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ABSTRACT

Despite a strong tradition of research and practical applications involving perceptions of psychosocial environment in elementary and secondary science classes, surprisingly little analogous work has been conducted at the tertiary level. Consequently, in order to facilitate such work, a new instrument called the College and University Classroom Environment Inventory (CUCEI) was developed to assess students' or teachers' perceptions of several dimensions of the actual or preferred environment (for example, personalization, involvement, task orientation, individualization) of small university or college classes often referred to as seminars or tutorials. Validation data collected from a total sample of 499 students and 20 instructors supported each scale's internal consistency, reliability and discriminant validity. Potentially useful applications of the instrument for research purposes and for improving teaching in higher education are considered. (A copy of CUCEI is included in an appendix.) (Author/JN)

VALIDITY AND USE OF A CLASSROOM ENVIRONMENT INSTRUMENT FOR HIGHER EDUCATION

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ABSTRACT

Despite a strong tradition of research and practical applications involving perceptions of psychosocial environment in elementary and secondary science classes, surprisingly little analogous work has been conducted at the tertiary level. Consequently, in order to facilitate such work, an economical new instrument called the College and University Classroom Environment Inventory (CUCEI) was developed to assess students' or teachers' perceptions of seven dimensions of the actual or preferred environment (e.g., personalization, involvement, task orientation, individualization) of small university or college classes often referred to as seminars or tutorials. Validation data collected from a total sample of 499 students and 20 instructors supported each scale's internal consistency reliability and discriminant validity in either its actual or preferred form, with either Australian or American students, for both students and instructors, and using either the individual or the class mean as the unit of analysis. Potentially useful applications of the instrument for research purposes and for improving teaching in higher education are considered.

This paper describes the development of a new instrument to assess perceptions of classroom psychosocial environment in university and college classrooms, and reports comprehensive validation information for several samples of students and instructors. The work described herein is distinctive in that it focusses on the classroom-level as distinct from the institutional-level environment (Stern, 1970) and because it extends research traditions in elementary and secondary schools to higher education classes. The new instrument can be used in several lines of research analogous to those previously completed successfully in schools, as well as in a variety of practical applications aimed at improving teaching and learning in higher education. Before describing the development and validation of the new instrument for the higher education level, important background information about analogous work at the elementary and secondary school levels is briefly reviewed.

BACKGROUND: WORK IN ELEMENTARY AND SECONDARY SCHOOLS

Over the previous fifteen years, considerable interest has been shown internationally in the conceptualization, measurement and investigation of perceptions of psychosocial characteristics of the learning environment of elementary and secondary schools. The field of classroom environment is now firmly established through recent key publications including several books (Moos, 1979; Walberg, 1979; Fraser, 1986a), monographs (Fraser, 1981a; Fraser & Fisher, 1983a), a meta-analysis (Haertel, Walberg & Haertel, 1981), several reviews (Walberg, 1976; Walberg & Haertel, 1980; Fraser, 1981b, 1985a; Chavez, 1984), including one specifically in science education (Fraser & Walberg, 1981), and a guest-edited journal issue (Fraser, 1980).

The use of student perceptions can be contrasted with two other major approaches for assessing and studying classroom environment. One approach, which is commonly referred to as classroom interaction analysis, involves observation and systematic coding of classroom communication and events according to some category system (Dunkin & Biddle, 1974). There are several arguments which have been advanced by Walberg and Haertel (1980) to justify the use of student perceptual measures in preference to direct observational techniques. First, paper-and-pencil perceptual measures are more economical than classroom interaction techniques which involve the expense of trained outside observers. Second, perceptual measures are based on students' experiences over many lessons, while interaction data usually are restricted to a very small number of lessons. Third, perceptual measures involve the pooled judgments of all students in a class, whereas interaction techniques typically involve only a single observer. Fourth, students' perceptions, because they are the determinants of student behaviour more so than the real situation, can be more important than observed behaviours. Fifth, perceptual measures of classroom environment typically have been found to account for considerably more variance in student learning outcomes than have interaction variables.

