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ABSTRACT

A factor analytic study is presented of the Learning Environment Inventory, an instrument originally designed to assess secondary students' perception of 15 school environment dimensions. Responses from 3,613 subjects were analyzed through principal components and varimax rotation procedures. In contrast to the expected structure, analyses produced six factors accounting for 24 percent of the total variance. Of 105 items, only eight failed to correlate .30 or greater with one of the six factors. The authors discuss the implications of their findings for the structure and future use of the instrument, and the rationale behind empirical approaches to developing high inference school climate indices. (Author/BW)

The Learning Environment Inventory: A Re-examination of its Structure and Use

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INTRODUCTION

In recent years the investigation of environmental variables in educational settings and their relationship to the functioning individual has been revitalized as an area of strong research concern in the social sciences. Bloom (1964) has emphasized the importance of developing measures of various environments as crucial for the accurate control, prediction, and effective manipulation of learning outcomes. While much has been accomplished in the development of "low inference" measures to assess stimulus and response variables in educational environments during the past 10 to 15 years, their practicality in terms of large scale research and ability to predict specific learning outcomes has fostered much criticism. It is, thus, questionable whether direct observational systems have the potential for fully describing the totality of the person-environment interactions present in the educational context. In addition, their usefulness in identifying more global factors mediating the learning environment and learning outcomes is suspect.

Since 1966, several studies have demonstrated that students' perceptions of characteristics of the classroom learning environment can be measured reliably, and that "high inference" measures are valid predictors of learning (Walberg, 1974). Indeed, a strong case has been made by some educational researchers in support of a return to, and the continued development of high rather than low inference measures to pinpoint useful socio-psychological variables having relevance for arranging classroom environments to optimize learning outcomes.

According to Anderson (1973), the revitalized interest and concern for the development and validation of school social climate measures began

in conjunction with Harvard Project Physics. Using as a format the studies of Hemphill and Westie (1950), Walberg devised the Classroom Climate Questionnaire (CCQ), a climate instrument considered meaningful for the description of class groups. Subsequent research with the CCQ showed that scale scores related to the personality characteristics of teachers; cognitive, attitudinal, and behavioral characteristics of pupils within the class; and measures of pupil learning.

In order to improve scale reliabilities and to test hypotheses from a general sociopsychological theory of Getzels and Thelen (1960) which holds that institutional and individual characteristics interact in classroom settings to determine school learning, the CCQ was revised and renamed the Learning Environment Inventory (LEI). A large number of research studies examining the relationship between the LEI scales and learning outcomes have subsequently been undertaken. Anderson (1973), for example, in listing a partial bibliography, cites some 35 studies. Several investigations (Anderson & Walberg, 1968; Walberg, 1971; Walberg & Anderson, 1972) support the fact that the LEI scales account for substantially more learning variance than do better established predictors such as IQ. According to Walberg (1974), the combination of all the LEI scales accounts for between 13 and 46 percent of the variance in learning outcomes. Thus, the general utility of the LEI as a climate measure capable of predicting important educational criteria seems well established.

Owing to the nature of the methodology used in constructing the separate LEI scales, however, the LEI's capability to provide "explanational" information (that which leads to a better understanding of sociopsychological variables mediating the instructional environment), and "prescriptive" information (that which is useful in arranging educational environments to optimize outcomes), is suspect.

The purpose of this paper was to assess whether the "rational" scale structure of the LEI (originally derived from a logical sorting procedure to insure homogeneity of item content for separate scales) matches its "empirical" structure derived from a large sample factor analysis of students' responses to the instrument. Owing to the nature of item content (intuitive grammatical redundancy) and the rather large number of individual scales on the instrument, it was predicted that some item rearrangement along the scales and a more simplistic factor structure would emerge from a simple principal components analysis.

METHODOLOGY AND PROCEDURES

Sample

The sample for this study consisted of 4,465 secondary students in schools located in the Southeastern United States. The schools represented a wide variety of urban/rural differences and socioeconomic backgrounds. Students ranged in age from 12 to 18 years, with an average age of 14 years. Both males and females were approximately evenly represented in the sample (50.2% males, and 48.8% females).

