DOCUMENT RESUME

ED 360 369 TM 020 273

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TITLE Developing an Administrative Assessment Instrument.
PUB DATE 18 May 93
NOTE 22p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrator Evaluation; Content Validity; *Continuing Education; Educational Cooperation; Educational Planning; Elementary Secondary Education; Factor Analysis; *Likert Scales; *Needs Assessment; Principals; Problem Solving; Questionnaires; School Administration; Staff Development; *Test Construction; Test Reliability
IDENTIFIERS *Discrepancy Measure

ABSTRACT

The development of a needs instrument designed to assess the continuing education needs of school administrators is described. The instrument was constructed to assess the administrators' continuing needs in: (1) principalship; (2) the school as a system; (3) problem solving; (4) staff development; (5) collaborative long-range planning; (6) short-term planning; and (7) personal awareness. Thirty-eight questions for the assessment were written using a standard domain sampling model, and the revised questions were made into a questionnaire using a Likert discrepancy model. Respondents rated statements on a five-point scale of perception of the degree to which the situation actually exists and perception of the extent to which it is desired to exist. The discrepancy between the two scale values is referred to as the need index. Content validity was established through factor analysis with a sample of 191 school administrators. Reliability measures indicate that the instrument can be used for group assessment. Items for the survey are listed, and two tables present the varimax rotated factor matrix for the two instrument columns (Contains 34 references.) (SLD)

# DEVELOPING AN ADMINISTRATIVE ASSESSMENT INSTRUMENT

BY

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## ABSTRACT

Educators are generating powerful ideas and practices to help education be more successful. In this document, the authors discuss the development of a needs instrument designed to assess the continuing education needs of school administrators.

During the past decade, Snyder and Anderson implemented a leadership training program know as *Managing Productive Schools* (MPS) in Florida, Minnesota, and Virginia. They have trained several thousand administrators worldwide. The program is based on an extensive research base and also on a systems approach to organizational development. The books by Snyder and Anderson (1986) and Snyder (1988) explicitly outline their model for leadership training.

The model assumes that schools that are seeking to transform themselves and to solve major challenges have a vision of a great school that is shared by all members. In addition, an annual school enhancement plan is designed each year and becomes a focus for work activity. A rich array of professional development opportunities that center around enhancement goals is provided for all levels of staff. The central thrust of school enhancement is to align the instructional program routinely to address the needs of various student populations. Allocating resources where needs are the greatest creates natural new structures of work and learning. Resources, information, and opportunity are fundamental materials for organizational productivity (Johnson, Snyder, & Johnson, 1991). Progress with goals, and toward better meeting client needs, is assessed routinely to provide feedback and feed-forward information.

Considering the research base, an instrument was constructed to assess administrators' continuing education desires in seven specified areas: (a) the principalship, (b) the school as a system, (c) problem solving, (d) staff development, (e) collaborative long-range planning, (f) short-term planning, and (g) personal awareness. These seven areas appeared

in the literature review to be important dimensions pertaining to culture, planning, professional development, program development, and assessment.

These subscales, a brief content description, and a sample of an item statement follow: *principalship* consisting of questions embracing the perspectives of leadership, planning, organizing, and motivating organizational behavior. Next was the topic of the *school as a system*. Questions addressed the environmental suprasystem as well as the goal, psychosocial, structural, technical, and management subsystems. To our knowledge, there have been no empirical studies that have accessed the specific effects of school subsystems on school performance.

The third subscale was *problem solving* focusing on real school organizational problems from the perspective of roles, communication skills, and problem solving steps. Next was *short-term planning*, which focused on the principal's varied tasks such as action planning and force field analysis. The fourth subscale addressed was *staff development* encompassing clinical supervision, in-service training, and evaluation. The fifth subscale was *collaborative long-range planning* for school improvement which included goal setting, resource assessment, program planning, and implementation, and monitoring functions and evaluation procedures. Finally, there was a *personal awareness* subscale embracing the perspectives of personality characteristics, self-concept, and administrative-style effectiveness. The 38 questions that were written were then randomly assigned to the instrument.

The construction and administration of the instrument involved the following steps: (a) development of a pool of subscaled questions; (b) development of questionnaire forms and a pool of instrument questions; (c) selection of administrative personnel to respond to

the scale; (d) actual administration of the scale; (e) analysis of the scale for the selection of the pool of items to be included in the instrument; (f) development of computer programs for instrument scoring and classification procedures; and (g) reliability and validity assessments of the scale for the pilot and final versions.

