DOCUMENT RESUME

ED 364 596 TM 020 844

AUTHOR Haydel, Juanita B.

TITLE Higher-Order Factor Analysis of Data from the Problems of Teaching Survey.

PUB DATE Nov 93

NOTE 40p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (22nd, New Orleans, LA, November 9-12, 1993).

PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS *Correlation; *Elementary School Teachers; Elementary Secondary Education; *Factor Analysis; Likert Scales; Matrices; Problems; *Secondary School Teachers; Surveys; *Teacher Attitudes

IDENTIFIERS *Problems of Teaching Survey; *Rotations (Factor Analysis); Self Report Measures; Teacher Surveys

ABSTRACT

Many researchers recognize that factors can be rotated obliquely, yielding factors that are correlated with each other. However, not as many researchers realize that this interfactor correlation matrix can then also be factor analyzed. This "higher-order" factor analysis has many useful applications and, in fact, some researchers suggest that higher-order analyses should always be conducted whenever first-order factors are rotated obliquely. Results of a survey of teachers from Louisiana and Mississippi (n=291) as to self-perceived teacher problems are analyzed with SECONDOR, a FORTRAN computer program that computes various first-order principal components and then computes second-order factor solutions. The results of this analysis provide informative insights into the relationships underlying responses. Six tables, one figure. (Contains 15 references.) (Author)

HIGHER-ORDER FACTOR ANALYSIS OF DATA FROM THE PROBLEMS OF TEACHING SURVEY

Juanita B. Haydel

Paper presented at the annual meeting of the Mid-South Educational Research Association, New Orleans, November 10, 1993.

ABSTRACT

Many researchers recognize that factors can be rotated obliquely, yielding factors that are correlated with each other. However, not as many researchers realize that this interfactor correlation matrix can then also be factor analyzed. This "higher-order" factor analysis has many useful applications and, in fact, some researchers suggest that higher-order analyses should always be conducted whenever first-order factors are rotated obliquely. Results of a survey of teachers from Louisiana and Mississippi (n = 291) as to self-preceived teacher problems are analyzed with SECONDOR, a FORTRAN computer program that computes various first-order principal components and then computes second-order factor solutions. The results of this analysis provide informative insights into the relationships underlying responses.

Higher-order factor analysis is an important, but often neglected, approach to understanding data. Higher-order factors are a result of factoring the correlations among the first-order factors. When the original correlation matrix is factored, the results are called primary or first-order factors. Factoring the correlation matrix showing obliquely-rotated first-order factors gives secondary or second-order factors. If there are several second-order factors and they are rotated obliquely, there is also a matrix of correlations among the second-order factors and this matrix too can be factored. These factors would be third-order factors. This process can be continued until only one factor results or an uncorrelated rotation of the factors is appropriate as the factor solution.

The first-order factors are generally narrow in scope, concerned with narrow areas of generalization where accuracy is great. When these narrow factors correlate with each other, the resulting higher-order factors will be broader in scope, with an accompanying reduction in accuracy. The amount of reduction in accuracy will depend upon the data being analyzed. It is important to recognize that first-order and second-order results paint different portraits of the data, each of which is informative and aids in the understanding of the data. Gorsuch (1983) suggests that different levels of analysis offer different perspectives on the constructs under study. The second-order perspective is

more global while the first-order perspective is narrower and yields finer detail.

An illustration of phenomena which can be arranged in a higher-order factor analysis may be helpful. Achievement in schools is often measured using standaradized tests such as the California Achievement Test. Measures of achievement are grouped into categories such as reading comprehension, vocabulary, mathematical computation, mathematical concepts, science, social studies, spelling, study skills, etc. These could be considered primary achievement factors. The primary achievement factors correlate together and second-order factors might be identified, e.g., numerical and verbal achievement. These second-order factors are assumed to correlate to form the general achievement score.

The highest degree of generalization is the total battery score. However, if a higher degree of accuracy is required and less generalization can be tolerated, the second-order factors could be used. For more applied purposes, the primary factors could be used. While the primary factors are highly accurate, they are also limited in the breadth of their application. The usefulness of higher-order factor analysis lies in its relative merits for the theory under consideration. Higher-order factors are in no way more important than first-order factors. Both higher-order and first-order factors contribute to the understanding of the data. According to Gorsuch (1983),

implicit in all factor analysis with oblique rotations are higher-order factors. Gorsuch recommends that these higher-order factors be routinely extracted and examined to assist the researcher in a fuller understanding of the data.

While references and research abound relating to first-order factor analysis, higher-order factor analysis seems to be used less frequently in educational research. An ERIC search of documents written from 1982 - March, 1993, using the topic "higher-order factor analysis" located only five articles, and a search using the topic "second-order factor analysis" located only 11 articles. Examples of applications of second-order factor analysis are reported by Kelly (1984), Thompson and Borrello (1986), Thompson and Melancon (1988), Borrello and Thompson (1989), Wothke and Browne (1990), and Cheal (1991). As Kerlinger (1984, p. xivv) noted, "while ordinary factor analysis is probably well understood, second-order factor analysis, a vitally important part of the analysis, seems not to be widely known and understood." Considering the relative dearth of studies empolying second-order factor analysis, the purpose of the present paper is to illustrate the usefulness of second-order factor analysis using the program SECONDOR (Thompson, 1990) and data collected using the Problems of Teaching Survey (POTS) (Daniel & Cutrer, 1992).

HIGHER-ORDER FACTOR ANALYSIS OF POTS DATA

Daniel and Cutrer (1992) describe the development of the Problems of Teaching Survey (POTS) and results of construct validity and alpha reliability analysis. Using the data set from Daniel and Cutrer (1992) involving responses of 291 subjects to the Problems of Teaching Survey (POTS), a scale of 51 Likert-type items describing various problem areas of teachers, this paper analyzes the data using a FORTRAN program, SECONDOR (Thompson, 1990). The SECONDOR program was written by and is available from Bruce Thompson at Texas A&M University.

The first decision that the researcher must make when conducting a factor analysis is how many first-order factors to extract. There are several criteria that can be employed; however, many researchers conducting principal components analysis find it useful to extract all components with eigenvalues greater than 1.0 (Guttman, 1954). In the first analysis of the POTS data, 11 first-order principal components were extracted from the correlation matrix based on the eigenvalue-greater-than-one criterion. A second analysis specifying eight first-order principal components was also attempted based on the research of Daniel and Cutrer (1992) in which they identified an eight-factor solution as the most interpretable result.

The 11 first-order components and, subsequently, the eight first-order components were then rotated obliquely,

i.e., so that the factors were allowed to be correlated with each other. The PROMAX method developed by Henrickson and White (1964) involves altering an orthogonal rotation so that it gives an oblique solution. The initial orthogonal varimax-rotated (Kaiser, 1958) coefficients are cubed, and this solution is used as a target for creating an ideal oblique solution. The factor matrix is then rotated to the best least-squares fit to the target solution by the Procrustes procedure.

