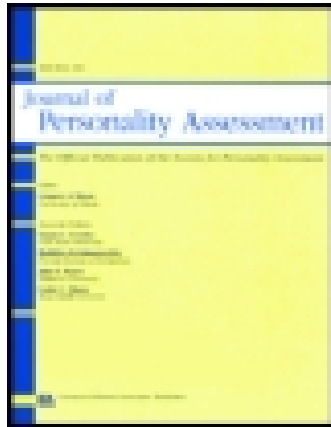


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A Measure of Autonomy

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Summary: This article reports the development of a measure of individual differences in autonomous rule compliance. The autonomy scale (a short, easily administered CPI based test) was developed within the framework of a multidimensional, role-theoretical model of moral development. Five samples were used in the construction of the scale. Two of the samples (total $n = 111$) were used to derive the autonomy scale. The items for the scale were derived through the sequential use of two common item selection strategies: criterion keying and factor analysis. An initial set of 55 CPI items were derived using an "ideal" autonomy Q -sort profile as a selection criterion, and an Alpha factor solution was used to reduce this initial pool to a final set of 25 items. Several analyses were conducted using three additional samples (total $n = 245$) to estimate the reliability of the scale and determine its validity. The results of these analyses provide initial evidence for the content, criterion-related, and construct validity of the scale and indicate that the measure has an adequate reliability.

Autonomy, as a dimension of character and personality, is a persistent theme in psychology (e.g., Erikson, 1950; Jung, 1933; McDougall, 1908; Murray, 1938). Recent research in the area of moral development further calls attention to the characterological implications of interpersonal independence. More specifically, Hogan (1969, 1973, 1976) has proposed a multidimensional, role-theoretical model of moral development which includes a dimension of autonomous rule compliance. The complete model consists of five dimensions of moral character (socialization, empathy, autonomy, moral knowledge, and moral reasoning) which formally define five types of relationships that exist between the individual and the social group's social and moral rules. Each dimension constitutes a conceptually independent set of dispositions and attitudes towards rules and rule systems. Three of the model's dimensions (socialization, empathy, and moral reasoning) have been operationalized (cf. Gough, 1969; Gough & Peterson, 1952; Greif & Hogan, 1973; Hogan, 1969, 1970). Each dimension can be assessed by a short, easily administered objective test. The scales have adequate psychometric properties and the three operationalized

dimensions have demonstrated an empirical utility. For example, empathy and socialization have been shown to be related to both pro- and anti-social behavior (cf. Hogan, Mankin, Conway, & Fox, 1970; Kurtines & Hogan, 1972; Kurtines, Hogan & Weiss, 1975); and moral reasoning has been shown to be associated with the perception of injustice, rated moral maturity, and sensitivity to injustice (cf. Hogan, 1970; Hogan & Dickstein, 1972b).

In an earlier study, Kurtines (1974) reported some evidence for the utility of the concept of autonomy in the study of social behavior and described some characteristics of the autonomous individual. This article reports the development of an empirically keyed, factorially derived scale designed to measure individual difference in autonomous rule compliance and presents evidence for the utility of the concept of autonomy as a dimension of moral conduct. The scale, a short, easy to administer objective test, was developed within the framework of Hogan's (1973) multidimensional model of moral development.

Subjects *Method*

Five samples were used in the development of the autonomy scale. The first included military officers ($n = 100$), the second contained student engineers ($n = 66$), the third research scientists ($n = 45$), the fourth undergraduate fraternity mem-

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bers ($n = 30$), and the fifth undergraduate psychology students ($n = 115$). Some of the data used for this study was originally collected as part of the live-in assessment program carried on at the University of California's Institute of Personality Assessment and Research (IPAR).¹ Information on each participant in the first three samples included complete item responses to the California Psychological Inventory (CPI; Gough, 1969). In addition, a *Q*-sort description (Block, 1961) of each individual studied at the institute was available. The *Q* description consisted of a composite profile derived from 10 independent ratings of each person in the samples by the assessment staff at IPAR. The fourth sample ($n = 30$) was made up of undergraduate fraternity members at the Johns Hopkins University. Information on the fourth sample consisted of item responses to the CPI, peer ratings for autonomy, and an assortment of biographical and interview data. The fifth sample consisted of 115 undergraduate students at Florida International University who were administered the CPI as part of a psychology course on tests and measures.

