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Predicting Variability from Perceived Situational Similarity

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An interactional approach to the issue of transsituational consistency which relates persons and situations via the mediating variable of a person's world view was suggested. A model for the mediating variable was proposed which emphasized the idiographic distortions of a shared nomothetic structure of the world. This model was tested by using the INDSCAL algorithm to recreate 100 individuals' judgments of similarity between 28 pairs of social situations. These INDSCAL-derived similarities (which conform to the model of the proposed mediating cognitive structure) significantly predicted variability across the situations for 58% of the subjects. The most predictable 50 subjects had an average correlation of .38 between the INDSCAL-recreated similarities and their self-reported transsituational variability. The least predictable 50 subjects had an average correlation of only .09. The degree of fit of the INDSCAL model to the initial data was significantly related ($r = .39$) to how well a particular subject's variability scores could be predicted from the INDSCAL model. The advantages of the proposed idiographic/nomothetic model over a purely idiographic model were discussed.

A persistent controversy in personality theory is the issue of transsituational consistency in behavior. Personality trait theorists assume that individual differences in behavior are consistent from situation to situation. On the other hand social learning theorists claim there is little consistency across situations in behaviors such as aggression, anxiety, conformity, attitudes toward authority, and other traits (Endler & Magnusson, 1976; Mischel, 1968). However, even these critics of trait models agree that intellectual and other cognitive variables are fairly stable (Mischel, 1973). This has led to attempts to frame the trait–situationist con-

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troversy in terms of an interactional model in which cognitive variables are seen as relatively stable mediating variables, relating situations to behavior (Endler & Magnusson, 1976; Magnusson & Endler, 1977). In Magnusson and Endler's (1977) terms, an individual's reactions, or behaviors, are inextricably related to the person's mediating systems—the unique ways in which information about the world is selected and interpreted—and the situation as interpreted by the mediating cognitive system.

Such an interactional model makes the perception of the world (Magnusson & Ekehammer, 1975), or the construing of the world (Kelly, 1955), the independent variable, and behaviors or reactions to the world become the dependent variables. As behavior is related to the psychological meaning of situations, it follows that individuals may differ in the meanings they attach to situations (Magnusson & Ekehammer, 1975; Mischel, 1973). Inconsistency, then, may reflect "a discrepancy between the individual's construct (mediating) system and the investigator's, not actual inconsistency within the individual" (Bem, 1977, p. 328). Nomothetic procedures, such as trait measures, assume that the behaviors and situations relevant to the investigator will be equally relevant to others. For example, "going to parties" and "talking to strangers" may appear to the investigator to be reflecting the dimension "friendly–unfriendly." However, individuals who construe these situations as reflecting social anxiety will appear to the investigator to be inconsistent in their friendliness behavior, but will be consistent within their own mediating systems. This leads to the basic proposition for the present study: *The construing of situations by an individual as similar leads to consistency in responses to those situations. Obversely, perceiving situations as dissimilar leads to inconsistency in responding.*

There is some support for this proposition that reactions to situations relate to perceptions of these situations (Magnusson & Ekehammer, 1975, 1978). Magnusson and Ekehammer (1975) reported a high congruence between the group factor structures of the perceptions of situations and reactions to these situations. While the first three factors of perceived similarities of situations had a high congruence with the corresponding factors of reported reactions to these situations, a fourth factor failed to show a correspondence. This result is probably due to the problem mentioned earlier; nomothetic procedures, in this case a factor structure derived from the group's perception of situations, may not produce a structure similar to the individual's structure. The fourth factor, "ego threat," would tend to elicit more idiosyncratic reactions than the first three factors ("threat of punishment," "threat of pain," and "inanimate fear") where more homogeneous reactions may be expected. This suggests that group or nomothetic approaches in the interactional model are limited to those cases where individuals' perceptions of situations are similar to

the group perception. There are times when individual and group perceptions will coincide (Magnusson, 1976), making prediction of the individual's reactions from group perception possible. By focusing on the individual's perceptions, however, even individuals whose perceptions of situations differ from the group perceptions may be predictable. Using such an idiographic approach Magnusson and Ekehammer (1978) found that the reactions to situations of 33–44% of their subjects could be predicted from their perceptions of these situations.