Instrumentation

The Learning Environment Inventory is an instrument designed to measure the social climate of a class as perceived by the pupils within it. The 1969 revision used in this study consisted of 105 items evenly distributed across 15 climate dimensions. The scale names are as follows: Cohesiveness, Diversity, Formality, Speed, Environment, Friction, Goal Direction, Favoritism, Difficulty, Apathy, Democratic, Cliqueness, Satisfaction, Disorganization, and Competitiveness. The LEI scales and a listing of their individual items can be found in Appendix A.

In selecting the 15 climate dimensions for the instrument, the author (Walberg, H.J.) attempted to include as scales only concepts considered relevant for social psychological research, concepts previously identified as good predictors of learning, concepts considered useful for research and theory construction in education, and concepts intuitively judged as important for the social psychology of the classroom (Anderson, 1973).

Individual items on the LEI are descriptive of typical school classes and the respondent expresses his agreement or disagreement with each statement on a four-point, Likert-type rating scale from 1--STRONGLY DISAGREE to 4--STRONGLY AGREE. In order to help achieve acceptable levels of internal consistency for the individual scales and to intuitively weight the 15 scales in terms of variability, seven items were constructed for each scale.

Past research shows that test - retest reliability for the LEI scales varies from a low of .43 (Diversity) to a high of .73 (Friction). Coefficients of internal consistency vary from .54 (Diversity) to .85 (Goal Direction). The intraclass correlation, a class coefficient indicative of group reliability of the scales is reported to vary from .31 (Diversity) to .92 (Disorganization). The LEI can be administered to individuals or groups of secondary students, and usually requires from 30 to 40 minutes to complete.

Data Collection Procedures

Data for the study were collected in late April and early May, 1975. The LEI was administered within individual schools during the regular school day as part of the total field testing of the Georgia Principal Assessment System developed within Project R.O.M.E. (Results Oriented Management in Education) at the University of Georgia. Group administrations required

about 40 minutes to complete with groups ranging in size from approximately 75 to 400 students.

Statistical Analyses

Individual student responses to the 105 LEI items were subjected to a principal components factor analysis and varimax rotation solution following procedures as outlined by Dixon (1973). Squared multiple correlation coefficients were used as initial communality estimates. Before analysis, all items were coded in a manner consistent with the original LEI scale names so that a maximum score of 4 (Strongly Agree) for any item was associated with an increase in the dimension represented by the scale name.

RESULTS

Consistent with predicted results, the application of a principal components factor analysis procedure with orthogonal rotation to the large sample of student responses yielded only six salient factors (minimum eigen value= 1.00) accounting for approximately 24% of the total test variance. Of the 105 LEI items, only 18 failed to load .30 or greater on one of the six factors.

Table 1 presents the number of significantly loaded items associated with the original LEI scales and their placement relative to the six factors resulting from the analysis. In addition to the 18 items failing to load on any factor, the decision was made to eliminate items loading on more than one factor (n=12) if the difference between their respective loadings was less than .10. Items loading in a bipolar manner were maintained and placed on the factors relative to their highest loading. These additional criteria for placement were established in an attempt to meet the general assumptions of orthogonality and to enhance interpretation of the factors. With the application of these additional criteria to the placement fo significantly loaded items, only 81 items remained for the six salient factors.

In observing the data in Table 1, several general trends seem noticeable. The items representing the original LEI scales were scattered among the six factors with clustering on factors for some items and scales more predominant than for others. For example, five of the possible seven items originally classified as measuring Goal Direction, significantly and positively loaded on Factor 2, with the remaining items loading negatively on Factor 3. Similarly, all five of the significant items for the Environment scale loaded positively on Factor 2. The original scales of Formality, Speed, and Competitiveness were somewhat underrepresented with only 3 of a possible 7 items significantly loading on any of the 6 factors. It is interesting to note that all items significantly loading on Factors 1, 3, and 5 were negative, while those loading on Factors 2, 4, and 6 were all positively weighted. It appears that little item homogeneity for the original LEI scales is found with respect to their loadings across the six salient factors derived from this analysis. That is, while some clustering of items representing the respective scales was noted, there was a tendency for the items making up a particular scale to be dispersed across more than one factor.

Appendix B presents a listing of the significantly weighted LEI items for each of the six factors resulting from this analysis and the direction and magnitude of their respective factor loadings. In addition, the original LEI scale name with which they are associated is included, as well as loadings and factor numbers for items loading on a second factor. The classification represented is based on the selection and placement criteria described above.