Item Selection Criterion

The first step in the construction of the scale consisted of selecting a criterion for item derivation. Kurtines (1974) previously reported the development of an "ideal" autonomy *Q*-sort profile. This autonomy *Q*-sort profile, compatible with the concept of autonomy as defined by Hogan's model, was developed using a specially prepared 76 item version of the California *Q*-sort (Block, 1961). Twenty raters were asked to describe their conception of the autonomous individual, and a composite profile was constructed by combining the 20 descriptions. The estimated reliability of the total composite was .91. This composite profile, with its established reliability and content validity, served as the item selection criterion in the development of the autonomy scale.

¹ The author thanks Harrison G. Gough and Wallace B. Hall at the Institute of Personality Assessment and Research for making the data on the military officers, student engineers, and research scientists available.

Item Selection

The items for the autonomy scale were derived through the sequential use of two common item selection strategies: criterion keying and factor analysis. For the first phase of the item selection, the sample of research scientists ($n = 45$) and the sample of student engineers ($n = 66$) were combined to form a derivation sample ($n = 111$). Each participant in the derivation sample was assigned an autonomy score on the basis of the correlation between his composite *Q*-sort description and the ideal autonomy *Q*-sort profile. An initial set of items was selected by correlating CPI item responses with the criterion composite score. The obtained correlations ranged from +.22 to -.21. Fifty-five CPI items whose correlations with the criterion exceeded .11 in either a positive or negative direction were selected for use as an initial set of autonomy items.

For the second phase of the item selection, the set of 55 items derived using criterion keying was factor analyzed using an Alpha solution and an oblique rotation. The purpose of the factor analysis was to reduce further the item pool and increase the reliability of the derived scale. Since criterion keying serves to maximize the criterion-related validity of the items but not their internal consistency, the factor analysis provided a method for isolating the most homogeneous subset of items contained in the item pool derived through criterion correlations. A factor analysis was used instead of the more traditional technique of item-total correlations because, as will be seen, this method provides an estimate of the relation between the various factor dimensions in the item set and the criterion variable. Both item responses and the criterion composite scores of the derivation sample were included in the factor analysis. An Alpha solution was used to maximize the internal consistency of the obtained factors and an oblique rotation used to maximize their empirical independence.

The Alpha solution yielded five factors with an eigenvalue greater than 2.0. This five factor solution was then rotated using an oblique procedure. The rotated factor

matrix accounted for 26.4% of the total variance and each of the factors respectively accounted for 8.9, 4.9, 4.5, 4.3, and 3.8 percent of the total factor variance. The first factor was used in the selection of the final set of autonomy scale items. Several considerations justify this action. First, while not large by absolute standards, this factor was the largest factor in the matrix and it accounted for nearly twice as much variance as any other single factor. Second, the autonomy criterion composite loaded above .30 on the first factor (+ .56), but not on any of the other factors. Third, the first factor was the most interpretable in terms of content. Since the purpose of the factor analysis was to isolate a comparatively homogeneous subset of items, the relative content homogeneity of the highest loading items provided evidence for the utility of the approach. The 25 items with an absolute loading above .30 on the first factor were selected for the final autonomy scale. The 25 CPI items along with the direction of scoring (8 true and 17 false) are listed below:

Scoring of items from CPI. 8 (f), 11 (f), 40 (f), 63 (t), 78 (f), 108 (t), 119 (t), 145 (f), 150 (f), 155 (f), 159 (f), 194 (t), 198 (f), 214 (f), 237 (f), 274 (t), 314 (f), 317 (f), 318 (t), 320 (t), 332 (t), 395 (f), 421 (t), 457 (t), 462 (f).

Reliability and Validity

A visual inspection of the final set of items, and an examination of the item statistics used to derive the scale provide evidence for the content validity of the scale. For example, the item with the highest positive correlation with rated autonomy for the derivation sample was, "I would be willing to describe myself as a pretty 'strong' personality." The item with the highest negative correlation with rated autonomy was, "People can pretty easily change me even though I thought that my mind was already made up on a subject." The two highest loading items on the factor analysis (both negative) were respectively, "Criticism or scolding makes me very uncomfortable" and "People can pretty easily change me even though I thought that my mind was already made up on a subject."