Gorsuch (1983) explains that to create a solution better than that given by orthogonal rotation, the moderate to low variable-factor correlations need to be lower than in the orthogonal solution while the high correlations should remain relatively high. Such an improved solution may be possible if the factors are allowed to be oblique. Gorsuch (1983) goes on to explain that mathematically, all variable-factor correlations become lower when they are raised to a higher power, considering that numbers less than |1.00| get smaller when multiplied by themselves. For example, the square of .3 is .09 and its cube is .027. However, high and low squared factor structure coefficients have a greater relative difference than they do before squaring or cubing. If the original coefficients are .9 and .3, .3 is one-third as large as .9. But the squared coefficient for the second variable, .09, is only one-ninth as large as the squared

coefficient for the first variable, .81. In this case, the absolute difference also increases. The relative discrepancy between the large and the moderate to small coefficients can be increased further by raising the factor loading to a power greater than 2. In this analysis, the entries in the rotated matrix are raised to the power of 3.0, so that (with an odd-numbered exponent) the signs of the original VARIMAX matrix coefficients are restored in the new matrix which becomes the "target" matrix. Next, the VARIMAX matrix is rotated to a position of best fit for the target matrix using the Procrustes rotation. This result matrix is the PROMAX rotated matrix with correlated first-order factors.

The next step of the analysis involves the extraction of second-order factors from the matrix of correlations among the first-order PROMAX-rotated components. Again, several criteria can be employed to decide the number of second-order factors to extract. The eigenvalue-greater-than-one rule can be useful in guiding this decision (Gorsuch, 1983, p. 244). In the first analysis, the pre-rotation eigenvalues for the first 11 second-order principal components were 3.56580, 1.54272, 0.95130, 0.87913, 0.79179, 0.68771, 0.59006, 0.569006, 0.53227, 0.47178, and 0.41823. Therefore, two second-order components were extracted and rotated to the VARIMAX criterion. In the second analysis, the pre-rotation eigenvalues for the eight second-order

principal components were 3.24607, 1.05100, 0.76346, 0.72524, 0.67528, 0.59498, 0.49534, and 0.44864. Again, two second-order components were extracted and rotated to the VARIMAX criterion.

Since the analysis is now complete, the results may be interpreted. Deciding how to best interpret the results is a matter of some controversy. Some researchers attempt to interpret the second-order factors using only the first-order factors. However, this is problematic and confusing. As Gorsuch (1983, p. 245) states:

> Interpretations of the second-order factors would need to be based upon the interpretations of the first-order factors that are, in turn, based upon the interpretations of the variables.... To avoid basing interpretations upon interpretations, the relationships of the original variables to each level of the higher-order factors are determined.

Gorsuch (1983, p. 247) suggests that one way to avoid "interpretations of interpretations" is to postmultiply the first-order factor pattern matrix by the orthogonally rotated second-order factor pattern matrix. The matrix algebra formula to derive this result matrix is:

$$S_{(V \times S)} = P_{(V \times F)} \times V_{(F \times S)}$$

where,

P is the PROMAX-rotated 51x11 first-order pattern

coefficient matrix;

V is the VARIMAX-rotated 11x2 second-order factor pattern/structure coefficient matrix; and,

S is the unrotated 51x2 product matrix derived by multiplying these two matrices together.

But if rotation is used to facilitate intepretation of other structures, it also seems plausible to rotate the product matrix, S, itself to the varimax criterion. Both forms of the product matrices are calculated by SECONDOR. Table 1-A presents the 11x2 VARIMAX-rotated second-order factor matrix for the 11 principal components which resulted when all principal components with eigenvalues greater than 1 were specified. Table 1-B presents the 8x2 VARIMAX-rotated second-order factor matrix for the eight principal components which resulted when eight principal components were specified. Table 2-A presents the product matrix rotated to the varimax criterion for the two second-order components derived from the first program run (all principal components with eigenvalues greater than 1 specified), while Table 2-B presents the same information from the second program run (eight principal components specified).

INSERT TABLES 1-A and 1-B and 2-A and 2-B ABOUT HERE.

In Table 1-A, the first-order factors 6 and 11 have communality coefficients of 29.9% and 17.2% with the second-

order solution. Thus, most of the variance of these first-order factors is not represented within the higher-order solution. In Table 1-B, Factor 8 was relatively equally correlated with second-order Factors I and II and appears salient to both second-order factors.

Another interpretation aid involves the manipulations proposed by Schmid and Leiman (1957) and also explained by Gorsuch (1983, pp. 248-254). This approach "orthogonalizes" the two levels of analyses to each other and also allows interpretation of both levels of analysis in terms of the observed variables. Table 3-A presents the Schmid-Leiman (1957) solution for the first run of the program (all principal components with eigenvalues greater than 1 specified) and Table 3-B presents the Schmid-Leiman (1957) solution for the second run of the program (eight principal components specified). It should be noted that the first two columns in Tables 3-A and 3-B are also equivalent to the unrotated product matrix that Gorsuch (1983) suggests can be interpreted without rotation. The two second-order factors in this case dominate the factor space, as suggested by the trace reported in Tables 3-A and 3-B.

INSERT TABLES 3-A and 3-B ABOUT HERE.

INTREPRETATION OF SECOND-ORDER RESULTS

Gorsuch (1983) suggests that the various levels of analysis give different perspectives on data. The first-order analysis is a close-up view that focuses on the details of the data set. The second-order analysis is like looking at the data from a far distance, and it yields a more global perspective of the data. Both perspectives may be useful in facilitating understanding of the data.

Global View Focusing on the Second-Order Factors

The VARIMAX rotated product matrices presented in Tables 2-A and 2-B show the two second-order factors portrayed using the 51 POTS items with repect to the first and second runs of the program. These views are analogous to looking at a mountain range from a distance to focus on the identity of the mountains and the range they constitute while ignoring the hills and valleys. Table 4-A (all principal components with eigenvalues greater than 1 specified) and Table 4-B (eight principal components specified) present those items that were correlated more than |0.45| with these rotated second-order results.

INSERT TABLES 4-A AND 4-B ABOUT HERE.

The first factor presented in Table 4-A had a postrotation eigenvalue of 9.9342 and the first factor in

Table 4-B had a postrotation eigenvalue of 10.1845, both of which were the larger of the two postrotated eigenvalues, respectively, for these solutions. There were 22 items meeting the salience criterion (i.e., $r > |.45|$) for Factor I in Table 4-A and 23 items meeting the same criterion for Factor I in Table 4-B. Items 8 (general attitude of students), 37 (inadequate/outdated facilities), and 49 (problems with teacher evaluation procedures) were included in Factor I results in Table 4-A (all principal components with eigenvalues greater than 1 specified) and were not included in Factor I results in Table 4-B (eight principal components specified). However, items 2 (lack of renumeration for extra duties), 3 (inadequacy of retirement benefits), 27 (little opportunity for advancement), and 33 (lack of fulfillment) were included in Factor I results in Table 4-B (eight principal components specified) and were not included in Factor I in Table 4-A (all principal components greater than 1 specified). Even with these slight differences, there were 19 items common to Factor I in both tables. The first factor, Factor I, seems to reflect problems in the physical and psychological environments of the teacher. This factor seems to encompass items that teachers preceive they can control more directly, i.e., problems dealing with the workplace and self. Perhaps the locus of control is more immediate to the teacher. Hence,

Factor I might be labeled Physical/Psychological Environment.

