Environments in college home economics units as perceived by students

Alyce Muck Fanslow
Iowa State University

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ENVIRONMENTS IN COLLEGE HOME ECONOMICS UNITS
AS PERCEIVED BY STUDENTS

by

Alyce Muck Fanslow

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
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DOCTOR OF PHILOSOPHY

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In Charge of Major Work
Signature was redacted for privacy.

Head of Major Department
Signature was redacted for privacy.

Dean of Graduate College

Iowa State University
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INTRODUCTION

The task of providing a high quality education for students has been a concern of college faculties and administrations; today, with rapidly rising enrollments, the problem is receiving increased attention. In an effort to improve quality many aspects of education are currently being examined; efforts range from focusing on one phase of the educational program, such as organizing the curriculum for teaching and learning, to broad explorations of the campus climate. Increasingly, however, attention is being given to some of the less tangible but highly important elements in student learning such as the physical environment in which the student finds himself; the social groups of which he is a member; and the kind of relationships he is able to establish with others. Tyler (30) indicates the importance of the campus environment when he writes:

The education of the student cannot be understood adequately just in terms of the courses he takes or the professors with whom he comes in contact. A student learns and develops in a complex environment, being influenced by and influencing the student groups of which he is a member, the friendships he forms, and the roles he plays in college affairs. He is also influenced by his teachers, advisors and the somewhat intangible climate of the college.

One of the desirable ways to describe the campus climate is in terms of students' perceptions. If the entire educational experience during his undergraduate years is planned to bring about changes in his behavior resulting from this
experience, then, it is important that how the student per­ceives his environment be understood. With this insight, some of the institution's educational objectives can be evaluated and appropriate action devised where needed.

There are several approaches that can be used to gain a better understanding of students' perceptions of the college environment; one of these is through the use of an instrument which measures his perceptions. Four such instruments have been developed but they measure either students' perceptions of an institution, in general, or of a specific division.

The College Characteristics Index (CCI) is designed to measure both men and women students' perceptions of the overall institutional characteristics of their college. The College and University Environment Scales (CUES) evolved from the CCI but involves different dimensions. A limitation to the CCI and CUES is that there are dimensions in the environment particularly pertinent to women which are not included in either; the most important of these is education for home and family life.

The Inventory of College Characteristics (ICC) also evolved from the CCI, but it measures different environmental dimensions. The factors derived from the ICC are questioned because they were developed using the responses of students from only one institution. Since the purpose of these instruments is to investigate differences among institutions, it appears that by using responses from only one institution only
individual differences could produce factors.

The Medical School Environment Inventory (MSEI) was developed to measure medical school students' perceptions of their environments, and hence, is not appropriate for the study of undergraduate students.

Since the instruments available for studying students' perceptions of the environment either supply information on the institution in general or the medical school in particular, the major purpose of this research is to develop an instrument which can be used to determine undergraduate women students' perceptions of their environment in general and in home economics units, in particular. This instrument has been limited to women students' perceptions because the investigator was primarily interested in the environmental dimensions of home economics units and their related institutions and the enrollment in home economics consists primarily of women students. In addition, home economics has the unique concern of education for home and family life; an environmental dimension important to explore for home economics but not included in the environmental factors explored by the other instruments.

In addition to the development of an instrument, methods for using it to study the environment of a home economics unit and its related institution and for comparing the environments among institutions are illustrated. They are presented as a method of self-study that could be used by a home economics unit or its related institution.
The following definitions have been accepted for use in this study:

1. Environment refers to all types of experiences of the student in the college community.
2. Characteristic, dimension, or factor refers to a specific aspect of the environment.
3. Institution designates the college or university in which the student is enrolled.
4. Unit refers to the college, division, or department within the institution in which the student is enrolled.
Although there were some early attempts to study college environments, it is only during the past 15 years that an increasing number of social scientists have become concerned with the need for a better understanding of the college environment. A variety of techniques have been used in studies of college environments. Pace (21) summarizes the major approaches:

1. Inventories of resources and features as in accreditation reports, data found in directories, etc.

2. Case histories, usually emphasizing the educational philosophy in action of a single college.

3. Alumni studies, sometimes resulting in an estimate of scholarly productivity ...

4. Evaluation studies, emphasizing students' attainments of important education objectives ...

5. Sociological approaches, viewing the college as a social system with emphasis on peer groups, role behavior, communications networks, and other organizational characteristics ...

6. Psychological approaches, ... [usually considering] students' perceptions of their college environment.

This review is limited to the last technique because it was used in the present study. The review is further limited to the rationale behind the development of instruments; the statistical methods used to define the environmental factors to be measured and the factors defined; and the methods used to study environmental differences. In general, the data characterizing
particular types of institutions will not be reviewed since the
present study is not primarily concerned with the characteristics
of the institutions involved in the study. The four instru­
ments which have been developed to measure institutional
environmental factors have been reviewed.