## Development of Items

The 38 questions were written using the standard domain sampling model supported by Nunnally (1967) and Cronbach (1970). Initial questions addressing the seven major training areas were written. These questions were scrutinized and studied. Next the pool of items was expanded. Finally the questions were rewritten and revised. These final revisions produced the pool of items contained in the Survey for Administrative Workshop instrument.

Next a questionnaire form was developed for the pool of items. A Likert format was employed as the response mode for all questions. Lemon (1973) has stated that much of the experimental research pertaining to attitude change involves measuring attitudes by some simple, easily administered instrument, usually a rating-scale format, and then attributing changes or differences in the ratings to the experimental manipulations.

In this context, the Likert scale of summative ratings is the most widely used attitude measure in current research. Gronlund (1976) stated that Likert's approach to attitude scaling was less time consuming in development than earlier methods such as Thurston's and Remmers'. Borg and Gall (1974) identified the Likert technique as the easiest method presently available for developing scales needed in attitude research.

McGinnies (1970) clarified the procedures involved in constructing a Likert scale. The first step involves the writing of a number of statements dealing with the topic under investigation. Respondents then indicate their reaction to each question on an interval scale.

Severy (1974) added that it is assumed all written questions reflect the same attitudinal dimensions when a Likert scale is developed. Advantages of the Likert scale are: (1) that construction is less time consuming and easier than other scaling techniques, and (2) that fewer items are required to obtain higher correlation coefficients (Ahmann & Glock, 1975; Borg & Gall, 1974; Gronlund, 1976; Lemon, 1973; Shaw & Wright, 1967).

Shaw and Wright (1967) indicated that items should be written in simple and clear language, should contain a single idea, and should be unambiguous. Borg and Gall (1974) noted that an instrument dealing with attitudes would generally be constructed as an attitude scale and should include at least ten items to obtain a valid picture of the attitude concerned. Tittle and Hill (1967) investigated the predictive efficiency of four frequently used attitude measurement techniques in terms of predicting indices of voter behavior. The Thurston, Guttman, Likert, and semantic differential scales were compared. In Tittle and Hill's study, the Likert scale was superior to all other scales in predictive validity. Their evidence suggested that in cases where the Likert and Thurston scales were of equal length, the Likert scale exhibited higher reliability.

Likert scales are self-reporting tests commonly used in studies which include measures of attitudes. Gronlund (1976) has observed that one of the most severe drawbacks of such is the distortion of answers by respondents. Attitude scales, therefore, are most useful when the participants have little reason for falsification.

Borg and Gall (1974) have written that individuals who are planning to collect information about attitudes should first search the literature to determine if a suitable scale has already been constructed. If such a scale was not available, it would be necessary to develop one.

A Likert discrepancy model was chosen because of its applicability in general or first-time assessment trials (Witkin, 1977). Discrepancy as defined by Tyler (1949) is understood to mean a difference between some standard of value and an actual status. Sarthory (1977) has defined a need as a quantifiable gap in attitude, achievement, or performance between the ideal and the real.

Kaufman (1972) and Southard (1974) have identified the four specific components in a discrepancy needs assessment procedure: (1) determine desired conditions, (2) determine existing conditions, (3) analyze discrepancies between the actual and desired conditions, and (4) assign priorities to the discrepancies. These discrepancies constitute indices of need.

Pertaining to the discrepancy format, respondents rate specific statements on two five-point Likert scales: (a) perception of the degree to which the situation actually exists (A) and (b) perception of the extent to which the situation is desired to exist (D). The discrepancy between the two scale values, for a specific question, is referred to as the need index.

The discrepancy format response mode included the following two column response categories: (a) actual competence (ACT) (consisting of the following scale): (1) no knowledge of; (2) knowledge of; (3) work with; (4) extensive work with; (5) expertise in; and

(b) desired training (DES) (consisting of the following scale): (1) desire no training, skill unrelated; (2) desire no training, competency high; (3) desire awareness session; (4) desire training; and (5) desire further training. The competency column is the actual status while the training column is the desired status. Jenkins and Taber (1977) found in an agree/disagree context that the number of response categories above five did not, in any situation, yield a significant increase in Likert discriminability.

In recent years a great deal of research has been done to establish the fact that response sets do exist in questionnaire responses (Bendig, 1962; Hand, 1964; Hand & Brazzell, 1965; Rosenwald, 1961; Ruebush, 1963). In order to avoid response set bias or acquiescence tendency, the try-out questions were randomly assigned within the instrument (Cronbach, 1970). Many researchers believe that response sets are only a mild threat to valid measurement, and that their importance has been overestimated. The available evidence he asserts does not justify the strong negative assertions made by response-set enthusiasts.