Another approach to studying classroom environments involves techniques variously referred to as naturalistic inquiry, case study, ethnography and participant observation, which have gained considerable popularity over the last decade (Smith, 1978; Stake, 1978; Hamilton

et al., 1977). This approach is well illustrated by Stake and Easley's (1978) Case Studies in Science Education.

The three instruments used most extensively in prior research in science classes at the secondary school level are the Learning Environment Inventory (Anderson & Walberg, 1974; Fraser, Anderson & Walberg, 1982), the Classroom Environment Scale (Trickett & Moos, 1973; Moos & Trickett, 1984), and the Individualized Classroom Environment Questionnaire (Rentoul & Fraser, 1979; Fraser, 1986b). The My Class Inventory (Fisher & Fraser, 1981; Fraser, Anderson & Walberg, 1982), a simplified version of the Learning Environment Inventory, has been used in numerous studies at the elementary and junior high school levels. Also all of these instruments except the Learning Environment Inventory are now available in economical short forms (Fraser, 1982a). These instruments include scales such as Competition, Formality, Difficulty, Rule Clarity, Personalization and Investigation.

Another feature of most of the classroom environment instruments listed above is that they have four distinct forms which measure (a) student perceptions of actual classroom environment, (b) student perceptions of preferred classroom environment, (c) teacher perceptions of actual classroom environment, and (d) teacher perceptions of preferred classroom environment. The preferred forms are concerned with goals and value orientations and measure perceptions of the classroom environment ideally liked or preferred. Having these four different forms has enabled classroom environment scales to be used for a range of research and practical applications which are discussed in detail later.

Classroom environment instruments have been used as sources of predictor and criterion variables in a variety of research studies conducted in elementary and secondary schools. Use of student perceptions of actual classroom environment as predictor variables in several different countries has established consistent relationships between the nature of the classroom environment and various student cognitive and affective outcomes (see Haertel, Walberg & Haertel, 1981). For example, Fraser and Fisher's (1982) study involving 116 Australian science classes established sizable associations between several inquiry skills and science-related attitudes and classroom environment dimensions measured by the Classroom Environment Scale and the Individualized Classroom Environment Questionnaire.

Studies involving use of the actual form of classroom environment scales as criterion variables have revealed that classroom psychosocial climate varies between different types of schools (Hofstein, Gluzman, Ben-Zvi & Samuel, 1980), between coeducational and single-sex schools (Trickett, Trickett, Castro & Schaffner, 1982), between classes of different sizes (Walberg, 1969), between classes of teachers with different control ideologies (Harty & Hassan (1983) and between classes following different subject matter (Kuert, 1979). Also both researchers and teachers have found it useful to employ classroom climate dimensions as process criteria of effectiveness in curriculum evaluation because they have differentiated revealingly between alternative science curricula when student outcome measures have shown little sensitivity (Fraser, 1979).

Other studies have incorporated both the actual and preferred forms of classroom environment instruments within the same investigation. Both

Moos (1979) in the USA and Fraser (1982b, 1984) in Australia compared students' and teachers' perceptions of actual and preferred classroom environment and found the same two patterns of interesting findings. First, both students and teachers preferred a more positive classroom environment than they perceived as being actually present and, second, teachers tended to perceive the classroom environment more positively than did their students in the same classrooms. Whereas most past classroom environment research has concentrated on investigations of associations between student outcomes and actual classroom environment, Fraser and Fisher (1983b, c) used the actual and preferred forms of scales together in exploring whether science students achieve better when there is a higher similarity between the actual classroom environment and that preferred by students. Use of regression surface analysis yielded support for the person-environment fit hypothesis that students achieve better in their preferred classroom environment.

In promising small-scale practical applications teachers have used assessments of their students' perceptions of their actual and preferred classroom environment as a basis for identification and discussion of actual-preferred discrepancies, followed by a systematic attempt to improve classrooms (Fraser, Seddon & Eagleson, 1982; Fraser & Deer, 1983; Fraser & Fisher, 1986). This line of work is of key importance because it provides teachers with tangible methods for improving their classrooms.