Development of the
College Characteristics Index

A first attempt to measure psychological characteristics
of college environments as perceived by students was made by
Pace and Stern (18) using Murray's (16) dual concept of person­
al needs and environmental press. Needs refer to identifiable
characteristics of individuals such as drives, motives, and
goals, whereas press is a general label for stimulus, treat­
ment, or process variables in the environment. Stern (25)
lists the 30 needs-press variables as:

1. abasement - assurance
2. achievement
3. adaptability - defensiveness
4. affiliation - rejection
5. aggression - blame avoidance
6. change - sameness
7. conjunctivity - disjunctivity
8. counteraction - inferiority avoidance
9. deference - restiveness
10. dominance - tolerance
11. ego achievement
12. emotionality - placidity
13. energy - passivity
14. exhibitionist - inferiority avoidance
15. fantasied achievement
16. harm avoidance - risktaking
17. humanities, social sciences
18. impulsiveness - deliberation
The CCI was constructed around the press variables and is organized into 30 scales, each containing ten statements about aspects of college life.

Students respond to items by indicating true if they think the statement is generally characteristic of their college, is something which occurs or might occur, is the way people tend to feel or act; and false if they think the statement is generally not characteristic of the college. Scores are derived by assigning a weight of one to true and zero to false responses.

A first draft of the CCI was administered in 1957 to 423 upperclassmen at five institutions selected because they were believed to be different from each other. Evidence of a particular press being or not being present in an institution was determined. Means and standard deviations for each of the press scales were computed for the five institutions; for all test scales the median of the mean scores was 3.5 and the median of the standard deviations was 1.7. Using this information, a press was assumed to be present at an institution if
the mean score for that scale was at least 6.6 and to be absent if the mean score was less than 4.4. Differences in the environmental press of the five institutions were found to exist.

Environmental differences between any two institutions were also studied by determining if any of the differences between the mean scores on each scale were significant. Comparing all five institutions, all scales except deference yielded significant differences between two or more of the mean scores.

The rank orders of the scales among the five institutions were also compared and these gave additional evidence that the preliminary instrument could determine institutional environmental differences.

The CCI has subsequently been revised twice; the third revision (Form 1158) has undergone numerous additional analyses for the purpose of determining the validity of the instrument and for the defining of the general environmental factors measured.

In an effort to determine the validity of the CCI for establishing institutional differences, McFee (13) investigated

1. whether the personality of the students who answered the questions had any relationship to the way students answered them

2. whether the objectivity of the CCI item influenced the consistency of the response given by students

3. whether the degree of familiarity of the students with the aspect of the environment described by the CCI item influenced the consistency of the response given by students.
The relationship of the personality of the students who responded to the CCI items to the way they responded was studied by obtaining responses from 100 undergraduates to both the CCI and the Activities Index (AI).\textsuperscript{1} Correlations were calculated between each pair of scales. None of the correlations was significant at the five per cent level; consequently, it appears that responses to the scales are not influenced by the personality of the respondents.

The hypothesis that the more objective or easily verifiable items in the CCI would be answered more consistently by students was tested by classifying the CCI items into the groups: highly objective; somewhat objective; and subjective. The percentage of items in each group producing uniform responses between the objective and subjective items was significant at the five per cent level, indicating that the more objective items tended to elicit more uniform responses from students than did the subjective items.

Testing the hypothesis that students will agree more when reporting behavior with which they are familiar, items were classified into three levels of probable familiarity: high, proportion.

\textsuperscript{1}The Activities Index is an inventory designed to measure individual's needs and is organized around the 30 needs variables outlined by Murray. The 300 items in it are divided equally among the 30 scales and each describes a common everyday activity similar to those in the CCI. The respondent is asked to indicate his like or dislike of the activity described. The AI was originally developed by Bloom, Stein, Lane, and Stern.
medium, and low. The percentage of items producing uniform responses in each level was calculated; the difference in the percentage of uniform responses at the high and low levels was significant beyond the one per cent level. Consequently, it appears that items about conditions with which the student is not familiar tend to produce little agreement in response.

How this analysis has influenced the kinds of items in the CCI is not indicated. Later articles (22, 23, p. 712) appear to ignore some of McFee's results as this statement indicates: "There is as much agreement in student response to subjective and impressionistic press items as there is to items more readily verifiable by reference to empirical facts."