The present study maintains this emphasis on idiographic, as well as nomothetic, approaches. The individual's perceptions of situations are seen as determined by his or her construct systems. These construct systems can be understood as implicit conceptual schemata, or cognitive generalizations, that are derived from past experiences and encode and represent information from the world (Cantor & Mischel, 1977; Markus, 1977). With Kelly (1955), we view the crucial function of such constructs as enabling individuals to perceive the world in terms of similarities and dissimilarities. However, no matter how stable the construing of the world in terms of these constructs may be, little can be done with such an approach if these constructs are as totally idiographic as Kelly believed. Without nomothetic principles that apply to all these idiographic construct systems, no meaningful comparisons between individuals can be made. Consequently, we assume that while people have their own unique way of construing the world, the world that is construed is common to all people. Moreover, the basic constructs used in construing the world are assumed to be nomothetic; individuals will use these general or common constructs to a greater or lesser extent in their personal construing of the world. Using the example mentioned previously, the situations "going to parties" and "talking to strangers" may reflect both a friendliness dimension as well as a social anxiety dimension; these would be common constructs shared by most people in their construing of these two situations. Individual differences would be reflected in the relative importance of these two dimensions; for some individuals both dimensions might be salient in their construing of these situations, while others might perceive one dimension to be more salient than the other in their personal construing of the situations.

As already noted, the construing of situations as similar should lead to consistency in responses to these situations. This consistency can be observed by one's self or others; the former involves self-reports, the latter observations of the person's actual behaviors. Self-reported consistency has been shown to moderate the relationship between various behavioral manifestations of several traits in both self-reports and observations by others (Bem & Allen, 1974). For instance, the response to the item "how much do you vary from one situation to another in how friendly and outgoing you are" moderated the relationship among six measures of friendliness, including self-report, parental, and peer

ratings. For subjects who felt they did not vary, the average intercorrelation of these six variables was .57, while for those subjects who reported that they were highly variable the average intercorrelation was only .27. Similar though weaker results were found for the trait of conscientiousness when using variability in conscientiousness as a moderator (Bem & Allen, 1974).

The present study hypothesized that self-reported variability is a function of the perceived similarity of situations. That is, those individuals who perceive two situations as very similar should vary less in their observed behavior and report more consistency across these two situations than those individuals who perceive the situations to be very dissimilar. Individual differences in perceived similarities can be analyzed using either an idiographic or a nomothetic model. Treating each individual's responses uniquely leads to an idiographic solution reminiscent of Kelly's personal construct model. Treating each individual's responses as distortions of a world view shared by others, the model advocated in this paper, allows for a powerful nomothetic approach. One useful way to study these distortions of a common world view is to use algorithms developed to account for individual differences in multidimensional scaling. Such an algorithm is INDSCAL (Carroll & Chang, 1970), which assumes that while people perceive particular domains of stimuli with a common set of dimensions, these dimensions are differentially important for different people. INDSCAL provides two "spaces": one is a common or group space, which represents euclidean distances between the stimulus points; the other space is an individual's unique space which represents that person's "distortion" of the group space in terms of idiographic weightings of the group (nomothetic) dimensions. This distance can be found by utilizing either one or all dimensions:

$$d_{ijk}^2 = \sum_{t=1}^{r} W_{it} (X_{jt} - X_{kt})^2$$

where d_{ijk}. is the distance between stimulus j and stimulus k for subject i, w_{it} is the weight on dimension t for subject i, and X_{jt} and X_{kt} are the coordinates of the two stimuli on dimension t.[1]

[1] Several points about the use of INDSCAL should first be made: (1) the procedure we use to evaluate individual differences in the perception of situations was one (INDSCAL) of several possible algorithms. Other possible scaling algorithms which could have been used are three-mode factor analysis (Tucker, 1972) or COSPA (Schonemann et al., 1976). (2) Although the emphasis has been placed upon individual differences in perception, these algorithms also allow one to consider subgroup differences. Thus, Wish, Deutsch, and Biener (1968) found differences in the perception of nations to be related to group differences in attitudes toward the Viet Nam war. Similarly, Wainer, Hurt, and Aiken (1976) have reported differences in perception of the Rorschach ink blots as a function of schizophrenia versus depressive diagnosis. Alternative uses of these procedures could be used to find differences in the construct systems of groups differing in age, sex, or ethnic background.

Overview of Present Study

Subjects reported how similar they perceived eight situations to be and how much they varied in four types of behavior between those situations. The purpose of this study was to predict individual variability between these situations in terms of an "idiographic distortion of a nomothetic structure" model of the perceived situational similarities. INDSCAL provided a measurement model which conformed to such a theoretical model. Individuals can be predicted from three different types of perception data: (1) idiographic data—using the similarity data of each individual, (2) nomothetic data—using the nomothetic structure of the group perception estimated by INDSCAL, (3) idiographic distortions of the nomothetic structure, referred to as idiographic/nomothetic data, also estimated by INDSCAL. Thus the model for the mediating system presented in this paper can be tested against these other two models.