Despite the existence of this strong tradition of classroom environment research at the elementary and secondary school level, surprisingly little analogous work has been conducted at the tertiary level. Although some notable work has focused on the institutional or school-level environment of universities and colleges (e.g., Pace and Stern, 1958; Halpin and Croft, 1963; Stern, 1970), classroom-level studies are conspicuously absent. One likely explanation for this simply is the unavailability of suitable, reliable and practical instruments for use in tertiary classrooms. Consequently, this study aimed to develop an instrument for measuring student or teacher perceptions of either actual or preferred environment in small tertiary classes often referred to as seminars or tutorials (as distinct from lectures or laboratory classes). This new instrument - called the College and University Classroom Environment Inventory (CUCEI) - is discussed in the next section.

INITIAL DEVELOPMENT OF CUCEI

The initial development of the College and University Classroom Environment Inventory was guided by the following four criteria:

1. Consistency with Secondary School Instruments. Guidance in identifying dimensions was obtained by examining all dimensions contained in existing instruments for the secondary-school level.

2. Coverage of Moos's General Categories. Dimensions chosen provided coverage of the three general categories of dimensions identified by Moos (1974) for conceptualizing all human environments. These three general categories are Relationship Dimensions (the nature and intensity of personal relationships), Personal Development Dimensions (basic directions along which personal growth and self-enhancement tend to occur) and System Maintenance and System Change Dimensions

(extent to which the environment is orderly, clear in expectation, maintains control and is responsive to change). Since Moos claims that, at minimum, Relationship Dimensions, Personal Development Dimensions and System Maintenance and System Change Dimensions must be assessed to provide an adequate and reasonably complete picture of any environment, dimensions for the CUCEI were chosen to include at least one scale in each of Moos's three general categories.

3. Salience to Tertiary Teachers and Students. By interviewing a number of tertiary teachers and students and asking them to comment on draft versions of sets of items, an attempt was made to ensure that the CUCEI's dimensions and individual items were considered salient by teachers and students.

4. Economy. In order to achieve economy in answering and processing, the CUCEI was designed to have a relatively small number of reliable scales, each containing a fairly small number of items.

It was found that the above criteria could be satisfied with an instrument containing the following seven scales: Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation and Individualization. By writing new items and rewriting existing ones, scales selected from secondary school inventories were redefined and modified to make them well-suited to higher education classes. The set of items passed through several successive revisions based on reactions solicited from colleagues with expertise in questionnaire construction and teaching in higher education. Careful attention was paid to making each item suitable for measuring either actual or preferred classroom environment.

The resulting preliminary version of the CUCEI contained 12 items per scale. Both the actual and preferred forms were field tested with a sample of 127 students in 10 classes following several different courses at one multi-purpose tertiary institution in Perth, Western Australia. Both undergraduate and postgraduate classes were involved. Data were subjected to item analysis in order to identify items whose removal would enhance each scale's internal consistency (the extent to which items in the same scale measure the same dimensions) and discriminant validity (the extent to which a scale measures a unique dimension not covered by the other scales in the instrument). In particular, scale internal consistency was improved by removing items with low item-remainder correlations (i.e., correlations between a certain item and the rest of the scale excluding that item), while discriminant validity was enhanced by removing any item whose correlation with its a priori assigned scale was lower than its correlation with any of the other six scales in the CUCEI. These procedures led to a version of the CUCEI which contained seven items per scale.

DESCRIPTION OF CUCEI

The final version of the CUCEI contains 49 items altogether, with an equal number of items belonging to each of the seven scales. Each item is responded to on a four-point scale with the alternatives of Strongly Agree, Agree, Disagree and Strongly Disagree. The scoring direction is reversed for approximately half of the items. Table I clarifies the

TABLE I. Descriptive information for each scale in CUCEI

Scale Name	Moos Category	Scale Description	Sample Item
Personalization	R	Emphasis on opportunities for individual students to interact with the instructor and on concern for students' personal welfare	The instructor goes out of his/her way to help students. (+)
Involvement	R	Extent to which students participate actively and attentively in class discussions and activities	The instructor dominates class discussions. (-)
Student Cohesiveness	R	Extent to which students know, help and are friendly towards each other	Students in this class get to know each other well.(+)
Satisfaction	R	Extent of enjoyment of classes	Classes are boring. (-)
Task Orientation	P	Extent to which class activities are clear and well organized	Students know exactly what has to be done in our class. (+)
Innovation	S	Extent to which the instructor plans new, unusual class activities, teaching techniques and assignments	New and different ways of teaching are seldom used used in this class. (-)
Individualization	S	Extent to which students are allowed to make decisions and are treated differentially according to ability, interest of rate of working	Students are allowed to choose activities and how they will work. (+)

R: Relationship Dimension, P: Personal Development Dimension, S: System Maintenance and System Change Dimension.