Stern (23, pp. 707-708, 24, pp. 32-45) reports an analysis of the CCI using 1993 responses from undergraduates in 32 institutions by a rearrangement of the intercorrelation matrix. Large, positive intercorrelations were placed near the main diagonal; they became more negative away from the main diagonal and positive at the corners. Stern indicates that the structure of the data arranged in this manner resembles a Guttman quasi-circumplex, a law of order hypothesized by Guttman for scales which are of similar difficulty but which define different abilities. This order is further characterized by the scales having a continuous circular relationship to each other.

Inspection of the resulting matrix showed that this relationship was limited to the first 18 press variables, with nine
general clusters being defined from the scales. Twelve scales were unrelated to the circumplex but appeared to define two additional clusters.

Because 18 scales were systematically related to each other forming a continuous circular order, these scale scores were graphed on a polar coordinate system. Each wedge of the polar system represented a scale. The scales near each other had large, positive intercorrelations whereas those far apart had high, negative correlations. At the bottom of the graph, a rectangular grid was set up for the two clusters which were unrelated to the other nine.

It is assumed that inspection of the polar profiles led to grouping of the nine clusters into three factors and the grid defined a fourth:

1. Assertive - impulsive
   a. Critical - independent
   b. Aggressive - ascendant
   c. Demonstrative - emotional

2. Cooperative - composed
   a. Outgoing - sociable
   b. Responsive - self-sufficient
   c. Dependent - deferent

3. Submissive - restrained
   a. Cautious - controlled
   b. Timid - apprehensive
   c. Inhibited - withdrawn

4. Intellectual
   a. Persistence - striving
   b. Theoretical - intellectual
In a subsequent analysis Stern (23, p. 716, 24, p. 37) reduced the clusters to three independent dimensions by a second-order factor analysis.\(^1\) Two factors were obtained from the clusters represented in the circle, while a third was obtained from the grid. The factors were:

1. Impulse expression and control
2. Dependency needs versus autonomy
3. Intellectual needs.

The relationship (23, p. 716) between these three dimensions and the types of institutions in the sample were studied by plotting the mean responses from institutions on a three-dimensional graph. It was observed that most of the institutions studied had large scores on the factor describing various dependency elements in the environment. Denominational institutions appeared to have the highest environmental press in the area of conformity, whereas the private liberal arts institutions had the least. The latter also had climates characterized by intellectual activities.

A factor analysis of the CCI using a centroid program with one rotation of the first factor\(^2\) is reported by Pace (20). Data for the analysis were obtained from students in 32 institutions consisting of liberal arts college, universities, and

\(^1\)The method of factor analysis was not reported.

\(^2\)The method of rotation was not described.
professional schools. Two factors accounted for most of the differences among college environments: one was theoretical-intellectual versus practical, status-oriented; the other was group-welfare versus rebellious. The first factor also separated into two parts, one humanistic and the other scientific.

In a later study undertaken during 1961-1962, Stern (22) analyzed responses of 1076 upperclassmen in 23 institutions. He describes this analysis:

The covariance matrix produced from the scale intercorrelations was factored\(^1\) and rotated (normal vaimax), first on the Activities Index needs variables alone and then in a composite analysis including both the 30 AI scales and the 30 CCI press scales as well. Thirteen needs factors emerged in the first analysis. The same thirteen reappeared in the second analysis, together with ten new factors produced by the press variables. The two sets of factors are independent of one another, with the exception of one which shows appreciable loadings from both needs and press sources.

The factors obtained from the CCI scales were:

1. Intellectual climate
   a. Substantive intellectual interests
   b. Academic motivation
   c. Social effectiveness
   d. Self-assurance

2. Social relationships
   a. Play
   b. Self-gratification
   c. Friendliness
   d. Dominance - submission

\(^1\)The method of extracting factors was not explained.
3. Emotional expression
   a. Assertiveness
   b. Impulsiveness
   c. Constraint and compliance
   d. Obsessive – compulsiveness.

It appears that the grouping of the 12 factors into three broad general factors was done on a rationale basis.

In a subsequent study of the CCI reported by Stern (25) another set of environmental dimensions was found when the responses of 1993 upperclassmen enrolled in 32 institutions were analyzed. The factors were extracted in a principal components-equamax analysis using the matrix of 60 AI-CCI scale intercorrelations. Eleven environmental factors and 12 personality factors were extracted and, although they were derived from the same matrix, the factors appeared to be associated with either the CCI or the AI.