All three types of perception data provide an estimate of the "distance" between the situations judged; situations "close" to each other (in INDSCAL Euclidean space) are judged to be similar. Such distances should therefore predict reported variability between these situations; the less similar two situations are, the more behaviors should be reported to vary between these situations. Self-reported variability can be measured in two ways, one direct, the other indirect. A direct measure is to ask the individual "how much do you vary from situation x to situation y?" An indirect measure is to derive variability from the individual's reactions to situation x and situation y separately. For example, the individual can be asked "how anxious are you in x," and "how anxious are you in y", the absolute difference between the two judgments providing an estimate of variability in anxiety across these two situations.

Using both a direct and indirect measure of self-reported variability makes it possible to test the stability of the hypothesized mediating variable. As the mediating system is theorized to be the basis for reactions to the world, and to influence the perception of the world, it should be the basis for the similarity judgments, as well as the direct and indirect variability measures. Consequently, the direct and indirect variability measures are expected to correlate highly, and both should be predictable from the INDSCAL distances. As the INDSCAL distances are theoretical distances derived from the hypothesized mediating model, unlike the direct and indirect variability judgments which are made on the basis of the same implicit structure, the latter two measures should correlate more highly with each other than either measure would correlate to the INDSCAL distances. However, to the extent that the INDSCAL model conforms to the hypothesized mediating model, there should still be predictability from these distances to the variability measures.

METHOD

Subjects

One hundred twenty subjects, 49 female and 71 male, were used in this study. All were undergraduate students at Northwestern University who were taking part in this study as part of their course requirements.

Selection of Traits and Situations

Based on the personality factors identified by Howarth (1976) and Norman (1963), four personality traits were studied: anxiety, sociableness, agreeableness, and conscientiousness.

The choice of subjects dictated the content of the situations. As the subjects were college students, 28 situations that pertained to the world of college students were rationally generated. A multidimensional scaling analysis was performed on the judged similarity of pairs of these situations derived from 20 subjects in a pilot study. A four-dimensional solution was selected as being the most appropriate in terms of interpretability and stress values. These four dimensions were labeled as anxiety, sociability, involvement, and intimacy. Taking the 2 situations furthest from each other on each dimension yielded 8 situations: Giving a speech before a large group, talking to a best friend; at a party with friends, paying a cashier; listening to a lecture, meeting a girl/boyfriend's parents for the first time; advising a friend, meeting a distant relative for the first time.

Reaction Measures

Stable traits. Responses on each of the four traits to each of the eight situations produced 32 items of the form "How trait X are you in situation A." The eight items for each trait were summed to yield a stable trait rating.

Direct variability. Contrasting each situation with the remaining seven situations for each of the four traits yielded 112 items with the following form: How much do you vary from situation A to situation B in how trait X you are?

Indirect variability. The absolute difference between all pairs of situations for each of the four traits yielded 112 indirect estimates of variability.

Trait variability. Scores were obtained by summing the 28 items for each trait from the direct variability measure.

Ratings. All the reaction judgments were on a 6-point scale ranging from 1 (*not at all*) to 6 (*extremely*).

Perception measures. All eight situations were compared and rated for similarity; this resulted in 28 similarity judgments. Similarity was rated on a 6-point scale (1—*not at all* to 6—*extremely*). The similarity data provided the input for the INDSCAL analysis.

Procedure

Subjects were tested in group sessions during a 2-week span. Approximately 20–25 subjects participated in each session. Twenty subjects had to be rejected for failing to complete all the questionnaires, leaving 46 female and 54 male subjects. At each session subjects were given all questionnaires in random order. Written instructions appeared on the first sheet.[2]

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[2] Half the subjects were asked to rate themselves while the other half rated a close friend (of the same sex). These other judgments were included for the purpose of comparing actors' versus observers' judgments, and to test the generality of the proposed mediating model. As there were no significant differences between actors and observers on any of the results to be reported, results for both kinds of perception were combined in the results section.

RESULTS

There are basically three questions to be answered in this study: (1) Can a person's transsituational variability be predicted on the basis of an idiographic/nomothetic model (such as INDSCAL) as well as it can from idiographic or nomothetic information? This question can be broken down into three subquestions: (a) the predictability of the idiographic/nomothetic model, (b) the predictability of the purely idiographic model, and (c) the predictability of the purely nomothetic model. (2) The second question concerns the stability of the presumed mediating structures. This question also has two subparts: (a) how well reported variability scores match "created variability" scores and (b) how well these created variability scores can be reproduced by the INDSCAL model. (3) The third and final question is concerned with the personality characteristics of predictable versus nonpredictable subjects.