Items designated (+) are scored 5,4,2 and 1 respectively, for the responses Strongly Agree, Agree, Disagree and Strongly Disagree. Items designated (-) are scored in the reverse manner. Omitted or invalid responses are scored 3.

meaning of each CUCEI scale (which has a common-sense meaning) by providing its classification according to Moos's scheme, a scale description, and a sample item. The items listed in Table I are from the actual form of the CUCEI, but the wording of the preferred form is almost identical except for the use of words such as "would". For example, the item "The instructor goes out of his/her way to help students" in the actual form is reworded in the preferred form to read "The instructor would go out of his/her way to help students".

A complete copy of the CUCEI is included in Appendix A. Items in Appendix A are arranged in cyclic order so that the first, second, third, fourth, fifth, sixth and seventh item, respectively, in each block measures Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation and Individualization. Items whose item numbers are underlined are scored 1, 2, 4 and 5, respectively, for the responses Strongly Agree, Agree, Disagree and Strongly Disagree. All other items are scored in the reverse manner. Omitted or invalidly answered items are scored 3.

VALIDATION OF CUCEI

Samples

Some preliminary validation data for the actual and preferred forms of the CUCEI are available for the sample of 127 students in 10 classes involved in field testing. But, because the improvements in scale statistics gained through application of item analysis techniques can be lost in subsequent administrations of an instrument because of sampling variations, it is important to crossvalidate the refined forms of instruments to check that reliability and other indices hold up. In the case of the CUCEI, crossvalidation data are available for three other samples, namely, a larger sample of Australian students, a sample of American students and a group of instructors. The Australian sample consisted of 307 students in 30 postgraduate and undergraduate classes in a variety of disciplines (including education, science, mathematics, communications and psychology) in two multi-purpose higher education institutions in Perth, Western Australia. The American sample consisted of 65 postgraduate and undergraduate students in four education classes in a university in Chicago, USA. The group of instructors consisted of a subsample of 20 of the 30 teachers (16 Australian and 4 American) teaching these 34 classes.

Altogether almost half of the crossvalidation sample consisted of science classes. But it was found that validation statistics were very similar when computed separately for science and non-science classes. Consequently, validation data are reported below only for the total sample. The crossvalidation data reported for these samples are important, not only because they provide additional support for the validity of the CUCEI with Australian students, but also because they support the cross-cultural validity of the instrument for use in the United States and the validity of the CUCEI when used to assess instructors' perceptions.

Internal Consistency Reliability

The first index of validity reported is scale reliability (see Table II). Estimates of the internal consistency of the actual and preferred

TABLE II. Internal consistency reliability (alpha coefficient) for Australian students, American students and instructors for two units of analysis

Scale	Form	Reliability for Individuals				Reliability for Classes
		Austral. students N=127	Austral. students N=307	U.S. students N=65	Instructors N=20	N=34
Personalization	Actual	0.85	0.74	0.72	0.60	0.85
	Pref.	0.73	0.71	0.62	0.67	0.81
Involvement	Actual	0.77	0.71	0.64	0.54	0.81
	Pref.	0.69	0.66	0.64	0.76	0.79
Student Cohesiveness	Actual	0.85	0.89	0.89	0.83	0.95
	Pref.	0.79	0.75	0.76	0.70	0.90
Satisfaction	Actual	0.92	0.89	0.86	0.53	0.96
	Pref.	0.82	0.86	0.76	0.82	0.90
Task Orientation	Actual	0.72	0.71	0.80	0.74	0.85
	Pref.	0.75	0.63	0.63	0.77	0.78
Innovation	Actual	0.85	0.75	0.85	0.55	0.93
	Pref.	0.78	0.74	0.61	0.55	0.82
Individualization	Actual	0.87	0.77	0.80	0.83	0.89
	Pref.	0.82	0.65	0.67	0.82	0.80

forms of each CUCEI scale were calculated using Cronbach's alpha coefficient. Data are reported separately for the four different samples using the individual as the unit of analysis. Also, because the class mean is commonly used as the unit of analysis in classroom environment research, alpha reliability estimates also are reported for class means for the group of 34 classes (consisting of the 30 classes in the second Australian sample together with the group of four American classes). Class estimates of internal consistency were made simply by using the variance of class means on each item in conjunction with the conventional alpha formula.