DISCUSSION

Assuming that the original scale names of the LEI adequately reflect the content of their representative items, the data in Table 1 depict some

interesting relationships between the LEI scales and students' perceptions in this sample. The most heavily weighted factor (Factor 1) in terms of the percentage of item variance accounted for is characterized by students' perception of a school climate/learning environment as being relatively less disorganized (Disorganization), showing less Favoritism, and generally less Apathetic. Factor 2 seems to consist predominantly of students' perceptions of the school setting as having more Goal Direction, a better Environment, more satis fying (Satisfaction), and a greater display of general Democratic treatment of students. Factor 3 seems heavily comprised of Apathy, Cliqueness, and Friction. Factor 5 is most heavily weighted in terms of Diversity items. While little item homogeneity for the LEI items seemed evident as mentioned above, it is interesting to note that combinations of scales describing the separate factors generally varied from one factor to the next. For example, the particular combination of LEI scales comprising Factor 1 were seemingly different than those describing Factor 2, etc.

Several tentative conclusions about the original structure of the LEI seem warranted given the results in this study. It appears that the separate scales originally derived from a rational sorting procedure to insure homogeneity of item content are not independent in their structure, and that the process of empirically factor analyzing students' responses (perceptions) of their school climate/learning environment does not yield a factor structure matching the instrument's original scale names. This may point to the importance of developing future environmental measures using empirical approaches to item development rather than that derived from tenets of sociopsychological theory and the judgments of persons concerning the meaning of item "content"

As regards specific items, data presented here indicate that fully 23% (N=24) of the original 105 LEI items show either no meaningful relationship to the factors empirically derived in this study, or are loaded on more than

one factor. It might be noted in this regard that a subsequent analysis utilizing the same sample (N=4,465), and lowering the minimum eigen value to .40 in order to assess the alignment of the LEI items over a minimum of 15 factors, failed to demonstrate that the items loaded in line with their original scale classifications. Thus it appears that the total instrument's "empirical" structure is not comprised of 15 separate factos, but may measure only six global characteristics of the school climate/learning environment.

While it is difficult to derive specific factor "names" for the factors emerging from this analysis, it seems reasonable to view the structure of the LEI in much more global terms than those proposed by Anderson (1973). In viewing the alignment of significantly weighted items from this analysis for each factor (Appendix B), a more parsimonious structure (6 Factors) and more global interpretation of each factor seems in order. The comments that follow are based on two considerations: 1) the magnitude of specific item loadings relative to other items, and 2) the number of items having common "content." Factor 1 seems to consist of student perceptions depicting general interpersonal tension, involvement, and class organization. Factor 2 depicts a general school attitude characterized by cohesive, goal oriented, and controlled class activity. Factor 3 seems to depict general estrangement from other students and academic activities...a possible composite of perceived "social distance" and confusion. Factor 4 might be labeled "general school interpersonal malaise." Factor 5 seems to be heavily comprised of perceptions of student interests, work and friendships. And Factor 6, while having only 4 significantly weighted items, might be interpreted as representing student perceptions of the rigidity of "instructional press." Thus, two broad categories seemingly emerge from this analysis...a first set of factors (numbers 1,3,4, and 5) dealing with interpersonal "kinds of things", and a second set (numbers 2 and 6) centering on instructional "kinds of things". Again, while

difficult to apply specific factor names to the six salient factors presented here, it appears that the LEI as originally constructed (15 scales) is more simple in structure, and measures more global student perceptions of the school climate/learning environment than those proposed in Anderson (1973).

In conclusion those using the LEI in future educational research for diagnostic and prescriptive purposes might be well advised to consider the instrument as measuring more "global" student perceptions than originally implied. The findings reported here suggest that considerable item/scale revision of the instrument is in order. It may be that those developing "high inference" measures to assess characteristics of the school environment make faulty leaps in both logic methodology, and subsequent interpretation of research findings, by assuming that the rationally judged meaning and feeling for a particular instrument item is the same as that of the respondent for which the measure is being created. As a respondent considers the totality or specifics of the school setting in relationship to a particular item, his response may entail a perception quite different from that of the instrument developer.

Even though factor analysis can be approached in a myriad of ways, setting many different criteria for factor extraction and the selection and placement of scale items, it may be, as Nunnally (1975) has suggested, that the principal components, varimax rotation solution to instrument development applied in this analysis is as meaningful as any. If this be the case, then the conclusions cited above may well hold in the future application of factor analytic techniques to responses on the LEI as it currently exists.

