The satisfaction scales for work, coworkers, supervision, pay, and promotion of the INDSALES and Job Descriptive Index (JDI) were obtained from a national sample of 209 salesmen in the health care industry. Convergent and discriminant validity were examined by using the criteria of Campbell and Fiske.

Measurement of Salespeople's Job Satisfaction: Convergent and Discriminant Validity of Corresponding INDSALES and Job Descriptive Index Scales

In the study of work behavior, job satisfaction is a factor of major interest for both theoretical and empirical inquiry because of its contribution to the study of the general psychology of motivation, preferences, and attitudes. In excess of 3,300 studies on the subject of job satisfaction have been published (Locke 1976, p. 1342). From these studies many different measuring instruments for job satisfaction have evolved. Which one does the researcher choose? Often choice of the instrument is based on the population under study, the various facets of satisfaction contained in the instrument, the length of the instrument, or its reliability and validity. The most often measured job variables that relate to satisfaction behaviors are work content, control of work and actual tasks performed, direct supervision, the organization and its management, promotion opportunities, financial rewards, coworkers, and working conditions (Ronan 1970).

Recently a new instrument (INDSALES) was developed for measuring the job satisfaction of industrial salespeople because of the "lack of appropriate measurement instruments" for the "unique characteristics" of the sales job. It is the only instrument that measures salespeople's satisfaction with their customers, which is a major facet of sales work. Though INDSALES has apparent face validity and sufficient reliability based on its initial reporting (Churchill, Ford, and Walker 1974), the researcher interested in measuring salespeople's job satisfaction must know the credibility of any new instrument in order to conduct knowledgeable research. The author therefore examines the relationship between the well-documented Job Descriptive Index (JDI) and INDSALES.

METHOD

Instruments

The JDI taps five areas of job satisfaction—work, coworkers, supervision, pay, and promotion (Smith, Kendall, and Hulin 1969). Each facet is measured with 9 or 18 adjectives. These are scored yes = 3, ? = 1, and no = 0 for positively discriminating items and yes = 0, ? = 1, and no = 3 for negatively discriminating items. The format is simple and can be applied to a wide range of organizations. The JDI has been in use for many years and is reported on widely in the applied psychology literature (Robinson, Athanasiou, and Head 1969). It has been described as "... without doubt the most carefully constructed measure of job satisfaction in existence today. ... The extensive methodological work underlying this measure as well as the available norms should insure its wide-spread use in both research and practice" (Vroom 1964).

INDSALES measures seven facets of the salesper-
son's satisfaction—his/her job, fellow workers, supervisor, pay, promotion and advancement, company policy and support, and customers. The 96 questions are answered on a five-point rating scale that ranges from "strongly agree" to "strongly disagree."

Sample and Data Collection

Data were collected by means of an 11-page questionnaire mailed to 920 salesmen living in the United States, including Hawaii and Alaska. Of the 11 pages in the questionnaire, six contained the JDI and INDSALES scales. Additional information was sought on role perceptions, pay expectations, and demographic factors. Two hundred and twelve questionnaires were returned. The final sample used for analyses consisted of 209 salespeople, representing 45 pharmaceutical, hospital supply, or wholesale drug companies. The 23% return was low. However, response was adequate for discussion of the relationship among variables as applied in this study. The respondents' mean age was 42.6 years, mean tenure with the firm was 12.8 years, 80% were college graduates, all were male, and the average salary was $19,397.

The JDI and INDSALES first were examined for reliability by calculation of each scale's alpha coefficient. The alpha coefficient represents a summary of the internal homogeneity of a scale (Cronbach 1951). Next, convergent and discriminant validity were examined by the development of a multitrait-multimethod matrix using Campbell and Fiske's four criteria for validation analysis (Campbell and Fiske 1959; Evans 1969; Gillet and Schwab 1975). Convergent validity refers to the confirmation of the presence of a trait by independent measurements. Correlation of independent measures of the same trait helps to show that the construct is real and not an accident of the measurement procedure. A measure is said to have discriminant validity if it is independent rather than an accident of the measurement procedure. Predictably low correlation between a scale (e.g., work) and other scales that are supposedly not measuring the same satisfaction facet (e.g., promotion) is an indication that the scale has discriminant validity (Campbell and Fiske 1959; Heeler and Ray 1972).