Two follow-up analyses provide an estimate of the reliability of the scale and some initial evidence for its criterion-related validity. For the first analysis, the item responses of the 100 military officers were scored for the final set of items and autonomy scale scores correlated with rated autonomy for this sample. Autonomy ratings were obtained by correlating each participant's *Q*-sort profile with the composite autonomy *Q*-sort profile. The reliability of the autonomy scale for this sample, as estimated by Hoyt's analysis of variance method (Hoyt, 1941), was .61; the correlation between scale scores and rated autonomy was .21, $p < .05$. For the second analysis, the CPI protocols for the 30 fraternity members were scored for the autonomy scale and scale scores correlated with rated autonomy. All fraternity members lived in the same house and autonomy ratings were based on peer evaluations (cf. Kurtines, 1974 for details). The autonomy scale reliability estimate for this sample was .63; the correlation between scale scores and rated autonomy was .54, $p < .01$. The results of these analyses thus provide an estimate of the reliability of the scale and evidence for its criterion-related validity. The average reliability for the scale for both samples was .62, and scale scores correlated significantly and positively with both autonomy rating criteria.

A third analysis provides evidence for the construct validity of the scale. According to Hogan's (1973) model, socialization, empathy, and autonomy represent three conceptually and empirically independent dimensions of moral character. Evidence for the empirical independence of the autonomy scale was obtained by correlating autonomy scores with socialization and empathy scores. For this analysis, the CPI protocols for the sample of undergraduate psychology students ($n = 115$) were scored for socialization, empathy, and autonomy. The reliability of the autonomy scale for this sample was .59. Scores on all three of the scales were intercorrelated yielding the following coefficients: Autonomy with socialization .08; autonomy with empathy, .12; empathy with socialization, .09. The results of this analysis thus provide some

evidence for the empirical as well as conceptual independence of the dimensions. Although there was a slight positive correlation between autonomy and empathy, the intercorrelations between all of the scales were nonsignificant.

The results of some interview data in combination with the peer ratings for autonomy in the fraternity sample provide additional qualitative evidence for the validity of the autonomy scale. Part of the research project conducted with the fraternity sample involved the collection of interview data on the participants. The results of the interviews shed some light on the personal characteristics of low and high scorers on the autonomy scale. Persons with the lowest ratings for autonomy were also judged, in terms of their interview results, to be mildly anxious, lacking in self-confidence, and unsure of their goals in life. High scorers, on the other hand, tended to be rated as relatively free from anxiety, lacking in dependency problems, and having well defined goals. While tentative, these findings provide indirect and qualitative evidence concerning the personality correlates of autonomy.

Discussion

This paper describes the development of a short, easy to administer CPI based scale intended to assess individual differences in autonomous rule compliance. The scale was developed within the framework of a multidimensional model of moral development concerned with several parameters of rule governed behavior. Data relating to the content, criterion-related, and construct validity of the scale, as well as reliability, were presented. Overall, the results of the research provide initial evidence for the validity of the scale. The results of the item analysis and a visual inspection of the items provide evidence for the content validity of the scale. Evidence for the criterion-related validity of the autonomy scale was obtained using ratings as a criteria. Scale scores correlated positively and significantly with rated autonomy for two separate samples using two rating criteria. Scores on the autonomy scale are also essentially uncorrelated with the other operationalized dimensions

of Hogan's model, providing evidence for the construct validity of the scale. Moreover, the average reliability of the scale across three samples was .61, suggesting that the scale has an adequate reliability. Finally, according to the model, rule compliance — as a dimension of moral conduct — can be best understood within the more general context of rule governed behavior. Each of the dimensions of the model, considered by itself, constitutes a conceptually independent set of disposition and attitudes towards social and moral rule systems and, consequently, can be expected to be differentially predictive of various types of rule governed behavior. Thus, while the research reported in this paper provides evidence for the utility of the concept of autonomy as a separate dimension of moral conduct, additional research is needed to determine the differential validity of the complete model.

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