The second factor presented in Table 4-A (all principal components with eigenvalues greater than 1 specified) had a postrotation eigenvalue of 9.0323 and the second factor in Table 4-B (eight principal components specified) had a postrotation eigenvalue of 8.9893. Table 4-A listed 20 items meeting the salience criterion ($r > |.45|$) for Factor II, while Table 4-B listed 19 items. The agreement of the items was very close. Item 8 (general attitude of students) was included in Factor II in Table 4-B (eight principal components specified), but it was included in Factor I in Table 4-A (all principal components with eignevalues greater than 1 specified). Item 33 (lack of fullfillment) was included in Factor II in Table 4-A, but was included in Factor I in Table 4-B results. Item 28 (routine/boredom) was included in Factor II in Table 4-A, but not included in Factor II in Table 4-B. There were 18 items common to both tables. The items meeting the salience criterion (i.e., $r > |.45|$) dealt with problems relative to other persons. To resolve these problems the teacher would need to deal with other people such as students, parents, administrators, and other community members. Perhaps teachers felt less ability to directly control or influence these factors. Hence, Factor II might be labeled Relations with Others.

Close-up View Focusing on Both Second-Order Factors and Orthogonalized First-Order Factors

Tables 5-A and 5-B present a listing of items that met the salience criteria (i.e., $r > |.45|$) with respect to the Schmid and Leiman (1957) results presented in Tables 3-A and 3-B, respectively. As noted previously, these results are useful both for a global view of the second-order factors and for a closer view of the solution, i.e., the first-order factors orthogonalized for variance in the second-order factors. It is noteworthy that Factor 3 (administration related probelms) has the most trace (2.56 and 2.76) left at the first-order level, as reported in Tables 5-A and 5-B, respectively. This suggests that administration related concerns items may be somewhat disproportionately represented at the first-order as against the second-order level.

INSERT TABLES 5-A and 5-B ABOUT HERE.

The previous interpretation of the second-order factors involved the VARIMAX-rotated product matrix, $S_{(VxS)}$. The results reported for the second-order factors in the Schmid-Leiman (1957) solution invoke an interpretation of the unrotated product matrix, $S_{(VxS)}$. In the present example, the two second-order factors as they are portrayed in Tables 5-A and 5-B retain essentially the same meaning they had when they were orthogonally rotated. Factor I in Table

5-A had a postrotation eigenvalue of 9.93, and, in Table 5-B, Factor I had an eigenvalue of 10.18. Factor II in Table 5-A had an eignevalue of 9.03, and, in Table 5-B, Factor II had an eignevalue of 8.99. These two second-order factors dominated the factor space as suggested by the trace reported.

Items 8 (general attitude of students), 37 (inadequate/outdated facilities), and 49 (problems with teacher evaluation procedures) were included in Factor I results in Table 5-A (all principal components with eigenvalues greater than 1 specified) and were not included in Factor I results in Table 5-B (eight principal components specified). Nineteen items were common to both Tables 5-A and 5-B results for Factor I. Again, the label of Physical/ Psychological Environment seems appropriate.

Items 28 (routine/boredom) and 33 (lack of fulfillment) were salient with Factor II in Table 5-A, but not in Table 5-B. Item 8 (general attitude of students) was salient with Factor II in Table 5-B, but not in Table 5-A. Eighteen items were common to both Tables 5-A and 5-B for Factor II. Again, the label of Relations with Others seems appropriate.

Using the results from the second analysis where eight principal components were specified, Table 6 presents the names given to each first-order factor based on consulting the results for the Schmid-Leiman (1957) solution reported in Tables 3-B and 5-B and on the results of Daniel and

Cutrer (1992). Figure 1 represents a map of the POTS construct derived by consulting Tables 1-B, 3-B, and 5-B and Daniel and Cutrer (1992).

INSERT TABLE 6 AND FIGURE 1 ABOUT HERE.

DISCUSSION

Data from a previous study (Daniel & Cutrer, 1992) of a measure of perceptions of teacher problems were employed to provide a basis for enumerating the unique insights that can be derived from second-order factor analysis. Gorsuch (1983) suggests that different levels of analysis offer different perspectives on the constructs under study. The second-order perspective is more global while the first-order perspective is narrower and yields finer detail. Thus, the analysis allows contrasts of the perspectives to identify similarities and differences.

In the both analyses, the results indicate that the second-order factor space is dominated by two factors. Using the results obtained when eight principal components were specified as reported in Tables 2-B and 4-B for results involving the VARIMAX rotated product matrix, Factor I had a postrotation eigenvalue of 10.1845, and 23 items had structure coefficients meeting the salience criterion employed ($r > |.45|$). Factor II had a postrotation

eigenvalue of 8.9893, and 19 items had structure coefficients meeting the salience criterion.

As reported in Tables 3-B and 5-B, Factor I had an eigenvalue of 10.18 and accounted for 22.5% of the trace in this solution involving 23 items. As reported in Tables 1-B and 6 and Figure 1, four first-order factors were salient to the second-order Factor I-Physical/Psychological Environment: working conditions, emotional distress, salary/ benefits, and interpersonal concerns.

Factor II in Tables 3-B and 5-B had an eigenvalue of 8.99 and accounted for 20.5% of the trace in this solution involving 19 items. As reported in Tables 3-B and 5-B and Figure 1, four first-order factors were salient to the second-order Factor II-Relations with Others: student related concerns, administration related concerns, lack of respect, and parent and community related concerns.

It is also noteworthy that the first-order Factor 8, labeled interpersonal, was salient to both second-order factors in Table I-B, but in the Schmid-Leiman (1957) analysis presented in Tables 3-B and 5-B, Factor 8 aligned more closely to Factor I.

Gorsuch (1983, p. 255) states, "Rotating obliquely in factor analysis implies that the factors do overlap and that there are, therefore, broader areas of generality than just a primary factor. Implicit in all oblique rotations are higher-order factors." Thus, the previous research findings

of Daniel and Cutrer (1992) using the Problems of Teaching Survey (POTS) in which they identified an eight-factor solution as the most interpretable result suggested that second-order factor analysis might be useful in developing a fuller understanding of the data. Results of the higher-order analysis identified two second-order factors that underlie the large number of first-order factors. Again this view is similar to viewing a mountain range from a distance to focus on the identity of the mountains and the range they consitute while ignoring the hills and valleys. SECONDOR analysis gives a larger perspective to meaningful constructs of the POTS data and illustrates how the method of higher-order analysis is useful in looking at the larger concepts which help to inform theory.

Perhaps this analysis lends support to the suggestion given by Daniel and Cutrer (1992) for researchers to continue to study the various psyco-social predictor variables to aid in the resolution of problems preceived by teachers that may ultimately result in their leaving the profession. It makes good intuitive sense to look to variables such as the physical/psychological environment and relations with others in addition to demographic variables as predictors of teacher problems and for insight into defining these problem areas and attempting to discover mechanisms for their resolutions.