The matrix of factor intercorrelations was then refactored\(^1\) to obtain a better idea of the basic relationships among the factors. Two second-order environmental factors emerged for the CCI and three personality dimensions were defined for the AI. The environmental factors are:

1. Intellectual climate
   a. Aspiration level
   b. Intellectual climate
   c. Student dignity
   d. Academic climate

\(^1\)The factor analysis method was not reported.
The self-expression factor is used to describe both aspects of the college climate whereas the work-play factor and the non-vocational factor of the intellectual climate are inversions of the play-work factor and the vocational factor of the non-intellectual climate of the college environment.

It is to be noted that while the responses used in each of the above analyses were basically the same, the factors obtained from each analysis were, in general, not comparable. The differences are probably attributable to the differences in the statistical analyses. Each of these studies appears to result in a rearrangement of the 30 CCI scales into different factors. It appears that no attempt has been made to determine which items in a factor are most discriminating.

In addition, Stern (24, p. 53) reports that in the large, complex institutions, a range—in the mean responses of students in various divisions within the same institution is obtained to the 30 CCI scales. Since it would be expected that students enrolled in the same institution would perceive institutional
environmental characteristics about equally, these data suggest that the 30 CCI scales may not be measuring "true" institutional differences. Hence, the factors derived from them to describe institutional differences may also be questioned.

Stern (25) developed standard score norms for each of the press scales and for each of the derived factors in the CCI. The factor norms may be questioned, however, since they are based on responses which were also used in their development.

Differences between institutional means or between group means in the same institution may be examined for statistical significance by comparing the differences obtained (in standard scores) with reported required differences (25) for several levels of significance. Required differences were calculated from the t-test.

Besides the CCI there are three other forms of the environment index available: the High School Characteristics Index, the Evening College Characteristics Index, and the Organizational Climate index. These have been developed because it is difficult to describe characteristics of an environment in terms which can be generalized beyond a specific setting.

Development of the College and University Environment Scales

CUES was developed by Pace (19) from the CCI by a different statistical analysis than Stern. The basic difference was that mean responses of students in institutions were used rather than individual responses.
Responses from students in 50 institutions were analyzed to develop CueS. The 50 were chosen to represent enrollments in accredited colleges and universities in the U.S.; i.e., institutions were selected on the basis of national enrollment distributions. They were also chosen to be representative of the proportion of students in public and private institutions and in various geographical areas.

Using the raw score means of institutions on each of the 30 CCI scales, an intercorrelation matrix was constructed. Scores were derived by assigning a weight of one to true and zero to false responses. The matrix was factor analyzed using the Kaiser Varimax program. Five environmental factors emerged:

1. Practicality
2. Community
3. Awareness
4. Propriety
5. Scholarship

Each factor was subsequently studied to determine which items were most discriminating. Pace (19) indicates the criteria which were used for preliminary selection:

1. the item-[factor score] correlation must be .40 or higher on one factor and lower than .40 on all other factors
2. the item difficulty (mean percentage) should be within the range of 15 to 85
3. the sigma should be 15 or larger.
Final selection of an item was dependent upon how well it discriminated between schools with high and low scores on the scale. Thirty items were eventually selected for each scale.

The use of factor analysis on the basis of 50 observational units may be questioned as it is generally accepted that at least 500 observations are necessary before factor analysis can be performed. Results to be reported next, however, suggest that the scales developed do measure "true" institutional differences because students from various subgroups within the same institution perceive the environmental characteristic being measured almost identically.

Face (19) compares the responses of students to CUES between various subgroups within institutions. The comparisons were between:

1. men and women students
2. high and low achievers
3. scores of students on the Heston Personality Inventory and the ACE Psychological Examination and scores of students on the CUES scales
4. students from at least two classes within an institution
5. students in the business and engineering units.

Analysis of the results indicate that the sex, achievement, and personality of the respondent as well as his class in school and the college in which he is enrolled have little, if any, effect on the way in which he responds to the items in CUES.

Distributions of the scores on each of the five scales for
the 50 institutions are tabulated. Hence, any institution can compare its scores on the five scales with this table and interpret its relative position with the other institutions.

Development of the Inventory of College Characteristics

The ICC evolved from studies by Thistlethwaite (27, 29) in which he tried to associate characteristics of different institutions, as measured by Pace and Stern's CCI (18), to student achievement. The achievement criteria were productivity indices, one for the natural sciences (NS) and one for the arts, humanities, and social sciences (AHSS). The indices (29) used were "the discrepancies between a school's expected rate of Ph.D. productivity, as predicted from its enrollment of talented students, and its actual rate of productivity".