Before it was possible to answer any of these questions, it was first necessary to find the best INDSCAL solution for the similarity data. A comparison of goodness of fit values as well as interpretability suggested that a three-dimensional solution was best for this particular domain. These three common dimensions were interpreted as reflecting anxiety, involvement, and intimacy. The group space for these eight situations is shown in Fig. 1.

Predictability of Single Subjects

Predicting variability scores from idiographic/nomothetic measures. The main prediction of the present study was that underlying each item on the direct variability scale was a distance that could be found by INDSCAL analysis, and that these distances could predict the variability items of single subjects. This prediction is referred to as the "INDSCAL-variability" prediction or *facet*. Twenty-eight distances were generated for each subject using all three INDSCAL dimensions; these were correlated to the 28 variability items for each trait to see how well each trait within the facet could be predicted. To facilitate comparisons between facets the 28 distances were repeated four times to predict all 112 variability items (essentially this provided an average of the predictability of the four traits within the facet). This correlation is referred to as "total" in the Tables.

Fifty-eight percent of the subjects had significant correlations ($p < .05$) for the facet of INDSCAL variability (average $r = .24$; see Table 1). The average correlation for the 50 most predictable subjects was .38, while the average correlation was only .09 for the 50 least predictable subjects (Table 1).

Predicting variability scores from idiographic measures. As the INDSCAL analysis was based upon the similarity judgments, it was possible to see how well these similarity judgments themselves predicted the

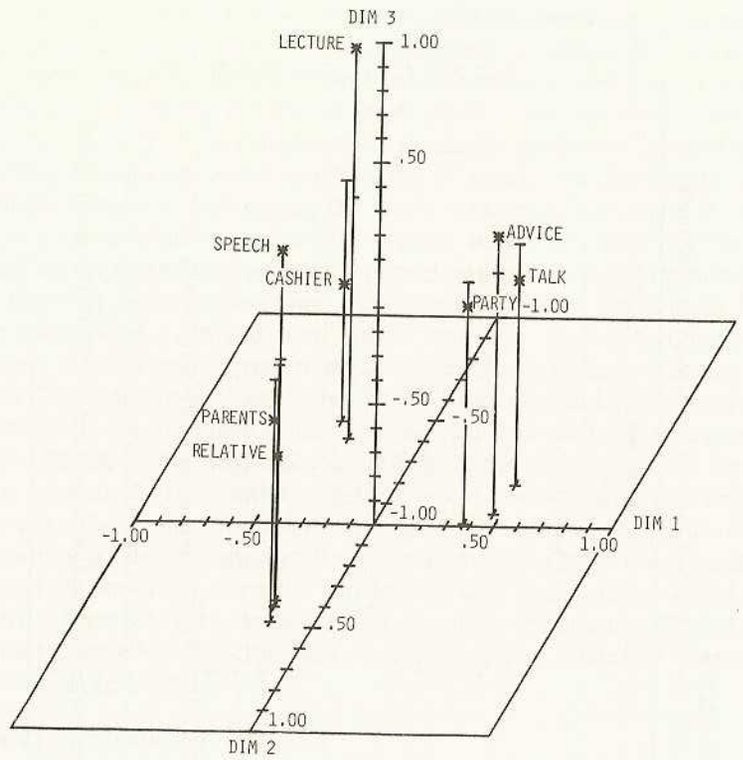

FIG. 1. A three-dimensional solution for the group perception of eight situations (dimension A = involvement, dimension B = anxiety, dimension C = intimacy).

variability measures (this prediction is referred to as the "similarity–variability" facet). As a negative correlation between similarity and variability was expected (as low similarity would predict high variability, and vice versa), the signs for this facet were reversed to facilitate comparisons with other facets.

Sixty-four percent of the subjects had significant correlations for the facet similarity–variability (average $r = .26$). The predictability of the four traits within the similarity–variability facet was similar to that within the INDSCAL-variability facet (see Table 1): that is, for anxiety, the average correlation from the similarity–variability facet was .28 versus .31 from the INDSCAL-variability facet; similarly, the average correlation for sociableness was .28 versus .27; for agreeableness .26 versus .24 and for conscientiousness .22 versus .14. The overall predictability of the facet similarity–variability (.26) was almost identical to that of the facet INDSCAL variability (.24). The similarity measure, a purely idiographic measure, therefore does not provide greater predictability than the idiographic/nomothetic measure.