References

Borrello, G.M., & Thompson, B. (1989, November). Second-order factor analysis as a validity assessment tool: A case study example involving perceptions of stereotypic love. Paper presented at the annual meeting of the Mid-South Educational Research Association, Little Rock, AR. (ERIC Document Reproduction Service No. 312 299)

Cheal, J. (1991). Organizational climate in middle-level schools. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Daniel, L.G., & Cutrer, S. (1992). A multivariate investigation of self-perceived teacher problems: results of a survey of teachers in two states. Paper presented at the annual meeting of the Mid-South Educational Research Association, Houston, TX.

Gorsuch, R.L. (1983). Factor analysis (2nd ed.). Hillsdale, NJ: Erlbaum.

Hendrickson, A.E., & White, P.O. (1964). Promax: A quick method for rotation to oblique simple structure. British Journal of Statistical Psychology, 17(1), 65-70.

Kaiser, H.F. (1958). The varimax criterion for analytic rotation in factor analysis. Psychometrika, 23(3), 187-200.

Kelly, M. (1984). A factor analytic investigation of the needs of older students enrolled in college. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, New Orleans, LA.

Kerlinger, F.N. (1986). Foundations of behavioral research (3rd ed.). Fort Worth: Holt, Rinehart & Winston.

Kerlinger, F.N. (1984). Liberalism and conservatism: The nature and structure of social attitudes. Hillsdale, NJ: Erlbaum.

Schmid, J., & Leiman, J. (1957). The development of hierarchical factor solutions. Psychometrika, 22, 53-61.

Thompson, B. (1990). SECONDOR: A program that computes a second-order principal components analysis and various interpretations aids. Educational and Psychological Measurement, 50, 575-580.

Thompson, B., & Borrello, G. (1986). Second-order factor analysis of the MBTI: A construct validity assessment. Measurement and Evaluation in Counseling and Development, 18(4), 148-153.

Thompson, B., & Melancon, J. (1988). Confirmatory and second-order factor analyses of androgyny data from adolsecents. Paper presented at the Annual Meeting of the Southwest Educational Research Association, San Antonio, TX. (ERIC Document Reproduction Service No. ED 295958)

Wothke, W., & Brown, M. (1990). The direct product model for the MTMM matrix parameterized as a second-order factor analysis model. Psychometrika, 55(2), 255-262.

Zwick, W., & Velicer, W.F. (1986). Comparison of five rules for determining the number of components to retain. Psychological Bulletin, 99, 432-442.

TABLE 1-A
(ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED)
VARIMAX Rotated Second-Order Matrix

First Order	Second-Order		
Factor	I	II	h^2
1	0.40293	0.51482	0.42739
2	0.73997	0.12594	0.56341
3	0.27318	0.59985	0.43444
4	0.60669	0.24812	0.42964
5	0.32889	0.66790	0.55426
6	0.38971	0.38307	0.29862
7	0.11540	0.72622	0.54071
8	0.76551	0.04711	0.58823
9	-0.33469	0.68611	0.58277
10	0.71688	0.05558	0.51701
11	-0.35774	-0.20993	0.17205
Trace	2.7659	2.3426	5.1085

TABLE 1-B
(EIGHT PRINCIPAL COMPONENTS SPECIFIED)
VARIMAX Rotated Second-Order Matrix

First Order	Second-Order		
Factor	I	II	h^2
1	0.42141	0.54280	0.47221
2	0.78065	0.12125	0.62412
3	0.39640	0.52168	0.42928
4	0.70377	0.18575	0.52979
5	0.35583	0.63572	0.53075
6	0.66185	0.14593	0.45934
7	-0.12968	0.88650	0.80271
8	0.47483	0.47265	0.44886
Trace	2.2464	2.0507	4.2971

TABLE 2-A (ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED)

VARIMAX Rotated Product Matrix and h^2

ITEM	Factor I	Factor II	h^2
1	0.273	0.217	0.122
2	0.363	0.233	0.186
3	0.286	0.361	0.213
4	0.244	0.215	0.105
5	0.163	0.427	0.209
6	0.355	0.454	0.333
7	0.346	0.455	0.326
8	0.386	0.508	0.408
9	0.238	0.548	0.357
10	0.223	0.536	0.337
11	0.093	0.660	0.444
12	0.054	0.684	0.470
13	0.087	0.757	0.580
14	0.085	0.736	0.549
15	0.197	0.612	0.414
16	0.220	0.584	0.389
17	0.223	0.617	0.430
18	0.194	0.587	0.382
19	0.176	0.561	0.346
20	0.253	0.537	0.353
21	0.225	0.607	0.419
22	0.217	0.669	0.494
23	0.253	0.643	0.477
24	0.252	0.685	0.533
25	0.196	0.644	0.453
26	0.218	0.577	0.381
27	0.255	0.432	0.252
28	0.177	0.585	0.373
29	0.494	0.302	0.336
30	0.501	0.391	0.403
31	0.442	0.361	0.325
32	0.412	0.465	0.386
33	0.260	0.576	0.399
34	0.507	0.171	0.286
35	0.670	0.012	0.449
36	0.689	0.152	0.498
37	0.405	0.355	0.291
38	0.512	0.283	0.343
39	0.534	0.210	0.329
40	0.715	0.001	0.512
41	0.731	-0.030	0.535
42	0.767	0.107	0.599
43	0.549	0.334	0.413
44	0.545	0.277	0.374
45	0.588	0.325	0.451
46	0.477	0.171	0.257
47	0.518	0.239	0.326
48	0.558	0.121	0.326
49	0.434	0.293	0.275
50	0.472	0.379	0.366
51	0.074	0.387	0.155
	8.2002	10.7663	18.9665

TABLE 2-B (EIGHT PRINCIPAL COMPONENTS SPECIFIED)
VARIMAX Rotated Product Matrix and h^2

ITEM	Factor I	Factor II	h^2
1	0.343	0.171	0.147
2	0.470	0.131	0.239
3	0.437	0.239	0.248
4	0.391	0.081	0.160
5	0.389	0.225	0.202
6	0.341	0.474	0.340
7	0.323	0.485	0.340
8	0.348	0.549	0.422
9	0.213	0.583	0.385
10	0.218	0.559	0.360
11	-0.036	0.797	0.636
12	-0.079	0.825	0.686
13	-0.020	0.871	0.759
14	-0.025	0.850	0.723
15	0.254	0.584	0.406
16	0.307	0.527	0.371
17	0.310	0.561	0.411
18	0.283	0.533	0.364
19	0.250	0.517	0.330
20	0.284	0.524	0.356
21	0.281	0.579	0.414
22	0.223	0.679	0.511
23	0.264	0.642	0.482
24	0.248	0.705	0.559
25	0.306	0.579	0.428
26	0.333	0.501	0.362
27	0.470	0.262	0.290
28	0.395	0.430	0.341
29	0.525	0.282	0.355
30	0.557	0.356	0.437
31	0.497	0.324	0.352
32	0.603	0.294	0.450
33	0.464	0.423	0.394
34	0.597	0.054	0.359
35	0.509	0.109	0.271
36	0.646	0.146	0.439
37	0.375	0.352	0.265
38	0.455	0.282	0.287
39	0.445	0.230	0.251
40	0.630	-0.004	0.397
41	0.648	-0.029	0.421
42	0.717	0.083	0.522
43	0.503	0.329	0.362
44	0.523	0.253	0.337
45	0.598	0.270	0.431
46	0.522	0.102	0.283
47	0.460	0.257	0.277
48	0.440	0.211	0.238
49	0.383	0.351	0.270
50	0.491	0.357	0.368
51	0.209	0.303	0.136
	8.9131	10.2607	19.1738