TABLE 1

Summary of the Number of Significantly Loaded Items
From the Original LEI Scales and their Respective Factor Placements

		FACTORS						
	LEI SCALES	1*	2	3*	4	5*	6	Row Totals
1.	Cohesiveness		2	2		2		6
2.	Diversity		2		1	4		7
3.	Formality		2				1	3
4.	Speed				2		1	3
5.	Environment		5					5
6.	Friction	2			4	1		7
7.	Goal Direction		5	2				7
8.	Favoritism	3			2			4
9.	Cliqueness	1			3	2		6
10.	Satisfaction		4	1				5
11.	Disorganization	4			2			6
12.	Difficulty			1	2		2	5
13.	Apathy	3			4			7
14.	Democratic		4	3				7
15.	Competitiveness		2			1		3
	Column Totals	13	26	9	19	10	4	81

* All items for factor negatively loaded.

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APPENDIX A

SCALES AND ITEMS
OF THE
LEARNING ENVIRONMENT INVENTORY

A. Cohesiveness

1. Members of the classes do favors for one another.
2. A student has the chance to get to know all other students in my classes.
3. Members of my classes are personal friends.
4. All students know each other very well.
5. Students are not in close enough contact to develop likes or dislikes for one another.
6. My classes are made up of individuals who do not know each other well.
7. Each student knows the other members of my classes by their first names.

B. Diversity

1. My classes have students with many different interests.
2. Interests vary greatly within my classes.
3. Some students are interested in completely different things than other students.
4. Class members tend to pursue different kinds of problems.
5. My classes divide their efforts among several purposes.
6. My classes are working toward many different goals.
7. Different students vary a great deal regarding which aspects of my classes they are interested in.

C. Formality

1. Students who break the rules are penalized.
2. My classes have rules to guide their activities.
3. Students are asked to follow strict rules.

Formality (continued)

4. My classes are rather informal and few rules are imposed.

5. There is a recognized right and wrong way of going about class activities.

6. All classroom procedures are well-established.

7. There is a set of rules for the students to follow.

D. Speed

1. The pace of my classes is rushed.

2. My classes have plenty of time to cover the prescribed amount of work.

3. Students do not have to hurry to finish their work.

4. There is little time for day-dreaming.

5. My class members feel rushed to finish their work.

6. My classes have difficulty keeping up with their assigned work.

7. The course materials are covered quickly.

E. Environment

1. The books and equipment students need or want are easily available to them in the classrooms.

2. A good collection of books and magazines is available in my classrooms for students to use.

3. The students would be proud to show their classrooms to a visitor.

4. My classrooms are bright and comfortable.

5. There are displays around my classrooms.

6. My classrooms are too crowded.

7. There is enough room for both individual and group work.

F. Friction

1. There is constant bickering among class members.

2. Certain students have no respect for other students.

3. There are tensions among certain groups of students that tend to interfere with class activities.

4. Certain students in my classes are responsible for petty quarrels.

5. Certain students don't like other students.

6. Certain students are considered uncooperative.

7. There is an undercurrent of feeling among students that tends to pull my classes apart.

G. Goal Direction

1. My classes know exactly what they have to get done.

2. The objectives of my classes are not clearly recognized.

3. Students have little idea of what my classes are attempting to accomplish.

4. The objectives of my classes are specific.

5. Each student knows the goals of the courses.

6. My classes realize exactly how much work they have to do.

7. Each student in my classes has a clear idea of the class goals.

H. Favoritism

1. The better students' questions are more sympathetically answered than those of the average students.

2. All the students in my classes enjoy the same privileges.

3. The better students are granted special privileges.

4. Only the good students are given special projects.

Favoritism (continued)

5. My classes are controlled by actions of a few members who are favored.
6. Students who have past histories of being discipline problems are discriminated against.
7. Certain students are favored more than the rest.

I. Cliqueness

1. Certain students work only with their close friends.
2. Students cooperate equally with all class members.
3. Some students refuse to mix with the rest of their classes.
4. Some groups of students work together regardless of what the others in the classes are doing.
5. Certain groups of friends tend to sit together.
6. Most students cooperate equally with other class members.
7. Certain students stick together in small groups.

