

# Application of a Guttman intensity analysis to personality measurement

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Guttman's (Guttman & Suchman, 1947) statistical strategy for determining the zero or neutral point of an attitude scale is extended in this study to the area of personality measurement. The strategy assumes that the intensity with which pro and con feelings are held will plot as a U- or a J-shaped function of attitude content. We elected for focus in the present study a modification of Miller's (1980) Behavioral Style Scale, a personality questionnaire designed to gauge the coping strategy adopted by the individual as he/she attempts to meet imminent threat. The modified Behavioral Style Scale failed to yield the U- or J-shaped function, suggesting complex measurement.

Many years ago, Guttman and Suchman (1947) devised a statistical strategy for discovering the zero point of an attitude scale. With respect to a given attitude, those people scoring on one side of the zero may be characterized as pro and those scoring on the other as con. The procedure assumes that items representing the attitude define a unidimensional scale anchored at one end by strong pro feelings and at the other end by strong con feelings. If the scale is truly unidimensional, there should exist a point at which the attitude held is essentially neutral (point of indifference). Graphic representation of the intensity with which the attitude is held should be U or J shaped across content. The neutral point is found, of course, at the bottom of the U or the J. Thus, individuals scoring on one side may be characterized as "pro-" and those scoring on the other as "con-." In point of fact, then, if application of this statistical strategy fails to find a U- or J-shaped function, it may be argued that the items do not define a single dimension, but rather that they index a compound or complex made up of more than one attitude; Guttman's technique becomes a test of the scalability of the attitude.

The present paper attempts to extend Guttman's analysis to the area of personality measurement. The analogy is straightforward. For example, largely as a matter of convenience, the psychologist often refers to an individual as an introvert or extrovert, despite full knowledge that, in fact, each category really occupies a position on the same dimension; the terms indicate a difference in quantity, not quality. Each person is conveniently categorized as introvert or extrovert in relation to a neutral point (i.e., they are the extremes lying on either side of an indifference point). It can be argued that a "pure" test of intro/extroversion should be made up of items that will yield a U-shaped or J-shaped Guttman function. If this does not happen, the items must be assumed to define a more complex (multidimensional) personality characteristic.

Miller's (1980) Behavioral Style Scale, a questionnaire designed to assess the coping strategy characteristic of the individual as he/she responds to imminent threat, was selected for this study. Thus, there are *monitors*, those who seek information, and *blunters*, those who attempt distraction. The question addressed was this: Do monitors and blunters occupy the extreme positions on a common unidimensional scale? If so, there should exist a neutral point somewhere between the two. The trick here was to gauge, for each item on the Miller Scale, the intensity with which the response was held.

## METHOD

### Subjects

Four hundred eighty-four undergraduate students who were enrolled in general psychology served as subjects for a small course credit bonus. The subjects were tested in groups ranging from approximately 35 to about 85.

### Materials

The Miller Behavioral Style Scale (MBSS) presents four hypothetical situations that pose immediate threat to the person: an impending dental operation, being held as a hostage, a threatened job layoff, and a possible airplane crash (you are a passenger). Associated with each are eight coping responses, four of which are monitoring (information-seeking) choices and four of which are blunting (distracting) choices. The respondent is required to select one or more of these, and the two response types are separately totaled.

The Guttman procedure recommends a minimum of six items, necessitating our expansion of the MBSS, which presents only four. Thus, we devised and added two additional hypothetical threatening situations: response to a threat of a positive cancer assay and to a tornado warning. For each, four appropriate monitoring responses and four appropriate blunting responses were devised.

For the cancer threat, the eight coping choices were: (1) I would read up about cancer (monitoring), (2) I would give a lot of attention to my work or to school activities (blunting), (3) I would go to that movie I wanted to see (blunting), (4) I would search for other moles on my body (monitoring), (5) I would do a little drinking (blunting), (6) I would ask my parents if there is a history of cancer in the family (monitoring), (7) I would exercise a lot (tennis, handball, running, etc.) (blunting), and (8) I would ask friends if they knew of similar cases (monitoring).

For the tornado warning, the coping responses were: (1) I would go outside and look up into the sky (monitoring), (2) I would listen to some music or watch a television show (blunting), (3) I would try to do some

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reading (blunting), (4) I would listen carefully for a roaring sound (monitoring), (5) I would call a friend on the phone and talk about something else (blunting), (6) I would ask my neighbor if a tornado had ever hit our area before (monitoring), (7) I would look out the window for a funnel cloud (monitoring), and (8) I would fix a drink or something to eat (blunting).

To gauge the intensity with which the responses were held, additional instructions for each of the six situations requested that the respondent place a second check mark beside the single choice that seemed the *most likely* or the *most important* to him/her. Further instructions requested that the respondent then indicate the difficulty experienced in choosing the single most important response: *very hard*, *fairly hard*, and *not at all hard*. This last, *not at all hard*, was taken to reflect a response that was easily selected, hence strongly held. The other two, which represented greater effort in choosing, were viewed as reflecting less intensely held convictions.<sup>1</sup>

## RESULTS AND DISCUSSION

Forty-six of the 484 records were discarded as incomplete. Thus, our analyses are based on an  $N$  of 438.