TABLE 1
AVERAGE CORRELATIONS FOR ALL SUBJECTS, TOP 50% AND BOTTOM 50%, AND FOR SELF- AND OTHER RATINGS

	% Significant correlations	All subjects $\bar{r}$	Top 50% $\bar{r}$	Bottom 50% $\bar{r}$	Self-ratings $\bar{r}$	Other ratings $\bar{r}$
Facet 1: INDSCAL-variability						
Traits						
Anxious	42	.31	.42	.08	.24	.27
Sociable	32	.27	.47	.13	.30	.31
Agreeable	37	.24	.45	.05	.26	.26
Conscientious	16	.14	.33	−.05	.11	.18
Total	58	.24	.38	.09	.23	.25
Facet 2: similarity–variability						
Traits						
Anxious	32	.28	.45	.11	.25	.31
Sociable	40	.28	.45	.07	.26	.30
Agreeable	40	.26	.45	.06	.24	.28
Conscientious	28	.22	.40	.02	.21	.23
Total	64	.26	.40	.13	.24	.28
Facet 3: created variability–variability						
Total	73	.33	.49	.16	.34	.32
Facet 4: INDSCAL-created variability						
Total	26	.13	.22	.04	.12	.13
Fit between original similarity scores and INDSCAL Computed Scores						
		.81	.88	.73	.80	.81

Predicting variability scores from nomothetic measures. Reactions to situations can be studied on the nomothetic or idiographic level. The individual measures derived from the nomothetic group space estimated by INDSCAL were just as good in predicting intersituational variability as were the individual (idiographic) similarity measures themselves. In addition, this group space can be used to predict the variability scores of single subjects. Comparing the three measures (see Table 2) shows that the nomothetic measure is a slightly better predictor for the trait sociableness than the idiographic/nomothetic or the similarity measures. For the trait anxiety, however, both these measures are slightly better in predictability than the nomothetic measure. High intercorrelations between sociableness, agreeableness, and conscientiousness (ranging from .59 to .73) indicate that subjects did not discriminate in their responses to situations among these traits. The high number of items (necessitated by the design of the study) may have helped blur the distinction between these responses. The anxiety trait, however, was clearly discriminated from the other traits (correlations ranging from .08 to .26). The relative superiority of the idiographic/nomothetic measure over the nomothetic measure in predicting variability in anxiety across situations would seem to derive from this discriminativeness; the other three traits elicited more common responses from the subjects, which in turn made the nomothetic measure more useful.

Stability of Mediating Structure

The "created variability–variability" facet. Assuming that the stable trait judgments were made on the basis of implicit comparisons with other situations, the indirect variability measure was used to create a variability measure which was correlated with the original variability measure (the "created variability–variability" facet).

As expected, the created variability measure predicted the original variability measure better than did the idiographic/nomothetic measure. Seventy-three percent of the subjects were significantly predicted ($p <$

TABLE 2
PREDICTING VARIABILITY FROM IDIOGRAPHIC VERSUS NOMOTHETIC MEASURES (AVERAGE CORRELATIONS)[a]

	Anx	Soc	Con	Agree	Total
Similarity data (idiographic)	.28	.28	.26	.22	.26
Group space data (nomothetic)	.25	.37	.31	.17	.27
Weighted INDSCAL distances (both aspects)	.31	.27	.24	.14	.24

[a] Anx = anxious; Soc = sociable; Agr = agreeable; Con = conscientious.

.05, with an average correlation of .33; see Table 1), indicating that the implicit structure used in making the direct variability judgments was the same implicit structure used in making the indirect variability judgments; whatever idiosyncratic structure the individual had of the stimulus domain remained constant for both judgments.

The "INDSCAL-created variability" facet. The mathematical representation derived from the INDSCAL analysis can only provide an approximation of the implicit structure subjects used in making judgments. But to the extent that such implicit structures are used, some predictability from the weighted INDSCAL distances to the created variability measure would be expected (the "INDSCAL-created variability" facet). This relationship should be the weakest for the four facets as the weighted INDSCAL distances have to predict an indirect measure. As expected, the weighted INDSCAL distances weakly predicted the created variability measure (average $r = .13$, and 26% of the subjects significantly predicted at $p < .05$; see Table 1). The fact, however, that the INDSCAL-created variability facet could still significantly predict one-quarter of the subjects provided added validity to the concept of an implicit structure being used in making these judgments.

Characteristics of Predictable Subjects

Up to this point the level of analysis has been on the single subject (within-subjects) level; the level of analysis now shifts to all 100 subjects (between-subjects).

The order of predictability of the subjects for almost all facets was similar—subjects who were predictable on one facet tended to be predictable on all facets; while those subjects who were poorly predicted on one facet tended to be unpredictable on all facets (Table 3). Most importantly, this was true for INDSCAL variability and similarity–variability ($r = .53$), INDSCAL variability and created variability–variability ($r = .34$), and INDSCAL variability and INDSCAL-created variability ($r = .39$), all significant at $p < .001$.