TABLE 3-A (ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED)
Orthogonalized Schmid and Leiman (1957) Solution

ITEM	I	II	1	2	3	4	5
1	0.302	0.175	-0.087	-0.040	-0.020	0.052	0.058
2	0.393	0.178	-0.009	0.182	0.017	-0.021	0.000
3	0.336	0.316	0.082	-0.040	-0.007	-0.012	-0.046
4	0.272	0.177	0.090	-0.154	-0.026	-0.104	0.000
5	0.223	0.399	-0.031	0.067	0.003	-0.047	-0.100
6	0.417	0.398	0.539	0.080	0.106	0.030	-0.038
7	0.408	0.399	0.659	0.003	-0.051	0.117	-0.040
8	0.456*	0.447	0.599	-0.014	-0.072	0.097	0.058
9	0.316	0.508*	0.435	0.031	0.017	-0.157	-0.007
10	0.299	0.498*	0.632	-0.008	0.015	-0.047	0.064
11	0.188	0.640*	0.134	-0.054	0.004	0.099	-0.005
12	0.153	0.668*	0.069	-0.036	0.007	0.065	0.005
13	0.196	0.736*	-0.035	0.061	0.043	-0.021	0.116
14	0.192	0.716*	-0.050	0.068	0.043	-0.004	0.076
15	0.285	0.577*	0.019	0.006	0.691	0.001	-0.027
16	0.303	0.546*	-0.012	-0.011	0.716	0.004	0.024
17	0.310	0.577*	-0.009	-0.043	0.692	0.041	-0.008
18	0.277	0.552*	-0.012	-0.020	0.709	0.034	0.004
19	0.256	0.529*	-0.020	0.062	0.561	-0.010	0.007
20	0.329	0.495*	-0.074	-0.018	-0.086	0.072	0.469
21	0.311	0.567*	0.383	-0.029	-0.010	0.005	0.369
22	0.312	0.630*	0.030	-0.013	-0.019	-0.075	0.587
23	0.344	0.599*	0.028	0.015	-0.020	-0.064	0.614
24	0.349	0.641*	0.089	-0.008	0.038	-0.007	0.506
25	0.288	0.608*	-0.003	0.083	0.031	0.047	0.557
26	0.300	0.539*	-0.016	0.051	0.024	0.095	0.526
27	0.316	0.390	-0.054	-0.061	0.096	0.113	0.287
28	0.260	0.553*	0.018	0.000	-0.015	0.345	-0.003
29	0.533*	0.227	0.047	-0.079	0.062	0.662	0.008
30	0.552*	0.313	0.066	-0.016	0.008	0.635	0.006
31	0.490*	0.293	0.003	-0.017	-0.030	0.615	-0.014
32	0.475*	0.400	-0.015	0.044	0.037	0.437	0.022
33	0.341	0.532*	0.081	-0.015	0.024	0.475	0.025
34	0.527*	0.095	-0.100	0.077	-0.018	0.409	0.023
35	0.664*	-0.085	-0.001	0.131	0.036	0.257	-0.064
36	0.704*	0.050	0.107	0.371	0.047	0.036	-0.032
37	0.453*	0.292	0.032	0.572	0.029	-0.038	0.015
38	0.548*	0.205	-0.029	0.615	-0.027	-0.052	0.020
39	0.559*	0.129	0.042	0.461	0.040	-0.108	0.070
40	0.708*	-0.104	-0.061	0.326	-0.045	0.138	0.068
41	0.719*	-0.136	-0.010	0.079	-0.091	0.083	-0.036
42	0.774*	-0.006	-0.002	0.233	-0.007	0.087	0.008
43	0.592*	0.250	-0.015	0.359	-0.092	0.028	-0.010
44	0.580*	0.195	0.028	0.021	0.250	-0.042	-0.033
45	0.626*	0.235	0.016	0.031	0.015	-0.041	0.035
46	0.497*	0.099	0.086	0.041	-0.020	0.085	0.010
47	0.548*	0.161	0.010	0.252	-0.001	-0.002	-0.049
48	0.570*	0.038	0.122	0.010	-0.029	0.042	-0.054
49	0.472*	0.227	-0.087	-0.044	0.006	-0.035	0.063
50	0.522*	0.306	-0.085	-0.021	0.069	-0.060	0.074
51	0.130	0.372	-0.002	0.063	-0.041	0.077	-0.038
	9.93	9.03	1.97	1.56	2.56	2.19	2.09

TABLE 3-A (continued)

ITEM	6	7	8	9	10	11	h^2
1	0.604	0.053	0.105	-0.101	-0.057	0.199	0.570
2	0.602	-0.040	-0.101	-0.065	-0.062	0.067	0.596
3	0.630	0.032	0.055	-0.020	-0.038	-0.091	0.634
4	0.518	-0.032	-0.014	-0.040	0.203	-0.105	0.472
5	0.528	0.094	-0.139	0.104	0.087	-0.305	0.645
6	0.029	-0.038	0.041	-0.015	-0.074	-0.025	0.654
7	0.002	0.002	-0.040	0.006	0.081	0.090	0.795
8	-0.014	0.040	-0.011	-0.026	0.077	0.020	0.794
9	0.073	0.110	0.148	0.064	-0.068	-0.115	0.634
10	0.005	0.008	-0.057	0.014	0.074	0.081	0.759
11	0.000	0.548	-0.030	-0.042	0.046	0.070	0.785
12	0.005	0.589	-0.003	-0.029	-0.005	0.027	0.830
13	0.033	0.557	0.009	-0.004	-0.029	0.006	0.912
14	0.030	0.579	-0.013	-0.006	-0.101	-0.007	0.900
15	-0.009	0.056	0.013	-0.017	0.000	-0.001	0.896
16	0.008	-0.011	-0.016	-0.031	0.049	0.007	0.906
17	0.005	0.033	-0.006	-0.011	0.069	-0.012	0.919
18	-0.009	-0.002	-0.007	-0.007	0.038	0.029	0.889
19	-0.002	-0.003	0.018	0.010	-0.044	0.019	0.790
20	0.101	0.118	0.000	-0.038	0.066	0.059	0.624
21	-0.021	-0.050	-0.002	-0.010	-0.073	-0.123	0.726
22	-0.047	0.102	0.036	-0.035	0.013	-0.048	0.864
23	-0.082	0.102	0.012	-0.039	0.037	-0.064	0.877
24	-0.081	0.056	0.027	-0.036	0.011	-0.025	0.819
25	0.071	-0.052	-0.002	0.042	-0.096	0.072	0.798
26	0.017	-0.073	-0.037	0.050	0.010	0.070	0.684
27	0.228	-0.164	-0.002	0.086	0.094	-0.045	0.459
28	0.084	0.026	0.079	0.303	-0.091	-0.238	0.664
29	-0.077	0.026	-0.011	-0.058	0.050	-0.004	0.799
30	-0.001	0.034	0.005	0.029	0.058	0.094	0.825
31	-0.024	0.074	0.043	0.042	-0.025	-0.064	0.720
32	0.011	-0.031	-0.052	0.128	0.014	-0.438	0.793
33	0.026	0.013	-0.032	0.175	-0.101	-0.333	0.786
34	-0.015	-0.036	-0.066	-0.059	0.023	-0.505	0.735
35	0.075	0.068	0.150	-0.269	-0.056	-0.057	0.649
36	0.236	-0.105	0.042	-0.077	0.074	0.146	0.752
37	-0.030	0.024	-0.053	0.139	-0.014	0.083	0.652
38	0.004	0.044	-0.053	0.066	-0.016	-0.055	0.737
39	-0.030	-0.007	0.007	-0.071	-0.050	-0.201	0.610
40	-0.091	-0.064	-0.021	-0.160	0.118	-0.307	0.794
41	0.038	-0.022	0.129	-0.147	0.248	-0.305	0.753
42	0.061	-0.070	0.136	-0.125	0.051	-0.373	0.846
43	0.006	0.128	0.000	0.087	0.197	-0.078	0.620
44	-0.086	0.018	0.009	-0.027	0.445	-0.134	0.666
45	0.036	0.049	0.030	0.035	0.473	-0.164	0.712
46	0.068	-0.071	-0.086	0.053	0.490	0.140	0.554
47	-0.036	0.047	0.086	0.115	0.293	0.127	0.518
48	-0.086	-0.056	0.509	0.074	-0.025	-0.009	0.622
49	0.122	0.029	0.554	0.132	-0.044	0.114	0.644
50	0.014	-0.005	0.385	0.169	0.181	-0.059	0.608
51	-0.125	-0.052	0.243	0.481	0.083	0.069	0.489
	1.91	1.47	0.94	0.69	1.07	1.37	36.78