Responses to the CCI were obtained from National Merit Scholars and Finalists at 36 colleges. For each institution correlation coefficients were computed between the median score on each of the 30 CCI scales and each of the productivity indices. Of the 30 scales, 12 had significant correlation coefficients with one or both of the productivity indices at the one per cent level. Although differences between the CCI scales which predicted achievement in the two broad areas of study were distinguishable, several interpretations were possible. Much of this arose because most of the CCI scales include items descriptive of students and faculty.
Another analysis was made using revised scales. The CCI items were clustered on the basis of content; in addition, each group was developed so that it described either faculty or student characteristics. Items were then eliminated which did not have high item-group intercorrelations or did not distinguish between the productivity of institutions. The revised scales were:

1. Student press scales
   a. Humanism
   b. Breadth of interests
   c. Reflectiveness
   d. Participation
   e. Aggression
   f. Scientism
   g. Social conformity

2. Faculty press scales
   a. Excellence of social science faculty and resources
   b. Flexibility of curriculum
   c. Energy and controversy of instruction
   d. Informality and warmth of student-faculty contacts
   e. Closeness of supervision
   f. Directness of teaching methods.

Correlations between the revised faculty and student scales and the two productivity indices were recalculated.

Results (29) indicated that students who seek advanced degrees in the natural sciences appear to be encouraged by student groups which are described by student aggression, lack of conformity, and dedication to science. Student groups characterized by a broad range of interests, reflectiveness, and
humanistic concerns appear to stimulate students to obtain the
degree in the humanistic fields, whereas environments high
in participation and aggression tend to stifle student desire
to seek an advanced degree.

Faculty characteristics (27, 29) which seem to encourage
students to obtain the Ph.D. degree in the AHSS are: a well-
qualified social science faculty and excellent resources; a
relatively unstructured curriculum; instruction which stimulates
debate; and faculty-student relationships which are warm and in-
formal. Faculties high in NS productivity appear to have warm,
informal faculty-student relationships; little supervision in
classroom and extracurricular activities; teaching methods which
provide few explicit directions; and a lack of excellent social
science faculty and facilities.

In a subsequent study Thistlethwaite (28) increased the
number of factors explored and wrote additional items for each
so that it contained ten statements. The instrument, the In-
ventory of College Characteristics, contained 18 scales:

1. Faculty press scales
   a. Achievement
   b. Affiliation
   c. Compliance
   d. Directiveness
   e. Enthusiasm
   f. Humanism
   g. Independence
   h. Pragmatism
   i. Supportiveness

2. Student press scales
   a. Achievement
b. Aggression
c. Breadth of interests
d. Competition
e. Humanism
f. Participation
g. Reflectiveness
h. Scientism
i. Social conformity.

In a study of the ICC, however, it was discovered that the validities\(^1\) of the items were markedly different and it appeared that the scales did not measure independent dimensions.

In a later study Nunnally, Thistlethwaite, and Wolfe (17) tried to obtain independent factors in the ICC by factor analysis. Before collecting data on the ICC, however, two changes were made. First, the 180 items were divided into separate forms. One had 90 statements describing faculty characteristics and the other had 90 statements describing student characteristics. Second, the agree-disagree response was changed to an agree-disagree rating scale employing seven intervals.

Responses to each of the two forms were obtained from approximately 500 students; all were freshman and sophomore students in the College of Liberal Arts at the University of Illinois.

The responses to the two forms were factor analyzed; factors were extracted by the centroid method and were rotated by the Varimax method. Reliabilities (Coefficient Alpha) of the

\(^1\)The method used to determine item validities was not described.
factors were calculated; only those which had reliabilities of at least .60 were reported.

The factors obtained relating to faculty were:

1. Systematized energy of faculty
2. Toughness of faculty
3. Availability of faculty to students
4. Interestingness of lectures
5. Faculty interest in the arts and humanities
6. Vocational emphasis.

The factors obtained relating to students were:

1. Intellectual drive of students
2. Personal appearance and manners
3. Competition
4. Science interest
5. Pressure against scholarly activities
6. Interest in visiting speakers.

Development of the Medical School Environment Inventory

The MSEI was developed by Hutchins (10), in part, from Pace and Stern's CCI (18) and Thistlethwaite's IOC (28). Originally it was composed of 18 rationally derived scales of ten items each. Nine of these identified characteristics of the faculty and nine described student behaviors. The scales were the same as those used by Thistlethwaite (28) and the items were randomly distributed throughout the inventory. The student uses a 4-point scale to rate the statement according to his idea of how true or false the statement is about his medical school.
Responses were obtained from 2139 fourth-year medical students in 28 medical schools. These schools were a stratified random sample of all U.S. medical schools.