J. Satisfaction

1. The students enjoy their class work.
2. Personal dissatisfaction with my classes is too small to be a problem.
3. Many students are dissatisfied with much that my classes do.
4. There is considerable dissatisfaction with the work of my classes.
5. The members look forward to coming to class meetings.
6. After my classes, the students have a sense of satisfaction.
7. Students are well-satisfied with the work of my classes.

K. Disorganization

1. There are long periods during which my classes do nothing.
2. The work of my classes is frequently interrupted when some students have nothing to do.
3. My classes are well organized.
4. The classes are disorganized.
5. My classes are well-organized and efficient.
6. Many class members are confused by what goes on in my classes.
7. There is a great deal of confusion during class meetings.

L. Diff lty

1. The work in my classes is difficult.
2. Students are constantly challenged.
3. The subject studied requires no particular aptitude on the part of the students.
4. Students in my classes tend to find the work hard to do.
5. The subject presentations in my classes are elementary for many students.
6. Most students consider the subject matter easy.
7. Many students in the school would have difficulty doing the advanced work of my classes.

M. Apathy

1. Failure of my classes would mean little to individual members.
2. Students don't care about the future of the class as a group.
3. Members of my classes don't care what the class does.

Apathy (continued)

4. Students share a common concern for the success of my classes.
5. Most students sincerely want my classes to be a success.
6. Failure of my classes would mean nothing to most members.
7. Students have a great concern for the progress of my classes.

N. Democratic

1. Class decisions tend to be made by all the students.
2. Decisions affecting my classes tend to be made democratically.
3. Certain students have more influence on my classes than others.
4. Certain students impose their wishes on the whole class.
5. Each member of my classes has as much influence as any other member.
6. What my classes do is determined by all the students.
7. A few members of my classes have much greater influence than the other members.

O. Competitiveness

1. Most students want their work to be better than their friends' work.
2. Students compete to see who can do the best work.
3. A few of the class members always try to do better than the others.
4. Students feel left out unless they compete with their classmates.
5. Most students cooperate rather compete with one another.
6. There is much competition in my classes.
7. Students seldom compete with one another.

APPENDIX B

FACTOR 1
(Eigen Value=10.25)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	There is constant bickering among class members.	Friction	-.38	
2.	There are tensions among certain groups of students that tend to interfere with class activities.	Friction	-.31	
3.	The better students are granted special privileges.	Favoritism	-.34	
4.	Only the good students are given special projects.	Favoritism	-.35	
5.	My classes are controlled by actions of a few members who are favored.	Favoritism	-.35	
6.	The work of my classes is frequently interrupted when some students have nothing to do.	Disorganization	-.31	
7.	Students cooperate equally with all class members.	Cliqueness	-.33	
8.	My classes are well organized.	Disorganization	-.49	-.32 (2)
9.	My classes are well-organized and efficient.	Disorganization	-.48	
10.	Failure of my classes would mean little to individual members.	Apathy	-.35	
11.	The classes are disorganized.	Disorganization	-.53	
12.	Students don't care about the future of the class as a group.	Apathy	-.41	
13.	Members of my classes don't care what the class does.	Apathy	-.38	

FACTOR 2
(Eigen Value=7.23)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	A student has the chance to get to know all other students in my classes.	Cohesiveness	.41	
2.	All students know each other very well.	Cohesiveness	.47	
3.	My classes divide their efforts among several purposes.	Diversity	.31	
4.	My classes are working toward many different goals.	Diversity	.38	
5.	There is a recognized right and wrong way of going about class activities.	Formality	.38	
6.	All class procedures are well established.	Formality	.53	
7.	A good collection of books and magazines is available in my classrooms for students to use.	Environment	.37	
8.	The students would be proud to show their classrooms to a visitor.	Environment	.49	
9.	My classrooms are bright and comfortable.	Environment	.47	
10.	There is enough room for both individual and group work.	Environment	.41	
11.	There are displays around my classrooms.	Environment	.37	
12.	My classes know exactly what they have to get done.	Goal Direction	.43	

FACTOR 2
(continued)