There is the question of a metric base for the variables. Stevens (1946) wrote that factor analysis requires the variables be measured on at least an interval level. This requirement is implied by the use of correlation or covariance matrices as the basic input to factor analysis. If it were argued that the scaling used was not absolutely of a metric base, would a researcher always avoid factor analysis? Kim and Mueller (1978) wrote that such is not necessarily so. Many variables, such as measure of attitudes and opinions, do not have a clearly established metric base. Furthermore, it is generally assumed that many ordinal variables may be given numeric values without distorting the underlying properties. The

final answer to the question of applying multivariate analysis to a nonmetric variable base really hinges on two considerations: (a) how well the arbitrarily assigned numbers reflect the underlying true distances, and (b) the amount of distortion introduced in the correlation procedures (which become the basic input to factor analysis) by the distortions of scaling. Another consideration not mentioned by Kim and Mueller (1978) would be the importance of precision of measurement. From a *post hoc* research purist perspective, it would have been better to have omitted the *desire no training* (competency high) response choice. However, very few of the respondents chose this category. Fortunately, correlation coefficients are fairly robust with respect to ordinal distortions in measurement (Kim, 1975; Labovitz, 1967, 1970). Hence, as long as the distortions introduced by assigning numeric values to ordinal categories are not very substantial, treating ordinal variables as if they are metric variables can be justified (Kim & Mueller, 1978). The scale descriptions were written to reflect as near a metric base as possible.

## Development of the Instrument Form

An introductory paragraph in the questionnaire explained the purpose of the instrument distribution. Immediately following were directions and definitions pertaining to the completion of the scale and meanings of the terms used. A concluding demographic section asked for workshop training preferences and data pertaining to each participant's title, division of responsibility, school-district size and setting, major economic base, and community ethnic composition.

## Selection of Respondents and Test Scoring

All the respondents were administrative-type personnel, such as principals, assistant principals, superintendents, assistant superintendents, supervisors, or curriculum directors. School districts included both the Northeast and Northside Independent School Districts in San Antonio, Texas; the Penn-Harris-Madison School Corporation in Osceola, Indiana; and the Princeton Regional Schools in Princeton, New Jersey. The total sample size was 191.

A discrepancy format instrument like this would be scored using a correlated t test to calculate a needs index for each question. The literature of statistical procedures is replete with descriptions of and derivations for this procedure (Hicks, 1973; Hinkle & Wiersma, 1979; Kirk, 1968).

**Analysis of the Instrument**

Construct validity was established through the factor analysis of the final 38-item scale (Gorsuch, 1983). The factoring method used was PA2 (principal factoring using iteration) with the varimax criterion specified as the method of orthogonal rotation (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Three present status scales (PRE) and three desired status scales (DES) emerged. The PRE and DES factors were paired and common questions were extracted. This procedure reduces the common factors to two. The PRE questions for factor one (factor loadings greater than or equal to .4) were PRE 16, 17, 18, 19, 21, 23, 24, 28, 31, 32, 35, and 36. Cronbach's alpha was .94 for this subscale. The corresponding DES questions had an alpha value of .94. Both PRE and DES questions pooled had an alpha value of .88. The identical procedure was followed in investigating the psychometric properties of the second factor; the PRE questions which emerged were PRE 1, 2, 3, 5, 8, 12, and 29. Cronbach's alpha was .87. The corresponding DES questions had an alpha

value of .91. The pooled set of PRE and DES questions had an alpha value of .80. All PRE questions (1, 2, 3, 5, 8, 12, 16, 17, 18, 19, 21, 23, 24, 28, 29, 31, 32, 35, and 36) had an alpha value of .95. The alpha value for all the corresponding DES questions was .96. All PRE and DES questions pooled had an alpha value of .91. Tables 1 and 2 list the varimax rotated factor matrices for the PRE and DES columns (only items with factor loadings greater than or equal to .4 were considered for inclusion in the instrument).

Questions 1, 2, 3, 5, 8, 12, and 29 dealt with planning and staff development. Questions 16, 17, 18, 19, 21, 23, 24, 28, 31, 32, 35, and 36 dealt with assessment and motivation. The administrators wanted to know how to assess the effectiveness of their staffs, how to set goals, and how to motivate their staff to work at their peak and accomplish their goals.

## Summary and Conclusion

This article illustrates the process for the development and field testing of a needs assessment instrument for the assessment of the continuing educational needs of administrators. The process linked the literature review with a primary factor analysis. The instrument was shown to be reliable and valid. Because of the reliability measures, the instrument can be used for group assessment. If it were desired that norms be established in an instrument development study, such would involve the use of converting and equating procedures to generate a normal distribution process would allow the generation of percentile reference points for the interpretation of administrators' scores. A sample could be checked with respect to geographical distribution, socioeconomic level or other information relevant to the study. For this particular study, however, norms were not

developed. Such could be a point-of-departure for another study which would encompass a separate body of psychometric literature and statistical analyses.