In a later study, Hutchins and Wolins (11) sought to reduce the number of variables through factor analysis. A random sample of 25 students was drawn from each of the 28 medical schools, making a total of 700. The description of their procedure follows:

The distribution of responses to each item was dichotomized with the split being made as near as possible to the median. The factor analysis procedure used was a modification of the Wherry-Winer method. The basic difference was that covariances rather than correlations were analyzed. Difficulty factors were avoided by not including in clusters any item where more than fifty-five per cent of the distribution occurred in one of the two categories. . . . The intercorrelations between clusters were factored by the multiple-group method and the results of this part of the factor analysis were rotated intuitively by graphic methods. The item factor loadings were rotated through Wherry's hierarchal procedure.

Six factors were identified:

1. General esteem
2. Academic interest and enthusiasm
3. Extrinsic motivation
4. Breadth of interest
5. Intrinsic motivation for academic achievement
6. Clear, concise, encapsulated training or instruction.

Within group and between group reliabilities were calculated for each of the factors. The within group reliabilities were calculated by what is essentially the Kuder Richardson
formula twenty; the between group reliabilities were "stepped up intra-class correlations". Inspection of the results showed that all of the factors except general esteem have a low within group reliability in comparison to the between group reliabilities. Hutchins and Wolins suggest this interpretation:

[The] substantial within group reliability [of the general esteem factor] implies that general satisfaction within an environment is a function of individual differences within schools as well as actual differences between environments. The low within group reliabilities for the remaining five environmental factors suggest that these aspects of the environment are reacted to largely on the basis of the actual environmental characteristics and do not depend to a great extent on the individuals who are reacting.

Scores are obtained for each student in a school on the six factors by adding scores for items that load on the factor using the original four point scale by which students respond. Standard scores for each scale can subsequently be obtained. Profiles based on the standard scores can be plotted and the environment of one institution studied or the environments in institutions compared.

One of the uses of this environmental inventory is indicated by Hutchins (9) when he reports the self-study one medical school made. Students were administered the MSEI twice: during their second and last year in school. Comparison of the means revealed a lack of change in all except the intrinsic motivation factor. He indicates that inspection of the items in this scale make it appear that increased facilities and
opportunities for individual activity had been provided students during the two year period and thus accounted for the change.

Assessment of the Inventories

Comparison of the techniques used in developing the four instruments reveals basic differences. The factor analysis of the MSEI was based on students from several institutions whereas the analysis of the ICC was based on students from only one. Thus, in the MSEI, factors may emerge due to school differences whereas in the ICC only individual differences can produce factors. Since the purpose of these inventories is to investigate differences among the environments of institutions, the procedure used to develop the MSEI seems more appropriate.

In addition, the MSEI factors have been analyzed to determine whether the items in them appear to be responded to primarily on the basis of actual school conditions or individual differences within schools. Results suggest that the items in five factors appear to be responded to on the basis of actual conditions whereas responses to items in the remaining one appear to be a function of both actual conditions and individual differences.

The CCI was developed by factor analysis from responses of students in several institutions. However, the factors derived are questioned for the following reasons. There is evidence which suggests that the 30 CCI scales from which the
factors have been derived do not measure "true" institutional differences. Also, it appears that items contributing to the CCI factors have not been studied to determine which are most discriminating.

The scales in CUES were derived by factor analysis from the responses of students in several institutions, but mean responses were used for the analysis. Since factor analysis is a large numbers statistic, it appears that there were too few observational units to warrant its use. It is to be noted, however, that the evidence presented suggests that the scales developed do measure institutional characteristics.
The major purpose of the investigation was to develop an instrument, the College Environment Inventory for Women (CEIW), which can be used to determine undergraduate women students' perceptions of the environment of their institution in general and in home economics units, in particular. The study progressed in three phases: the preparation of the preliminary form of the CEIW; the administration of the instrument; and the development of the final form.

Development of Preliminary Form

Initially, the preliminary instrument was begun by defining the term environment and listing the factors that appeared to be important to women students. Working from the definition and broadly considering the kinds of experiences that students would have in the college community, the areas that seemed desirable to investigate fell into two groups: those associated with the academic and non-academic life of students.

Ideas for possible factors under each of these headings came from several sources. Factors concerned with the academic aspects of campus life were identified primarily from a study of objectives proposed for women's higher education and objectives for general education. The former were obtained from books by college presidents and social scientists such as
Beatley (2), Komarovsky (12), Mueller (14), Muller and Muller (15), Stoddard (26), and White (34). The objectives for general education were those used by Bresina (3, pp. 69-72). Her list was used because she had made an extensive study of the literature related to general education in defining the objectives in her study.

Sources of ideas for factors concerning the non-academic life of students came from research reports summarizing developments in higher education by Baskin (1), Freedman (5), and Hatch (7); and the non-academic factors identified by Stern (25), Hutchins and Wolins (11), and Nunnally et al. (17).