Table II shows that, for the first sample of Australian students, the values obtained for the alpha coefficient ranged from 0.72 to 0.92 for the actual form and from 0.60 to 0.82 for the preferred form. Data for the three crossvalidation samples in Table II (Australian students, American students and instructors) compare favourably with these values. Also, as expected, the reliabilities for class means are higher than those for individuals. These data together suggest that each CUCEI scale has acceptable internal consistency, especially for scales containing only seven items each, in both its actual and preferred forms, for both Australian and American students, for both students and instructors, and with either the individual or the class mean as the unit of analysis.

Discriminant Validity.

Table III reports data about discriminant validity (using the mean correlation of a scale with the other six scales as a convenient index) for the same four samples. Although only arbitrary criteria exist, generally these values can be regarded as small enough to suggest that each CUCEI scale has adequate discriminant validity for use in its actual and preferred forms with Australian and American students, for students and instructors, and for two units of analysis. It appears that the CUCEI measures distinct although somewhat overlapping aspects of classroom environment; but the conceptual distinctions among scales are important enough to retain the seven dimensions within the instrument. As anticipated, the correlations between Satisfaction and other CUCEI scales tend to be higher than the correlations among other scales, and the correlations for class means are larger than the correlations for individuals.

Ability to Differentiate Between Classrooms

A third desirable characteristic of the student actual form of any classroom environment instrument is that it is capable of differentiating between the perceptions of students in different classrooms. That is, students within the same class should perceive it relatively similarly, while mean within-class perceptions should vary from classroom to classroom. This characteristic was explored for each scale of the student actual form of the CUCEI using the total crossvalidation sample of 372 students in 34 classes (30 Australian and four American). This involved performing for each scale a one-way ANOVA, with class membership as the main effect and using the individual as the unit of analysis. The results of these analyses are shown in Table IV which indicates that each scale differentiated significantly ($p<0.001$) between classrooms. The eta^2 statistic, which is the ratio of between to total sums of squares, was calculated as an estimate of the amount of variance in CUCEI scores attributable to class membership. This table shows that the proportion of variance accounted for by class membership ranged from 0.32 for Satisfaction to 0.47 for Student Cohesiveness.

TABLE III. Discriminant validity (mean correlation of a scale with other six scales) for Australian students, American students and instructors for two units of analysis

Scale	Form	Mean Correlation with Other Scales for Individuals				Mean Correl. for Classes
		Austral. Students N=127	Austral. Students N=307	U.S. Students N=65	Instructors N=20	N=34
Personalization	Actual	0.33	0.46	0.45	0.28	0.53
	Pref	0.45	0.46	0.30	0.32	0.50
Involvement	Actual	0.39	0.48	0.47	0.34	0.56
	Pref.	0.43	0.45	0.30	0.44	0.55
Student Cohesiveness	Actual	0.21	0.44	0.45	0.29	0.48
	Pref.	0.45	0.44	0.29	0.38	0.44
Satisfaction	Actual	0.45	0.44	0.46	0.14	0.53
	Pref.	0.48	0.48	0.23	0.25	0.57
Task Orientation	Actual	0.35	0.39	0.38	0.40	0.41
	Pref.	0.39	0.36	0.29	0.26	0.38
Innovation	Actual	0.39	0.45	0.47	0.24	0.53
	Pref.	0.45	0.47	0.26	0.15	0.50
Individualization	Actual	0.24	0.35	0.36	0.35	0.36
	Pref.	0.29	0.33	0.32	0.25	0.36

TABLE IV. ANOVA results for class membership differences in student perceptions on actual form of CUCEI