Finally, a significance test of the difference between two correlation coefficients for correlated samples was used to evaluate differences between scales (Ferguson 1966, p. 188-9).

The JDI does not have scales for company policy and support or customer satisfaction. Thus, the two instruments do not have complete overlap in the scale measuring the various facets of job satisfaction. Table 1 shows the matrix containing the pairwise correlation coefficients among the JDI and INDSALES scales. These coefficients are indicated by a set of heterotrait-monomethod triangles (solid line triangles) and heterotrait-heteromethod triangles (broken line triangles).

The heterotrait-heteromethod triangles are the matrix of intercorrelations between pairs of traits where both traits are measured by the same method. The heterotrait-heteromethod triangles show the intercorrelations between pairs of traits where one member of the pair is measured by a different scale. The validity diagonal correlations (circled) represent the degree of correlation between the independent measurements of the same trait.

RESULTS

Table 1 contains the alpha coefficients for each scale of the JDI and INDSALES. Alphas range from .67 to .96, demonstrating internal reliability for each scale. Scales for INDSALES range from .85 to .96. These results are consistent with earlier findings (Churchill, Ford, and Walker 1974).

Next, the four criteria developed by Campbell and Fiske are considered to aid in the validation analysis of INDSALES. Of the four criteria, the first is for convergent validity, whereas two, three, and four are for discriminant validity. The criteria and results follow.

1. Correlations in the validity diagonal (circled) should be high and significantly different from zero and sufficiently large to encourage further examination of validity. All five convergent validity values in Table 1 are significant well beyond the p < .01 level and range from .36 to .75. This requirement is met.

2. The validity diagonal values should be higher than values lying in the same column and row in the heterotrait-heteromethod triangles (broken line triangles). This is a minimum requirement. For example, the .49 work correlation should be higher than the correlation between work measured with one scale and any other variable with the other scale. Significance tests of the difference between correlation coefficients show this requirement to be met completely for the supervision, pay, and promotion diagonals. It is met partially for work and coworkers. In the work diagonal, six of the eight correlation coefficients are significantly different. Only one of the eight values in the coworkers diagonal is significantly different.

3. The validity diagonal values should be higher than values in the heterotrait-monomethod (solid line) triangles. Typically, this is a more stringent criterion because it requires that common trait variance exceed common method variance. That is, a variable should correlate higher with an independent effort to measure the same trait than with measures of different traits that happen to use the same method. This requirement is met for promotion. It is partially met for pay and supervision. Pay has three of four correlation coefficients significantly different, and supervision has two. The work and coworker validity diagonals are not higher than values in the heterotrait-monomethod triangles.

4. The final discriminant criterion is that the patterns of trait interrelationships should be duplicated within
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^Reliability alpha coefficients.

Note: Entries in the validity-diagonal are circled. Broken line triangles are heterotrait-heteromethod triangles. Solid line-triangles are heterotrait-monomethod triangles.

All heterotrait-monomethod and heterotrait-heteromethod triangles. This is essentially a question of the ordering of the correlation coefficients within each block. To test the degree of agreement between the orderings of each block, the correlation coefficients were ranked by size and Kendall's coefficient of concordance $W$ was calculated (Siegel 1956). The requirement is met ($W = 22.2, p < .01$).

### CONCLUSION

Multiple measures of satisfaction were used to determine the validity of a new measuring-instrument for salespeople's job satisfaction. The seven satisfaction scales contained in INDGSALES show high internal reliability for each scale. The five satisfaction scales common to INDGSALES and the JDI show convergent and discriminant validity. These findings are encouraging. Indicators are that INDGSALES should be considered for the measurement of salesforce job satisfaction.

### REFERENCES


Gillet, B. and D. P. Schwab (1975), "Convergent and Discriminant Validities of Corresponding Job Descriptive Index and Minnesota Satisfaction Questionnaire Scales," *Journal of Applied Psychology*, 60 (June), 313-17.