Because there was some overlapping of factors in the academic and non-academic aspects, similar ones were combined. The list adopted as factors to explore was:

1. Education for a profession
2. Continuing education
3. Education for effective citizenship
4. Education for home and family living
5. Breadth of interests
6. Personal development
7. Self-expression
8. Personal appearance and manners
9. Excellence in staff and facilities
10. Motivation for scholastic achievement
11. Student dignity
12. Group spirit among students
13. Faculty-student relationships

\[\text{1When the preliminary instrument was developed the investigator was unaware of GUES, the institutional environment inventory developed by Pace (19).}\]
Having tentatively defined the environmental dimensions that seemed desirable to explore, statements relating to each were written for the preliminary inventory. Ideas were obtained from the literature related to each factor and statements from the CCI, MSEI, and ICC. Additional items were developed for the areas that appeared to need consideration. The resulting 285 statements involve a wide range of aspects in the college environment, such as faculty-student relationships; teaching practices and classroom activities; student clubs, activities, concerns, and interests; and rules and regulations.

Respondents were asked to indicate the extent to which a statement was descriptive of the environment at a particular institution by selecting a number from 1 to 99. The number 99 indicated that a statement described some aspect of the environment well or described an event which occurred frequently, whereas the number 1 indicated a statement which did not describe the environment or which described an event which occurred infrequently. Numbers between 1 and 99 indicated that the statement was moderately descriptive or the event described occurred to some extent. The number 50 was to be used when the respondent was uncertain about how descriptive the statement was about the environment at her institution. Directions to explain how students were to respond are shown on the first page of the preliminary inventory, Appendix A. An answer sheet was also prepared and is shown in Appendix A.
This method of responding is an adaptation of the judgment of certainty method. The development of this procedure for obtaining responses to attitude statements and the transformation of responses to be discussed later is dealt with by Wolins et al. (35), Goodrich (6), and Wernimont (31). It was selected rather than the true-false method used by Pace and Stern (18), the four equal-appearing intervals used by Hutchins (10), or the seven equal-appearing intervals used by Nunnally et al. (17) because it is believed that students can make finer discriminations than asked for by the other techniques. Finer discriminations are desirable to obtain as much information about a given item as can be obtained. Also, it is believed that the transformed responses are additive.

Next, a panel of seven faculty members (Appendix B), including home economists, sociologists, guidance personnel, and psychologists, at Iowa State University reviewed the preliminary instrument using the following criteria:

1. Clarity of the directions
2. Clarity of the statements
3. Ability of college seniors to respond to the statements
4. Gaps in ideas considered under each factor
5. College environmental factors overlooked.

Two conferences were held with each panel member; the first to explain the nature of the research problem, and the second to discuss their suggestions. From the latter a master list was compiled. Most suggestions concerned the rewording of the
statements and ideas for additional items. None included additional factors. Use of the suggestions resulted in rewording, deleting, and adding items to the inventory which now contained 255 statements divided unequally among the 14 categories.

Items were scrambled into a first trial form and it was administered to 12 junior women students at Iowa State University to determine time needed to respond and clarity of the directions and/or statements. Junior women were selected because they were not in the group whose responses would be used to develop the final form of the inventory. No oral directions were given prior to their responding except to indicate that any questions they might have would be answered because in the study most of the respondents would be contacted by mail and would not have access to the researcher for answers.

Records were kept concerning statements about which students asked and the length of time it took them to respond. Response time ranged from 30 to 90 minutes; nine students took from 60 to 90 minutes. When each respondent had finished, she was asked the following questions:

1. Did you have problems in understanding the directions?
2. Did you have problems in interpreting any of the items?
3. Did you have problems in responding to any of the items?
4. Do you have any other comments concerning the inventory?
A summary of students' questions and comments indicated that very few had difficulty in understanding the statements, but that most believed it took too much time to respond. The instrument was subsequently shortened from 255 items to 200 items. Two criteria were used for the elimination of statements: the item did not describe a specific aspect of the environment and/or the item seemed to duplicate others.

A copy of the preliminary instrument is shown in Appendix A.

Selection of Sample

The plan was to administer the preliminary instrument to senior women majoring in home economics and to senior women registered in the humanities-science unit in selected institutions. Women students from the two units within each institution were asked to respond so that items indicative of institution, unit, or institution by unit interaction differences could be determined. Thus, scales could be developed which measured environmental differences at each of the levels. Senior women were selected to respond to the inventory on the assumption that they would have the most exposure to the college environment, and should, therefore, be more able than other students to respond to statements about their environment.