One possible explanation for the nonpredictable subjects is that the INDSCAL model did not fit these subjects' original similarity data as well as it did the predictable subjects' similarity data. For instance, the top 50% in predictability for the facet INDSCAL variability have an average correlation of .88 between the original and computed similarity scores, versus .73 for the bottom 50% in predictability for the same facet (Table 1). Moreover, how well INDSCAL fits the original similarity data correlated significantly with all facets (Table 3). Specifically, INDSCAL fit significantly predicted the facets of INDSCAL variability ($r = .39$, $p < .001$), similarity–variability ($r = .33$, $p < .001$), created variability–variability ($r = .17$, $p < .05$), and INDSCAL-created variability ($r = .24$, $p < .01$). Those subjects whom INDSCAL fits least well were those subjects who were least predictable on all facets.

TABLE 3
CORRELATIONS BETWEEN AND WITHIN FACETS[a]

	Facet 1					Facet 2					Facet 3	Facet 4
	Anx	Soc	Agr	Con	Total	Anx	Soc	Agr	Con	Total		
Facet 1												
Anx												
Soc	.51[b]											
Agr	.45	.63										
Cons	.29	.48	.46									
Total	.75	.82	.80	.71								
Facet 2												
Anx	.36	.19	.17	.08	.25							
Soc	.26	.53	.33	.26	.44	.33						
Agr	.19	.44	.65	.24	.49	.41	.50					
Cons	.17	.29	.23	.49	.38	.34	.38	.39				
Total	.33	.50	.48	.37	.53	.69	.75	.79	.71			
Facet 3	.33	.38	.36	.09	.34	.41	.39	.35	.25	.47		
Facet 4	.29	.29	.37	.25	.39	.13	.02	.19	.11	.16	.21	
INDSCAL fit	.28	.39	.32	.24	.39	.22	.23	.25	.26	.33	.17	.24

[a] Facet 1 = INDSCAL variability; Facet 2 = similarity–variability; Facet 3 = created variability–variability; Facet 4 = INDSCAL-created variability; Anx = anxious; Soc = sociable; Agr = agreeable; Con = conscientious.
[b] $r = .19$, $p < .05$; $r = .25$, $p < .01$; $r = .33$, $p < .001$.

As the INDSCAL model did not predict the variability scores of all subjects equally well, it is important to know how the predictable subjects differed from the nonpredictable subjects. Information about the characteristics of subjects was provided by the weights for each subject on the INDSCAL dimensions (indicating the saliency of these dimensions for the subjects in the perception of the stimulus domain) and the trait scales (see Table 4). High weights on all three dimensions were necessary to ensure a good fit between the INDSCAL model and the similarity data. The stable traits appeared to be unrelated to predictability; trait variability, on the other hand, seemed to relate to predictability on most of the facets. High saliency of the group dimensions, and high variability across the situations, appear to be important determinants of predictability.

Previously it was noted that the facet of INDSCAL variability was similar to the facet of similarity–variability. A closer look at Table 1 shows that the similarity judgments did not predict the traits equally well; the fact that these judgments predicted sociability and anxiety better than conscientiousness indicates that the implicit constructs subjects used in making the similarity judgments pertained more to the former traits than to the latter trait. The diagonal in Table 3 between the traits for the two facets reveals a similar pattern. For example, the correlation between agreeableness for the facet of INDSCAL variability to agreeableness in the facet of similarity–variability is .65, higher than the correlation between agreeableness in the first facet to the traits in the second facet. The other three traits show a similar pattern. This provided convergent validity for the measurement of the implicit construct used in making the similarity judgments; subjects for whom a particular trait was relevant to the implicit construct used in making the similarity judgments tended to be the same subjects who could be predicted for that trait from the facet INDSCAL variability. The similarity judgments, or the weighted INDSCAL distances, in themselves did not predict variability for the four traits equally well. The more relevant the construct or dimension underlying the distance measure to the trait being rated the better the predictability.[3]

DISCUSSION

This study provides some support for Kelly's (1955) belief that knowing how people structure their world permits us to predict their behavior. Specifically, this means that knowledge of an individual's idiographic perception of the similarities of situations predicts reported behavioral

[3] Similarly, the single INDSCAL dimensions did not predict the traits within the facet of INDSCAL variability equally well. For example, the anxiety dimension predicted the trait anxiety better than the other three traits (each used singly). The correlations within the facets of INDSCAL variability and similarity–variability for single subjects clearly showed that one or more of the traits were relevant for each individual's similarity judgments.

