesized. The Friendship measure was not correlated with affection, but it was with the inclusion, $R=.31$, $F(3,222)=7.81$, $p<.001$, measure. There was no significant relationship between Wanted-Control and Leadership. Despite the significant relationships, however, the percentage of variance among the sociometric measures which was accounted for by the

FIRO-BC scores ranged from only 5% to 9%.

Table 1 displays the factor structures for the two FIRO-BC administrations. A verimax rotation was used with 1.0's as the diagonal elements. As theorized by Schutz (1958), a six-factor solution was examined. Two findings are especially noteworthy: (a) each scale loads significantly on only one factor, with near-zero loadings on each other factor; and (b) the factor structures were almost identical across the two administrations. An Image analysis was conducted on the scale items to determine whether each item would load on the appropriate scale, as theorized by Schutz. A criterion loading of .30 was used to determine inclusion of an item on a factor. A liberal estimate was used to compensate for the restricted range of possible inter-correlations when using dichotomous variables with skewed distributions (Guilford & Fruchter, 1978).

The findings for the second testing are presented in Table 2, and are summarized below. Fifteen of the 18 items from the two Inclusion scales loaded together on a single factor (Factor I). All of the Expressed-Control scale items loaded on one factor (Factor II), along with five additional items (two negatively) from the Expressed-Affection scale and one Wanted-Inclusion item. Eight of the nine Wanted-Control scale items loaded on one factor (Factor III). Seven of the nine

Wanted-Affection scale items loaded (three negatively) on one factor (Factor IV), along with three (one negatively) Expressed-Affection , three (two negatively) Wanted-Inclusion , and one (negative) Expressed-Inclusion item. The negative loadings suggest that this factor (Factor IV) reflects avoidance of Affection and Inclusion or "unwanted-affection." Factor V consisted of three Expressed-Control items (which had negative loadings), three Wanted-Affection items, and one each from the Expressed-Inclusion and Wanted-Control scales. Affection appears to be a principal component of this factor, but with a need to be controlled. The final factor consisted of only 5 items, only one (Item 20) of which was unique to that factor. This factor (Factor VI) consisted of three Expressed-Affection, one Wanted-Affection, and one Expressed-Inclusion scale items. Factor VI appears to reflect "Expressed-Affection." Only Items 2 and 54 failed to load on at least one of the above factors.

DISCUSSION

The most impressive finding of this study is of the factor structure of the FIRO-BC. As theorized, a six-factor solution represented the scales in a remarkable fashion, and the factor structures were almost identical across the two administrations. An item-by-item subscale analysis suggests that many of

the subscale items should be reorganized, as shown in Table 2. Based on the Image analysis of the six factors, the six FIRO-BC scales appear to measure the following constructs: Inclusion (Factor I), Expressed-Affection and Expressed-Control (Factor II), Wanted-Control (Factor III), "Unwanted" Affection (Factor IV), Wanted-Affection and Wanted-Control (Factor V), and Expressed-Affection (Factor VI). One constraint in attempting to name these factors arises from the present authors' decision to utilize the theoretical framework put forth in the test's development (Schutz, 1958). Further research may provide an alternative conceptualization of these results.

Based on the peer-nomination data, it would appear that the Expressed-Control scale might serve as a moderately good predictor of leadership behavior. It would also appear that the Inclusion scale score (Wished-Inclusion + Expressed-Inclusion) might be a moderately good predictor of popularity and friendship. The latter findings are in agreement with those of Dobson and Gray (1976). However, the FIRO-BC accounted for only a small percent of variance among the sociometric measures suggesting that other variables contributed far more to the group differences in popularity, leadership, and friendships than did the FIRO-BC scale scores. Because the validity of peer-

nominated data has been previously supported these findings suggest that the FIRO-BC scale scores are influenced by factors other than what they proport to measure. These findings highlight the need to report the magnitude of "significant" relationships so that their practical importance can also be examined.