Item	Scale Name	Loading	Additional Loading and (Factor Number)
13. The objectives of my classes are specific.	Goal Direction	.48	
14. Each student knows the goals of the courses.	Goal Direction	.54	
15. My classes realize exactly how much work they have to do.	Goal Direction	.48	
16. Each student in my classes has a clear idea of the class goals.	Goal Direction	.53	
17. The students enjoy their class work.	Satisfaction	.41	
18. After my classes, the students have a sense of satisfaction.	Satisfaction	.54	
19. The members look forward to coming to class meetings.	Satisfaction	.46	
20. Students are well-satisfied with the work of my classes.	Satisfaction	.51	
21. Class decisions tend to be made by all the students.	Democratic	.44	
22. Decisions affecting my classes tend to be made democratically.	Democratic	.30	
23. Each member of my classes has as much influency as any other member.	Democratic	.47	
24. What my classes do is determined by all the students.	Democratic	.47	
25. Students feel left out unless they compete with their classmates.	Competitiveness	.31	
26. There is much competition in my classes.	Competitiveness	.30	

FACTOR 3
(Eigen Value=2.38)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	Students are not in close enough contact to develop likes or dislikes for one another.	Cohesiveness	-.33	
2.	My classes are made up of individuals who do not know each other well.	Cohesiveness	-.34	
3.	The objectives of my classes are not clearly recognized.	Goal Direction	-.31	
4.	Students have little idea of what my classes are attempting to accomplish.	Goal Direction	-.39	
5.	There is considerable dissatisfaction with the work of my classes.	Satisfaction	-.31	
6.	The subject presentations in my classes are elementary for many students.	Difficulty	-.36	
7.	Certain students have more influence on my classes than others.	Democratic	-.32	
8.	Certain students impose their wishes on the whole class.	Democratic	-.34	
9.	A few members of my classes have much greater influence than the other members.	Democratic	-.43	

FACTOR 4
(Eigen Value=1.93)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	My classes have difficulty keeping up with their assigned work.	Speed	.46	
2.	Different students vary a great deal regarding which aspects of my classes they are interested in.	Diversity	.46	
3.	The course materials are covered quickly.	Speed	.38	
4.	Certain students in my classes are responsible for petty quarrels.	Friction	.31	
5.	There is an undercurrent of feeling among students that tends to pull my classes apart.	Friction	.47	
6.	Certain students don't like other students.	Friction	.47	-.33 (5)
7.	Certain students are considered uncooperative.	Friction	.49	
8.	Certain students are favored more than the rest.	Favoritism	.53	
9.	Certain groups of friends tend to sit together.	Cliqueness	.46	-.40 (5)
10.	Most students cooperate equally with other class members.	Cliqueness	.44	
11.	Certain students stick together in small groups.	Cliqueness	.60	-.30 (5)
12.	Many class members are confused by what goes on in my classes.	Disorganization	.30	
13.	There is a great deal of confusion during class meetings.	Disorganization	.44	
14.	Most students consider the submatter easy.	Difficulty	.37	-.32 (3)

FACTOR 4
(continued)

Item	Scale Name	Loading	Additional Loading and (Factor Number)
15. Many students in the school would have difficulty doing the advanced work of my classes.	Difficulty	.47	
16. Students share a common concern for the success of my classes.	Apathy	.42	
17. Most students sincerely want my classes to be a success.	Apathy	.35	
18. Failure of my classes would mean nothing to most members.	Apathy	.44	-.32 (1)
19. Students have a great concern for the progress of my classes.	Apathy	.51	

FACTOR 5
(Eigen Value=1.65)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	Members of the classes do favors for one another.	Cohesiveness	-.33	
2.	Members of my classes are personal friends.	Cohesiveness	-.40	
3.	My classes have students with many different interests.	Diversity	-.40	
4.	Interests vary greatly within my classes.	Diversity	-.45	
5.	Some students are interested in completely different things than other students.	Diversity	-.47	
6.	Class members tend to pursue different kinds of problems.	Diversity	-.37	
7.	Certain students have no respect for other students.	Friction	-.39	
8.	Certain students work only with their close friends.	Cliqueness	-.33	
9.	Some groups of students work together regardless of what the others in the classes are doing.	Cliqueness	-.45	
10.	A few of the class members always try to do better than the others.	Competitiveness	-.46	

FACTOR 6
(Eigen Value=1.05)

	Item	Scale Name	Loading	Additional Loading and (Factor Number)
1.	Students are asked to follow strict rules.	Formality	.35	
2.	Students do not have to hurry to finish their work.	Speed	.39	
3.	Students are constantly challenged.	Difficulty	.30	
4.	Students in my classes tend to find the work hard to do.	Difficulty	.37	