TABLE 4
PREDICTORS OF PREDICTABILITY[a]

	Weights on dimensions			Stable traits				Vary traits			
	Anx	Inv	Int	Anx	Soc	Agr	Cons	Anx	Soc	Agr	Cons
Facet 1											
Anx	−.03[b]	.42	−.05	−.05	−.08	−.02	.04	.25	.28	.05	.06
Soc	−.10	.39	.22	−.20	−.07	.10	.04	.06	.26	−.08	.00
Agr	−.11	.27	.35	−.03	−.03	.12	.06	.23	.36	.08	.07
Cons	.09	.15	.11	−.04	.02	.14	−.14	.06	.27	.11	.28
Total	−.05	.39	.21	−.10	−.05	.12	.00	.21	.39	.09	.17
Facet 2											
Anx	.36	.00	−.22	.14	−.07	−.03	.14	.38	.23	.09	.02
Soc	.03	.22	−.05	−.01	−.12	−.06	.07	.07	.25	−.03	−.03
Agr	−.04	.12	.19	−.02	−.05	.13	.11	.17	−.24	−.02	.06
Cons	.27	.06	−.08	.12	.00	.16	.09	.28	.41	.20	.30
Total	.20	.14	−.04	.07	−.08	.07	.14	.30	.38	.08	.12
Facet 3	.23	−.04	.03	−.05	.14	.26	.24	.16	.17	−.23	−.02
Facet 4	−.15	.12	.33	.06	.17	.09	.11	.09	.22	.14	.09
INDSCAL Fit	.23	.57	.35	−.01	−.06	.08	.06	.16	.22	.05	.04

[a] Facet 1 = INDSCAL-variability; Facet 2 = similarity–variability; Facet 3 = created variability–variability; Facet 4 = INDSCAL-created variability; Anx = anxiety; Inv = Involvement; Int = Intimacy; Soc = Sociable; Agr = Agreeable; Cons = Conscientious.
[b] $r = .19$, $p < .05$; $r = .25$, $p < .01$; $r = .33$, $p < .001$.

variability across these situations. Both the idiographic and idiographic/nomthetic methods predicted variability; 64 and 58% of the subjects, respectively, could be significantly predicted. This compares favorably with Magnusson and Ekehammer (1978) who found that 33–44% of their subjects significantly demonstrated similar reactions to similar situations.

The present study provides further support for the cognitive–interactional model by showing that reactions to situations can be predicted from the perception of these situations. While the proposed model of the mediating system was not shown to be superior to the other two models (a purely idiographic or nomothetic model), there was a slight trend in the data supporting the validity of focusing on the individual's perceptions of the world when relatively great individual differences in responses are expected to occur. When more common responses are expected, such as social responses (as in the present study) and anxiety responses to physical threat and pain (Magnusson & Ekehammer, 1975) the individual's perceptions would more closely approximate the group's perception. An important conclusion to be drawn from this is that trait measures can be found that have enough common meanings to all people to be useful in studying responses to the world.

While the data do not provide empirical support for the superiority of the "distortion of a common world" model over the other two models, the fact that this approach is not worse than a totally idiographic or totally nomothetic approach makes it possible to argue for the superiority of the model on methodological grounds.

Using INDSCAL as a shorthand form taken to mean any approach which evaluates individual differences in terms of distortions of a group solution, the INDSCAL approach has several advantages over the use of the raw idiographic similarity data: (1) besides permitting an idiographic approach to studying the individual, nomothetic information about the group is provided. This makes the study of individual differences possible: how individuals differ in their distortions of the group space. (2) The common dimensions of a particular stimulus domain are uncovered, providing information about the content of the group cognitive structure. (3) While the purely idiographic judgments predicted variability, they did not predict variability for the four traits equally well. The more relevant the construct or dimension underlying the judgment to the trait being studied, the better the predictability. The purely idiographic approach, however, leaves the constructs underlying these judgments implicit. Without knowing the content of these implicit constructs, the relevancy of these idiographic judgments for particular traits would have to be empirically determined. INDSCAL, on the other hand, does provide the underlying constructs (the dimensions of the group cognitive structure) and its relevancy for the individual (the individual's weights on these dimensions).

Theoretically, these group dimensions and individual weights can help determine the relevancy of particular traits for various stimulus domains. The relationships, however, between constructs used to perceive situations (dimensions) and constructs used to judge one's own behavior in these situations (traits) remains ambiguous. It is the individual's implicit constructs that relate his or her perceptions to reactions—which may not be the same constructs as those of the investigators. As noted above, there are situations where individual perceptions will closely approximate the group's perception, and where consequently the investigator can use his or her own construct systems to relate dimensions to traits. INDSCAL may be a useful method for determining group and individual relevant dimensions for particular stimulus domains and thereby avoiding the problem of deciding a priori when congruence between constructs used to perceive situations and behaviors would obtain.