In addition, in drawing conclusions from the data presented here, two cautions are in order. First, a sampling bias may be present in that the study relied on volunteer participants. Second, 39% of the subjects were involved in both test administrations and, therefore, the stability of the factor structures may be spuriously high. On the other hand, the factor similarities reported here can not be explained merely by correlated samples.

The findings suggest that the FIRO-BC does measure six independent factors, but leaves unclear which interpersonal behaviors are being measured. When using this instrument to make clinical judgements which are based on scale scores, therefore, it is critically important to be aware that the scales may only partially reflect the constructs that they proport to measure. Additional research is needed to further assess the validity of these scales.

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Table 1

Factor loadings for the six FIRO-BC scales (N=282); the data from the second administration are in parentheses (N=228).

	Factor					
	I	II	III	IV	V	VI
Expressed						
Inclusion	.889 (.919)	-.029 (-.021)	.096 (.040)	.200 (.176)	.239 (.181)	.318 (.299)
Control	-.021 (-.015)	.985 (.970)	.087 (.139)	-.136 (-.183)	-.029 (-.070)	.045 (.021)
Affection	[illegible]74 ([illegible]2)	-.159 (-.239)	.035 (-.000)	.938 (.891)	.222 (.284)	.117 (.179)
Wanted						
Inclusion	.314 (.355)	.063 (.032)	.084 (.018)	.127 (.187)	.277 (.283)	.893 (.870)
Control	.073 (.033)	.086 (.130)	.990 (.990)	.031 (.001)	.033 (.033)	.065 (.015)
Affection	.237 (.193)	-.038 (-.086)	.040 (.042)	.255 (.276)	.893 (.900)	.279 (.260)

Note: A varimax rotation was performed; the diagonals were unaltered.

TABLE 2

ITEM NUMBERS OF THE SIX-FACTOR SOLUTION FOR THE FIRO-BC.

	FACTOR				
	I	II	III	IV	VI
INCLUSION		EXPRESSED AFFECTION & EXPRESSED CONTROL	WANTED CONTROL	UNWANTED AFFECTION	WANTED AFFECTION & WANTED CONTROL	EXPRESSED AFFECTION
	3 (WI)	1 (EC)	4 (WC)	9 (-WC)	5 (WA)	20 (EA)
	5 (WA)	6 (EC)	9 (WC)	10 (-WA)	23 (EI)	25 (EA)
	8 (WI)	7 (EA)	14 (WC)	13 (-WI)	27 (WC)	31 (EA)
	17 (WI)	11 (EC)	21 (WC)	15 (-WA)	28 (WA)	40 (WA)
	18 (WC)	12 (EA)	27 (WC)	16 (-EA)	36 (-EC)	49 (EI)
	22 (WA)	16 (EA)	33 (WC)	17 (-WI)	40 (WA)	
	23 (EI)	24 (EC)	39 (WC)	19 (WA)	42 (-EC)	
	25 (EA)	25 (-EA)	45 (WC)	22 (WA)	48 (-EC)	
	26 (WI)	30 (EC)		25 (EA)		
	29 (EI)	36 (EC)		34 (-WA)		
	31 (EA)	39 (WC)		40 (WA)		
	32 (WI)	42 (EC)		43 (EA)		
	34 (WA)	43 (-EA)		46 (WA)		
	35 (EI)	48 (EC)		50 (WI)		
	37 (EA)	52 (EC)		53 (EI)		
	38 (WI)					
	41 (EI)					
	44 (WI)					
	46 (WA)					
	47 (EI)					
	50 (WI)					
	51 (EI)					
	53 (EI)					

NOTE: A CRITERION OF .30 WAS ESTABLISHED FOR INCLUSION OF AN ITEM ON A FACTOR. THE MINUS SIGN INDICATES A NEGATIVE LOADING FOR THAT ITEM. THE ACTUAL FIRO-BC SCALE FOR EACH ITEM IS LISTED IN PARENTHESES WITH THE ITEM NUMBER.