Scale	SS Between	SS Within	df	F	Eta^2
Personalization	1907.9	3570.4	33, 338	5.5*	0.35
Involvement	2760.6	4067.9	33, 338	6.9*	0.40
Student Cohesiveness	6098.5	6783.4	33, 338	9.2*	0.47
Satisfaction	3342..	7228.1	33, 338	4.7*	0.32
Task Orientation	3784.4	5102.4	33, 338	7.6*	0.43
Innovation	4206.1	6075.6	33, 338	7.1*	0.41
Individualization	4451.9	5139.5	33, 338	8.9*	0.46

*$p<0.001$

The sample consisted of 372 students in 34 classes (30 Australian and 4 American).

SUGGESTIONS FOR FUTURE WORK

It is hoped that other workers will make use of the CUCEI to pursue several research and practical applications analogous to those completed successfully in prior work in elementary and secondary science classrooms. Past research in science education includes investigations of the effects of classroom psychosocial environment on students' cognitive and affective outcomes (Fraser & Fisher, 1982), of differences between students and their teachers in perceptions of actual and preferred classroom environment (Fisher & Fraser, 1983), and person-environment fit studies of whether students achieve better in their preferred classroom environment (Fraser & Fisher, 1983c). Teachers' previous practical applications have included making use of classroom environment assessments in sensitizing them to important but subtle aspects of classrooms, in evaluating innovations and new teaching approaches in terms of classroom psychosocial processes, and in facilitating improvements in classrooms (Fraser, 1985b; Fraser & Fisher, 1986).

Another particularly promising use of classroom environment instruments is as a source of process criteria in the evaluation of teaching methods or curriculum innovations (Fraser, 1981a). Evaluation in higher education could benefit from less reliance on standard achievement criteria and more attention to socio-psychological classroom processes as valuable ends in their own right. Moreover, a number of evaluation studies at the secondary school level have clearly demonstrated that classroom environment measures can differentiate revealingly between alternative teaching approaches or curricula in science, even when a variety of student outcome measures show little sensitivity (e.g., Fraser, 1979). In the first use of the CUCEI in an evaluation, it was found that alternative high schools had more favorable classroom environments in terms of more involvement, satisfaction, innovation and individualization (Williamson, Tobin & Fraser, 1986).

The CUCEI was designed specifically for small classes sometimes referred to as seminars or tutorials rather than for lectures or laboratory classes. Consequently a desirable direction for future research efforts would be the development of other analogous instruments tailored especially for the lecture, the laboratory, or other particular settings common in higher education.

CONCLUSION

This paper attempts to stimulate and facilitate future research and practical applications involving the psychosocial environment of science classrooms in higher education by describing the development of a new instrument, the College and University Classroom Environment Inventory (CUCEI), which assesses seven dimensions of the actual and preferred environment of small tertiary classrooms commonly referred to as tutorials or seminars. Comprehensive validation information reported herein tentatively attests to the internal consistency reliability and discriminant validity of the actual and preferred forms of the CUCEI for use in Australian or American classrooms using either the individual or the class mean as the unit of analysis. As well, further analyses supported the ability of the actual form of the CUCEI to differentiate between the perceptions of students in different classrooms.

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Appendix A

COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI)

ACTUAL FORM

Directions

The purpose of this questionnaire is to find out your opinions about the class you are attending right now.

This questionnaire is designed for use in gathering opinions about small classes at universities or colleges (sometimes referred to as seminars or tutorials). It is not suitable for the rating of lectures or laboratory classes.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by circling :

SA	if you STRONGLY AGREE	that it describes what this class is actually like.
A	if you AGREE	that it describes what this class is actually like.
D	if you DISAGREE	that it describes what this class is actually like.
SD	if you STRONGLY DISAGREE	that it describes what this class is actually like.

All responses should be given on the separate Response Sheet.

1. The instructor considers students' feelings.
2. The instructor talks rather than listens.
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to classes.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way and in the same time.

8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.

15. The instructor goes out of his/her way to help students.
16. Students "clockwatch" in this class.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.
20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.

22. The instructor helps each student who is having trouble with the work.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are characterized by innovation and variety.
28. Students are allowed to choose activities and how they will work.

29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.

36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.

43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.