TABLE 3-B (EIGHT PRINCIPAL COMPONENTS SPECIFIED)
Orthogonalized Schmid and Leiman (1957) Solution

ITEM	I	II	1	2	3	4	5
1	0.359	0.133	-0.112	-0.060	-0.078	0.036	0.013
2	0.482*	0.079	-0.054	0.109	-0.032	-0.059	0.020
3	0.461*	0.190	0.083	-0.056	-0.035	-0.007	-0.012
4	0.398	0.037	0.126	-0.048	0.016	-0.067	0.004
5	0.412	0.181	-0.011	0.036	0.063	-0.047	0.013
6	0.391	0.433	0.507	0.041	0.063	0.012	-0.015
7	0.375	0.447	0.623	-0.003	-0.041	0.079	-0.043
8	0.406	0.507*	0.584	0.019	-0.070	0.083	0.053
9	0.275	0.556*	0.446	0.016	-0.013	-0.129	0.034
10	0.278	0.531*	0.606	-0.028	0.032	-0.068	0.075
11	0.052	0.796*	0.159	-0.036	0.030	0.113	-0.021
12	0.013	0.828*	0.102	-0.032	0.021	0.088	0.003
13	0.076	0.868*	-0.006	0.042	0.051	0.002	0.131
14	0.069	0.848*	-0.020	0.054	0.060	0.018	0.093
15	0.317	0.552*	0.014	-0.009	0.693	0.005	-0.025
16	0.363	0.490*	-0.017	-0.006	0.730	0.006	0.018
17	0.370	0.523*	-0.006	-0.026	0.717	0.047	-0.013
18	0.340	0.498*	-0.021	-0.029	0.725	0.029	-0.002
19	0.305	0.487*	-0.040	0.009	0.652	-0.020	0.018
20	0.340	0.490*	-0.065	0.027	-0.077	0.074	0.445
21	0.343	0.545*	0.382	-0.040	-0.036	0.013	0.406
22	0.296	0.651*	0.058	0.038	-0.025	-0.040	0.585
23	0.333	0.609*	0.054	0.075	-0.020	-0.034	0.614
24	0.324	0.674*	0.107	0.034	0.031	0.015	0.500
25	0.368	0.541*	-0.037	0.001	0.006	0.012	0.577
26	0.386	0.461*	-0.043	0.014	0.033	0.059	0.533
27	0.496*	0.209	-0.061	-0.048	0.129	0.092	0.302
28	0.440	0.384	0.004	-0.101	0.010	0.295	0.093
29	0.553*	0.222	0.024	-0.011	0.060	0.609	-0.040
30	0.593*	0.292	0.020	-0.002	0.017	0.554	-0.034
31	0.530*	0.268	-0.021	-0.005	-0.039	0.559	-0.023
32	0.632*	0.225	-0.002	0.066	0.070	0.415	0.114
33	0.508*	0.370	0.071	-0.081	0.038	0.430	0.122
34	0.599*	-0.012	-0.064	0.192	-0.018	0.425	0.082
35	0.518*	0.052	0.002	0.263	-0.064	0.278	-0.133
36	0.658*	0.074	0.046	0.378	0.009	-0.015	-0.061
37	0.412	0.309	-0.048	0.430	0.030	-0.123	0.076
38	0.483*	0.230	-0.086	0.525	-0.041	-0.111	0.089
39	0.467*	0.180	0.028	0.467	-0.010	-0.105	0.120
40	0.626*	-0.073	-0.042	0.489	-0.063	0.160	0.074
41	0.641*	-0.100	0.056	0.356	-0.086	0.153	-0.075
42	0.722*	0.003	0.034	0.402	-0.055	0.134	0.019
43	0.537*	0.272	-0.021	0.409	-0.044	0.005	0.015
44	0.547*	0.194	0.086	0.272	0.354	0.009	-0.075
45	0.624*	0.203	0.079	0.283	0.132	0.006	0.009
46	0.531*	0.044	0.083	0.201	0.109	0.056	-0.047
47	0.485*	0.204	-0.004	0.333	0.065	-0.030	-0.085
48	0.461*	0.161	0.142	0.133	-0.103	0.080	-0.124
49	0.420	0.306	-0.068	0.031	-0.061	-0.001	-0.012
50	0.527*	0.301	-0.040	0.122	0.096	-0.018	0.036
51	0.241	0.278	-0.031	-0.027	0.034	0.015	-0.001
	10.18	8.99	1.88	2.03	2.76	1.90	2.22

TABLE 3-B (continued)