In the Guttman procedure, each record is scored for both content and intensity. Intensity is then plotted against content, the argument being that, across content, intensity should start high, drop to a low point, and then rise again (U or J shape). With the present data, two such analyses were performed.

Blunting was first adopted as the reference point. For each record, a choice was counted as blunting if it had been designated the *most likely* or *most important*. Thus, for each respondent's record, the blunting content score

could range from 0 to 6. The intensity score for each of these responses could also range from 0 to 6, representing a total count of the number of times the respondent had chosen *not at all hard* to designate effort spent in arriving at the blunting choice. Each pair of values was then entered into a two-dimensional matrix (intensity  $\times$  content), the frequencies accumulated for rows and columns and percentile values assigned. With the median values of the intensity percentiles on the ordinate and the mid-points of the content percentiles on the abscissa, a final plot was prepared (see open circles, Figure 1). The reader is referred to Guttman and Suchman (1947) for a detailed account of this procedure.

The same analysis was performed on the data with monitoring as the reference point. That is, for each record, the number of and the intensity of the monitoring responses were determined. Again, intensity was plotted against content. The result is shown in Figure 1 as filled circles.

Inspection of Figure 1 reveals clearly the absence of the required J- or inverted U-shaped function. Intensity appears to be some monotonic function of content. Indeed, a straight line closely fits the points: For blunting, the regression coefficient was  $+.843$  ( $t = 17.05$ ,  $p < .001$ ), and for monitoring,  $+.767$  ( $t = 6.56$ ,  $p < .01$ ). For blunting, the linear correlation between intensity and content was found to be  $+.993$  ( $p < .01$ ), and for monitoring,  $+.947$  ( $p < .01$ ). It is our conclusion, then, that the Miller Behavioral Style Scale, as modified for the present

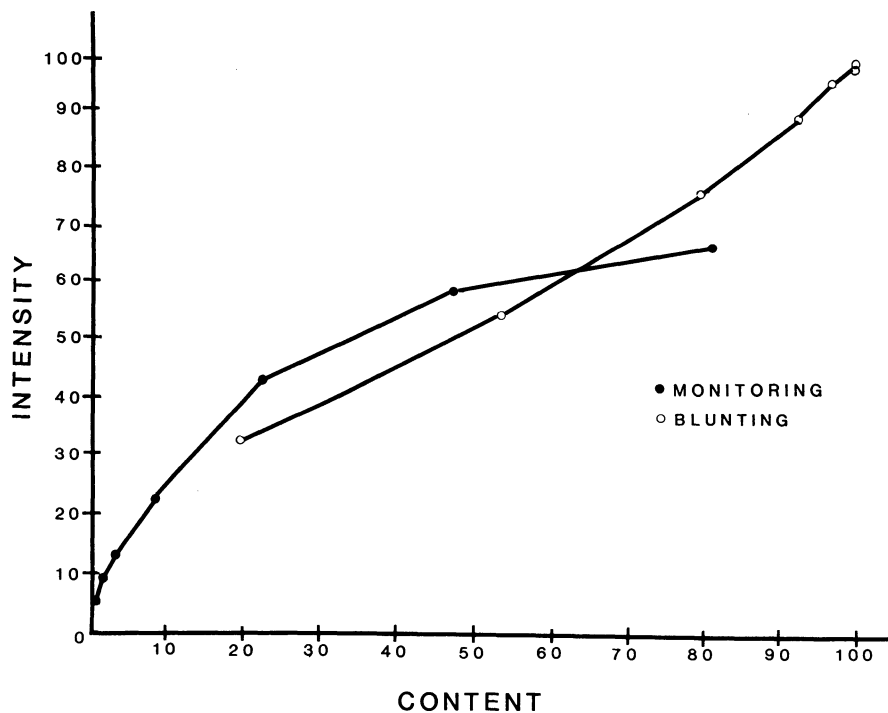


Figure 1. Intensity of conviction in relation to test content.

purposes, does not define a single dimension; it must gauge a compound or complex made up of more than one dimension.

The present study is best viewed simply as illustrating the possible application of the Guttman attitude analysis to personality measurement. Perhaps it should not be taken to be an indictment of the original Miller Behavioral Style Scale for several reasons, principally (1) the present scale presents two additional items (threatening situations); (2) our scale required the respondent to designate, as a further response, the *most likely* or *most important* choice; and (3) quite basic to the present analysis, we assumed that the response of checking *not at all hard* (to choose the *most likely* or *most important* response) is a valid index of an intensely held conviction. In the aggregate, these

differences would seem sufficient to question the strict applicability of our findings to the original Miller Scale.

#### REFERENCES

- GUTTMAN, L., & SUCHMAN, E. A. (1947). Intensity and a zero point for attitude analysis. *American Sociological Review*, 3, 55-67.
- MILLER, S. M. (1980). When is a little information a dangerous thing? Coping with stressful events by monitoring or blunting. In S. Levine & H. Ursin (Eds.), *Coping and health* (pp. 145-169). New York: Plenum Press.

#### NOTE

1. A copy of the Miller Behavioral Style Scale as modified for the present purposes may be obtained from the senior author.

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