Besides providing support for an interactional approach, and proposing a model for the mediating system itself, the present study also adds to the growing body of evidence supporting the validity of implicit theories of personality (Schneider, 1973) and self-schemata (Markus, 1977). Subjects seemed to have an implicit model of the stimulus domain which they used in making the variability, similarity and stable trait judgments. The significant correlations within and between facets provided convergent validity for this implicit model. The variability measure could be predicted from the weighted INDSCAL distances ($r = .24$), the created variability measure ($r = .33$), and the similarity measure ($r = .26$). Moreover, the predictable subjects were those whose original similarity data were well fitted by INDSCAL. Thus, INDSCAL provided a measuring model that adequately represented the theoretical model, at least for the predictable subjects.

The relatively weaker fit between the original similarity data and the INDSCAL data for low-predictable subjects might indicate that these individuals were too idiosyncratic for meaningful comparisons to the other subjects. There is some support for this possibility as these subjects tended to have low weights on the group dimensions, showing that the group dimensions were less relevant to them than they were for predictable subjects. Such individuals may be too idiosyncratic for the idiographic/nomothetic model, necessitating a purely idiographic approach. While these idiosyncrasies may be in the constructs used to perceive the situation and/or one's own behavior, within their own construct systems these individuals will show consistency in responses. As predictable subjects tended to be fairly variable, an alternative explanation might be that cognitive complexity is an important determinant of predictability. Self-reported high variability indicates that the situations were perceived as very different. This may be due to high articulation and discrimination in the perception of the stimulus domain, reflecting high cognitive com-

plexity. Possible differences in cognitive style and predictability might be a fruitful avenue for future research.

REFERENCES

Bem, D. J. (1977). Predicting more of the people more of the time: Some thoughts on the Allen–Potkay studies of intraindividual variability. *Journal of Personality*, **45**, 327–333.

Bem, D. J. & Allen, A. (1974). On predicting some of the people some of the time: The search for cross situational consistencies in behavior. *Psychological Review*, **81**, 506–520.

Cantor, N., & Mischel, W. (1977). Traits as prototypes: Effects on recognition memory. *Journal of Personality and Social Psychology*, **35**, 38–48.

Carroll, J. D., & Chang, J. (1970). Analysis of individual differences in multidimensional scaling via an *N*-way generalization of Eckart–Young decomposition. *Psychometrika*, **35**, 283–319.

Endler, N. S., & Magnusson, D. (1976). Personality and person by situation interactions. In N. S. Endler & D. Magnusson (Eds.), *Interactional psychology and personality*. New York: Wiley.

Howarth, E. (1976). Were Cattell's "personality sphere" factors correctly identified in the first instance? *British Journal of Psychology*, **67**, 213–230.

Kelly, G. A. (1955). *The psychology of personal constructs*. New York: Norton.

Magnusson, D. (1976). An analysis of situational dimensions. In N. S. Endler & D. Magnusson (Eds.), *Interactional psychology and personality*. New York: Wiley.

Magnusson, D., & Ekehammar, B. (1975). Perceptions and reactions to stressful stimuli. *Journal of Personality and Social Psychology*, **31**, 1147–1154.

Magnusson, D. & Ekehammar, B. (1978). Similar situations—similar behaviors? A study of the intraindividual congruence between situation perception and situation reactions. *Journal of Research in Personality*, **12**, 41–48.

Magnusson, D., & Endler, N. S. (1977). Interactional psychology: Present status and future prospects. In D. Magnusson & N. S. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology*. Hillsdale, NJ: Erlbaum.

Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, **35**, 63–78.

Mischel, W. (1968). *Personality and assessment*. New York: Wiley.

Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review*, **80**, 252–283.

Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: replicated factor structures in peer nomination personality ratings. *Journal of Abnormal and Social Psychology*, **66**, 574–583.

Schonemann, P. H., Carter, F. S., & James, W. L. (1976). *Contributions to subjective metrics scaling: I. COSPA, a fast method for fitting and testing Horan's model, and an empirical comparison with INDSCAL and ALSCAL*. Unpublished manuscript, Purdue University, West Lafayette, IN.

Schneider, D. (1973). Implicit personality theory: A review. *Psychological Bulletin*, **79**, 294–319.

Tucker, L. R. (1972). Relations between multidimensional scaling and three mode factor analysis. *Psychometrika*, **37**, 3–27.

Wainer, H., Hurt, S., & Aiken, L. (1967). Rorschach revisited: A new look at an old test. *Journal of Consulting and Clinical Psychology*, **44**,(3) 390–399.

Wish, M., Deutsch, M., & Weiner, L. (1968). Differences in conceptual structures of nations: An exploratory study. *Journal of Personality and Social Psychology*, **10**, 82–89.