ITEM	6	7	8	h^2
1	0.565	0.069	0.016	0.495
2	0.512	0.015	-0.025	0.521
3	0.542	0.018	0.052	0.557
4	0.504	-0.059	-0.041	0.442
5	0.429	0.026	0.002	0.395
6	-0.016	-0.002	0.033	0.605
7	0.011	0.024	-0.034	0.739
8	0.000	0.034	-0.037	0.780
9	0.024	0.057	0.176	0.637
10	0.009	0.018	-0.043	0.741
11	0.024	0.343	-0.059	0.799
12	0.014	0.365	-0.022	0.840
13	0.026	0.348	0.012	0.902
14	0.024	0.360	-0.005	0.869
15	-0.029	0.044	0.006	0.890
16	0.001	0.000	-0.031	0.905
17	0.003	0.022	-0.011	0.929
18	-0.015	0.010	-0.006	0.891
19	-0.035	0.019	0.035	0.761
20	0.141	0.076	-0.042	0.597
21	-0.041	-0.037	-0.011	0.732
22	-0.015	0.048	-0.012	0.863
23	-0.045	0.019	-0.034	0.873
24	-0.049	0.060	-0.019	0.829
25	0.060	-0.002	0.029	0.798
26	0.037	-0.024	-0.001	0.654
27	0.229	-0.107	0.058	0.479
28	0.020	0.014	0.307	0.543
29	-0.035	0.042	-0.062	0.740
30	0.034	0.065	0.018	0.752
31	-0.019	0.071	0.068	0.677
32	-0.039	-0.047	0.076	0.654
33	-0.039	0.002	0.126	0.625
34	-0.053	-0.062	-0.074	0.599
35	0.068	0.061	-0.070	0.452
36	0.213	-0.011	-0.004	0.634
37	-0.083	0.079	0.097	0.496
38	-0.062	0.074	0.049	0.603
39	-0.092	0.008	-0.012	0.504
40	-0.092	-0.057	-0.118	0.698
41	0.076	-0.067	-0.008	0.597
42	0.029	-0.074	0.037	0.714
43	0.012	0.084	0.080	0.546
44	0.004	-0.041	-0.031	0.552
45	0.122	-0.029	0.032	0.551
46	0.175	-0.052	-0.056	0.384
47	0.024	0.042	0.148	0.425
48	-0.059	-0.040	0.449	0.515
49	0.144	0.021	0.526	0.577
50	0.064	-0.038	0.431	0.587
51	-0.107	-0.024	0.544	0.447
	1.58	0.61	1.21	33.36

TABLE 4-A (ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED)
Items Correlated More Than |.45| With Rotated Second-Order Factors Are Identified Below

ITEM	FACTOR I	FACTOR II	h^2
8	0.45622*		0.40760
9		0.50764*	0.35732
10		0.49787*	0.33737
11		0.63954*	0.44430
12		0.66846*	0.47020
13		0.73579*	0.57982
14		0.71551*	0.54866
15		0.57687*	0.41381
16		0.54571*	0.38944
17		0.57749*	0.42980
18		0.55222*	0.38192
19		0.52924*	0.34551
20		0.49455*	0.35290
21		0.56746*	0.41901
22		0.62992*	0.49436
23		0.59916*	0.47724
24		0.64072*	0.53260
25		0.60839*	0.45319
26		0.53948*	0.38095
28		0.55286*	0.37340
29	0.53314*		0.33583
30	0.55237*		0.40336
31	0.48969*		0.32542
32	0.47514*		0.38568
33		0.53167*	0.39912
34	0.52672*		0.28646
35	0.66438*		0.44869
36	0.70367*		0.49767
37	0.45296*		0.29058
38	0.54821*		0.34274
39	0.55875*		0.32896
40	0.70786*		0.51181
41	0.71864*		0.53497
42	0.77401*		0.59913
43	0.59172*		0.41273
44	0.57992*		0.37432
45	0.62858*		0.45055
46	0.49680*		0.25666
47	0.54751*		0.32565
48	0.56969*		0.32598
49	0.47228*		0.27451
50	0.52183*		0.36600
Trace	9.9342	9.0323	18.9665

TABLE 4-A (ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED) (CONTINUED)
Listing Of Selected Items From Rotated $S_{(VXS)}$ Product Matrix

FACTOR I (Eigenvalue = 9.93)
8-General attitude of students
29-Stress
30-Frustration
31-Burnout
32-Feelings of isolation
34-Lack of time for family/personal life
35-Excessive paperwork
36-Non-teaching duties
37-Inadequate/outdated facilities
38-Overcrowded buildings
39-Class size
40-Long hours
41-Inadequate time for planning
42-Heavy teaching load
43-Lack of supplies/materials
44-Lack of input in decision-making
45-Lack of autonomy
46-Lack of duty-free breaks/lunch
47-Interruptions to instructional time
48-Problems meeting needs of special students
49-Problems with teacher evaluation procedures
50-Frequent changes in school policy

FACTOR II (Eigenvalue = 9.03)
9-Student violence
10-Student apathy
11-Lack of parental support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration
20-Society's attitude toward teaching
21-Lack of respect from students
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional
28-Routine/Boredom
33-Lack of fulfillment

TABLE 4-B (EIGHT PRINCIPAL COMPONENTS SPECIFIED)
Items Correlated More Than |.45| With Rotated
Second-Order Factors Are Identified Below

ITEM	FACTOR I	FACTOR II	h^2
2	0.48210*		0.23865
3	0.46076*		0.24828
8		0.50705*	0.42223
9		0.55566*	0.38461
10		0.53137*	0.35974
11		0.79600*	0.63628
12		0.82834*	0.68630
13		0.86785*	0.75891
14		0.84773*	0.72333
15		0.55243*	0.40552
16		0.48961*	0.37129
17		0.52331*	0.41092
18		0.49815*	0.36351
19		0.48663*	0.32997
20		0.48951*	0.35552
21		0.54476*	0.41429
22		0.65072*	0.51112
23		0.60922*	0.48220
24		0.67391*	0.55923
25		0.54136*	0.42824
26		0.46118*	0.36158
27	0.49617*		0.28988
29	0.55320*		0.35545
30	0.59304*		0.43713
31	0.52977*		0.35222
32	0.63159*		0.44973
33	0.50782*		0.39448
34	0.59903*		0.35898
35	0.51751*		0.27055
36	0.65850*		0.43911
38	0.48332*		0.28667
39	0.46730*		0.25082
40	0.62568*		0.39682
41	0.64084*		0.42067
42	0.72222*		0.52162
43	0.53662*		0.36187
44	0.54718*		0.33688
45	0.62441*		0.43092
46	0.53054*		0.28341
47	0.48538*		0.27739
48	0.46060*		0.23817
50	0.52699*		0.36836
Trace	10.1845	8.9893	19.1738

TABLE 4-B (EIGHT PRINCIPAL COMPONENTS SPECIFIED)
(CONTINUED)
Listing Of Selected Items From Rotated $S_{(VXS)}$ Product Matrix

FACTOR I (Eigenvalue = 10.18)
2-Lack of renumeration for extra duties
3-Inadequacy of retirement benefits
27-Little opportunity for advancement
29-Stress
30-Frustration
31-Burnout
32-Feelings of isolation
33-Lack of fulfillment
34-Lack of time for family/personal life
35-Excessive paperwork
36-Non-teaching duties
38-Overcrowded buildings
39-Class size
40-Long hours
41-Inadequate time for planning
42-Heavy teaching load
43-Lack of supplies/materials
44-Lack of input in decision-making
45-Lack of autonomy
46-Lack of duty-free breaks/lunch
47-Interruptions to instructional time
48-Problems meeting needs of special students
50-Frequent changes in school policy