## INSTRUMENT ITEMS FOR SURVEY

1. How to design inservice programs which increase the effectiveness of my staff.
2. How to lead my staff and parents in long-range planning.
3. How to develop collaborative action plans for accomplishing school goals.
4. How to lead groups in creative problem solving activities.
5. How to develop effective action plans for accomplishing school goals.
6. How to think about my school (school system) from a systems approach to organization and management.
7. How to provide leadership to my school in its continuous improvement.
8. How to plan for change and to be responsible to the emerging needs of my staff, students, and parents.
9. How to conduct formative evaluation.
10. How to conduct summative evaluation.
11. How to analyze my school organization and its potential for growth.
12. How to plan for and conduct staff evaluation.
13. How to think about my school as an ecosystem and the various operational subsystem in my school environment.
14. How to set goals collaboratively.
15. How to involve teachers in peer supervision and continuous improvement on the job.
16. How to assess my administration effectiveness in working with my staff, students, and parents to improve my school.
17. How to involve teachers, students, and parents in planning for school improvement.
18. How to assess the needs of my school and set my own goals for improvement.
19. How to motivate my staff to work at the peak of their potential.
20. How to control all school activities so that we accomplish our goals effectively.

21. How to assess the growth needs of my faculty.

22. How to use creative problem solving techniques in dealing with specific school organizational problems.

23. How to assess my own beliefs and values in relation to what exists in my school currently and to my visions for improvement.

24. How to assess the various forces within and outside my school and their influence on my goals for improvement.

25. How to conduct long-range planning for school improvement.

26. How to generate creative options for accomplishing goals.

27. How to evaluate the accomplishment of school goals.

28. How to identify my own personal characteristics and their effect on my performance.

29. How to monitor the implementation of school improvement plans.

30. How to plan for my own professional growth needs.

31. How to assess our resources for all goals.

32. How to develop creative solutions to school problems.

33. How to assess my self-concept and its effect on my goals.

34. How to nurture creativity among staff members.

35. How to organize my school so as to maximize our resources in accomplishing our purposes.

36. How to increase my visions of the possibilities for educational change in my school.

37. How to increase my own skills in supervision through observation of teaching performance, critical analysis, and interpretation of data and data feedback and recommendations for improvement.

38. How to prioritize goal options.

## TABLE 1

## VARIMAX ROTATED FACTOR MATRIX BY QUESTION FOR THE PRE COLUMN IN THE INSTRUMENT

| Item Number[a] | Factor #1 (78.9)[b] | Factor #2 (6.7) | Factor #3 (4.3) |
|---|---|---|---|
| PRE 01 | 0.221 | 0.577 | 0.121 |
| PRE 02 | 0.288 | 0.634 | 0.190 |
| PRE 03 | 0.221 | 0.519 | 0.099 |
| PRE 04 | 0.091 | 0.529 | 0.180 |
| PRE 05 | 0.316 | 0.616 | 0.153 |
| PRE 06 | 0.199 | 0.328 | 0.208 |
| PRE 07 | 0.397 | 0.678 | 0.168 |
| PRE 08 | 0.355 | 0.594 | 0.260 |
| PRE 09 | 0.169 | 0.320 | 0.230 |
| PRE 10 | 0.288 | 0.298 | 0.158 |
| PRE 11 | 0.616 | 0.334 | -0.040 |
| PRE 12 | 0.296 | 0.535 | 0.132 |
| PRE 13 | 0.280 | 0.176 | 0.115 |
| PRE 14 | 0.400 | 0.477 | 0.298 |
| PRE 15 | 0.379 | 0.106 | 0.212 |
| PRE 16 | 0.632 | 0.144 | 0.253 |
| PRE 17 | 0.571 | 0.335 | 0.260 |
| PRE 18 | 0.603 | 0.354 | 0.292 |
| PRE 19 | 0.592 | 0.345 | 0.287 |
| PRE 20 | 0.682 | 0.297 | 0.256 |
| PRE 21 | 0.649 | 0.167 | 0.229 |
| PRE 22 | 0.620 | 0.266 | 0.180 |
| PRE 23 | 0.530 | 0.166 | 0.365 |
| PRE 24 | 0.630 | 0.143 | 0.290 |
| PRE 25 | 0.566 | 0.365 | 0.107 |
| PRE 26 | 0.547 | 0.312 | 0.243 |
| PRE 27 | 0.683 | 0.377 | 0.198 |
| PRE 28 | 0.549 | 0.104 | 0.541 |
| PRE 29 | 0.560 | 0.407 | 0.325 |
| PRE 30 | 0.249 | 0.267 | 0.680 |
| PRE 31 | 0.615 | 0.194 | 0.360 |
| PRE 32 | 0.581 | 0.294 | 0.296 |
| PRE 33 | 0.352 | 0.218 | 0.724 |
| PRE 34 | 0.392 | 0.226 | 0.502 |
| PRE 35 | 0.624 | 0.282 | 0.349 |