FACTOR II (Eigenvalue = 8.99)
8-General attitude of students
9-Student violence
10-Student apathy
11-Lack of parental support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration
20-Society's attitude toward teaching
21-Lack of respect from students
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional

TABLE 5-A (ALL PRINCIPAL COMPONENTS WITH EIGENVALUES GREATER THAN 1 SPECIFIED)
Items Correlated More Than |.45| With The Schmid-Leiman (1957) Solution

FACTOR I (Eigenvalue = 9.93)
8-General attitude of students
29-Stress
30-Frustration
31-Burnout
32-Feelings of isolation
34-Lack of time for family/personal life
35-Excessive paperwork
36-Non-teaching duties
37-Inadequate/outdated facilities
38-Overcrowded buildings
39-Class size
40-Long hours
41-Inadequate time for planning
42-Heavy teaching load
43-Lack of supplies/materials
44-Lack of input in decision-making
45-Lack of autonomy
46-Lack of duty-free breaks/lunch
47-Interruptions to instructional time
48-Problems meeting needs of special students
49-Problems with teacher evaluation procedures
50-Frequent changes in school policy

FACTOR II (Eigenvalue = 9.03)
9-Student violence
10-Student apathy
11-Lack of parental support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration
20-Society's attitude toward teaching
21-Lack of respect from students
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional
28-Routine/Boredom
33-Lack of fulfillment

Factor 1 (Eigenvalue = 1.97)
6-Lack of student discipline
7-Lack of student motivation
8-General attitude of students
10-Student apathy

Factor 2 (Eigenvalue = 1.56)
37-Inadequate/outdated facilities
38-Overcrowded buildings
39-Class size

Factor 3 (Eigenvalue = 2.56)
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration

Factor 4 (Eigenvalue = 2.19)
29-Stress
30-Frustration
31-Burnout
33-Lack of fulfillment

Factor 5 (Eigenvalue = 2.09)
20-Society's attitude toward teaching
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional

Factor 6 (Eigenvalue = 1.91)
1-General dissatisfaction with salary
2-Lack of renumeration for extra duties
3-Inadequacy of retirement benefits
4-Inadequacy of health insuracnce benefits
5-Inadequate professional/personal leave benefits

Factor 7 (Eigenvalue = 1.47)
11-Lack of parental support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement

Factor 8 (Eigenvalue = 0.94)
48-Problems meeting special needs of students
49-Probelms with teacher evaluation procedures

Factor 9 (Eigenvalue = 0.69)
51-Dissatisfaction with colleagues

Factor 10 (Eigenvalue = 1.07)
45-Lack of autonomy
46-Lack of duty-free breaks/lunch

Factor 11 (Eigenvalue = 1.37)
34-Lack of time for family/personal life

Note. Second-order factors are labeled with Roman numerals I and II. Orthogonalized first-order factors are labeled with numbers 1 to 11.

TABLE 5-B (EIGHT PRINCIPAL COMPONENTS SPECIFIED)
Items Correlated More Than |.45| With The Schmid-Leiman (1957) Solution

FACTOR I: (Eigenvalue = 10.18)
2-Lack of renumeration for extra duties
3-Inadequacy of retirement benefits
27-Little opportunity for advancement
29-Stress
30-Frustration
31-Burnout
32-Feelings of isolation
33-Lack of fulfillment
34-Lack of time for family/personal life
35-Excessive paperwork
36-Non-teaching duties
38-Overcrowded buildings
39-Class size
40-Long hours
41-Inadequate time for planning
42-Heavy teaching load
43-Lack of supplies/materials
44-Lack of input in decision-making
45-Lack of autonomy
46-Lack of duty-free breaks/lunch
47-Interruptions to instructional time
48-Problems meeting needs of special students
50-Frequent changes in school policy

FACTOR II (Eigenvalue = 8.99)
8-General attitude of students
9-Student violence
10-Student apathy
11-Lack of parental support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration
20-Society's attitude toward teaching
21-Lack of respect from students
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional

FACTOR 1: (Eigenvalue = 1.88)
6-Lack of student discipline
7-Lack of student motivation
8-General attitude of students
9-Student violence
10-Student apathy

FACTOR 2: (Eigenvalue = 2.03)
38-Overcrowded buildings
39-Class size
40-Long hours

FACTOR 3: (Eigenvalue = 2.76)
15-Lack of administrative support
16-Lack of administrative understanding
17-Lack of administrative concern
18-General dissatisfaction with administration
19-Incompetent administration

FACTOR 4: (Eigenvalue = 1.90)
29-Stress
30-Frustration
31-Burnout

FACTOR 5: (Eigenvalue = 2.22)
22-Lack of respect in the community
23-Lack of respect in general
24-Lack of respect from parents
25-Low status/prestige
26-Not considered a professional

FACTOR 6: (Eigenvalue = 1.58)
1-General dissatisfaction with salary
2-Lack of renumeration for extra duties
3-Inadequacy of retirement benefits
4-Inadequacy of health insurance benefits

FACTOR 7: (Eigenvalue = 0.61)
11-Lack of parent support
12-Lack of parent involvement
13-Lack of community support
14-Lack of community involvement

FACTOR 8: (Eigenvalue = 1.21)
48-Problems meeting needs of special students
49-Probelems with teacher evaluation procedures

Note. Second-order factors are labeled with Roman numerals I and II. Orthogonalized first-order factors are labeled with numbers 1 to 8.

TABLE 6
FACTOR INTERPRETATION GUIDE
USING TABLES 1-B, 3-B, AND 5-B

SECOND-ORDER FACTOR	FIRST-ORDER FACTOR	STRUCTURE COEFFICIENT	(TRACE - h^2)
FACTOR I (10.18)	2 WORKING CONDITIONS	.78	(2.03 - 62%)
	4 EMOTIONAL DISTRESS	.70	(1.90 - 53%)
	6 SALARY/BENEFITS	.66	(1.58 - 46%)
	8 INTERPERSONAL	.47	(1.21 - 45%)
FACTOR II (8.99)	1 STUDENT RELATED CONCERNS	.54	(1.88 - 47%)
	3 ADMINISTRATION RELATED	.52	(2.76 - 43%)
	5 LACK OF RESPECT	.64	(2.22 - 53%)
	7 PARENT AND COMMUNITY RELATED	.89	(0.61 - 80%)

NOTE. The trace for each second-order factor in the Schmid-Leiman solution is presented in parentheses below each second-order factor name. The structure coefficients for each orthogonalized first-order factor from Table 1-B is presented next to the factor number and name. In parenthesis following these structure coefficients is the trace for the factor from the Schmid-Leiman solution reported in Table 3-B and the communality coefficient for each first order factor, as reported in Table 1-B and representing the percentage of each first-order factor's variance that is reproduced within the second-order factors reported in Table 1-B.

Figure 1

Note. Second-order factors are presented to the left in capital letters. The structure coefficient reported for each factor in Table 1-B is typed on the line connecting the first-order factors to the second-order factors.