(Continued)

**TABLE 1 — Continued**

**VARIMAX ROTATED FACTOR MATRIX BY QUESTION FOR THE PRE COLUMN IN THE INSTRUMENT**

| Item Number[a] | Factor #1 (78.9)[b] | Factor #2 (6.7) | Factor #3 (4.3) |
|---|---|---|---|
| PRE 36 | 0.662 | 0.289 | 0.308 |
| PRE 37 | 0.428 | 0.348 | 0.471 |
| PRE 38 | 0.552 | 0.242 | 0.455 |

[a] Items in present-competency column (PRE) correspond to the instrument numbering sequence

[b] Percent of total variance is in parentheses

## TABLE 2

## VARIMAX ROTATED FACTOR MATRIX BY QUESTION FOR THE DES COLUMN IN THE INSTRUMENT

| Item Number[a] | Factor #1 (83.1)[b] | Factor #2 (5.4) | Factor #3 (4.3) |
|---|---|---|---|
| DES 01 | 0.231 | 0.512 | 0.105 |
| DES 02 | 0.182 | 0.578 | 0.175 |
| DES 03 | 0.120 | 0.458 | 0.479 |
| DES 04 | 0.203 | 0.176 | 0.258 |
| DES 05 | 0.202 | 0.412 | 0.258 |
| DES 06 | 0.198 | 0.246 | 0.626 |
| DES 07 | 0.332 | 0.249 | 0.284 |
| DES 08 | 0.322 | 0.464 | 0.220 |
| DES 09 | 0.163 | 0.671 | 0.330 |
| DES 10 | 0.185 | 0.594 | 0.357 |
| DES 11 | 0.386 | 0.454 | 0.512 |
| DES 12 | 0.272 | 0.609 | 0.248 |
| DES 13 | 0.101 | 0.154 | 0.687 |
| DES 14 | 0.270 | 0.339 | 0.503 |
| DES 15 | 0.244 | 0.435 | 0.165 |
| DES 16 | 0.598 | 0.427 | 0.043 |
| DES 17 | 0.408 | 0.514 | 0.092 |
| DES 18 | 0.504 | 0.438 | 0.361 |
| DES 19 | 0.540 | 0.391 | 0.076 |
| DES 20 | 0.348 | 0.292 | 0.335 |
| DES 21 | 0.640 | 0.289 | 0.151 |
| DES 22 | 0.289 | 0.272 | 0.225 |
| DES 23 | 0.510 | 0.304 | 0.464 |
| DES 24 | 0.474 | 0.173 | 0.541 |
| DES 25 | 0.335 | 0.477 | 0.270 |
| DES 26 | 0.223 | 0.198 | 0.373 |
| DES 27 | 0.271 | 0.506 | 0.199 |
| DES 28 | 0.571 | 0.318 | 0.317 |
| DES 29 | 0.266 | 0.428 | 0.223 |
| DES 30 | 0.521 | 0.287 | 0.266 |
| DES 31 | 0.413 | 0.296 | 0.349 |
| DES 32 | 0.408 | 0.165 | 0.236 |
| DES 33 | 0.565 | 0.159 | 0.436 |
| DES 34 | 0.548 | 0.157 | 0.179 |
| DES 35 | 0.537 | 0.200 | 0.388 |

(Continued)

TABLE 2 — Continued

VARIMAX ROTATED FACTOR MATRIX BY QUESTION FOR THE DES COLUMN IN THE INSTRUMENT

| Item Number[a] | Factor #1 (83.1)[b] | Factor #2 (5.4) | Factor #3 (4.3) |
|---|---|---|---|
| DES 36 | 0.619 | 0.084 | 0.479 |
| DES 37 | 0.366 | 0.462 | 0.063 |
| DES 38 | 0.333 | 0.420 | 0.444 |

[a] Items in desired-competency column (DES) correspond to the instrument numbering sequence

[b] Percent of total variance is in parentheses

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