The plan was to obtain responses to the preliminary instrument from all senior women registered in the home economics
units in the selected institutions. The entire population was to be included because of the possibility that there would be a required senior home economics course in most of the selected institutions in which they could be contacted and that it would be simpler to ask all to respond rather than a preselected sample. In the few institutions where such a course was not offered, all of the home economics students would be contacted by mail after identification through their respective college directories. Although data were collected from all senior women in home economics, 30 respondents from each unit were to be randomly selected and their responses used for the development of scales from items in the preliminary instrument.

Thirty respondents were to be senior women registered in the humanities-science unit in each of the selected institutions. They would be contacted directly by mail after identification through their respective college directories.

The decision concerning the number of institutions to be included was based on two considerations: the plan to use factor analysis to obtain scales and the need to determine institutional differences. Factor analysis necessitates a large number of respondents and 1500 was arbitrarily selected as desirable. To obtain this number data would have to be collected from 25 institutions. This number was judged to be adequate to determine differences among institutions.
The following criteria were developed by which to investigate the 454 institutions offering undergraduate degrees in home economics to determine which would be included in the study:

1. the enrollment in the junior and senior classes in home economics was at least 75
2. the majors offered in the humanities-science unit were similar to those offered in the same unit at Iowa State University
3. the enrollment of senior women in the humanities-science unit was at least 40
4. the student directory of the institution listed the students' university address, major and/or college in which enrolled, and the year in school.

The criterion related to enrollment in the home economics unit was used rather than an enrollment of at least 35 seniors because data available (8) included enrollment figures on juniors and seniors. It was assumed that there would be fewer senior than junior students, and that an enrollment of 75 would yield at least 35 seniors. Because these students were to be contacted through courses they were taking, 35 seniors were judged adequate to obtain at least 30 respondees. Of the 454 institutions offering undergraduate degrees in home economics, 61 met Criterion 1.

The second criterion of similar majors was selected so that women in the participating institutions would be exposed to similar sub-environmental characteristics. Because the study originated at Iowa State University, it was arbitrarily
selected as the defining institution. The College of Science and Humanities at Iowa State University lists 22 majors in which students can obtain undergraduate degrees; humanities-science units in other institutions were considered similar if they offered at least 11 of these same majors to undergraduates. Majors offered at the institutions were determined from Earned Degrees Conferred 1961-1962 (4). Fifty-one of the 61 institutions meeting Criterion 1 met Criterion 2.

The criterion relating to a minimum enrollment in the humanities-science unit was used because it was believed that 30 respondents could be obtained from 40 senior women. Enrollment was determined from Earned Degrees Conferred 1961-1962 (4); all 51 institutions meeting Criterion 2 met Criterion 3.

The fourth criterion of necessary information published in the student directory was selected in order to identify the women students registered in the humanities-science unit. The information needed was obtained by writing directly to the registrar in each of the 51 institutions. Thirty-three of the 51 institutions met the fourth criterion. From this group of 33 institutions, 25 were used; Iowa State University and 24 randomly selected. The inclusion of the institution in this study was dependent upon the dean of the home economics unit and the dean of the humanities-science unit giving approval for the students in their respective units to respond to the inventory. Copies of the letters explaining the proposed research,
the method by which students would be contacted, and the postal cards that were enclosed are shown in Appendix C. In addition to asking permission for students to respond to the inventory, the home economics administrators were asked for information about a required course for seniors that would be offered during January to March, 1965, and the name of the instructor.

Responses from deans indicated that 47 of the 50 were willing for their unit to participate in the study; two indicated a willingness if their names were not used in contacting students; and one that her students could not because of commitments to other research programs. An institution was randomly selected from the remaining eight in the original list to replace the latter institution and approval was obtained.

Upon examination of the student directories to determine the number of senior women enrolled in home economics, it was found that three home economics units had less than 35 senior women. Three institutions to substitute for these were randomly selected from the seven remaining in the "approved" list and approval of the deans was obtained.

The institutions participating in this study are shown in Appendix D. To avoid revealing the aspects of an environment at a particular institution, the order in which they are reported is different from the list used in assigning the institution a letter for the purpose of reporting results.
Obtainment of Responses

Responses of students to the preliminary inventory were obtained during the first four months of 1965.

The original plan to obtain responses from all of the senior home economics students through a required course was changed because only one of the 25 home economics units had such a required course which met during the data collection period and ten had courses in which one-fourth to one-half of the senior students were enrolled. Hence, a minimum of 30 responses was secured from the senior home economics students in 24 institutions except in the one unit that had a required course.

In this case a letter was sent to the instructor explaining the nature of the research and a request for her assistance. A copy of the letter and enclosed postal card are in Appendix E. Only enough class time to explain the directions was required. Instructions for administration of the instrument were sent; a copy is in Appendix F. The instructor was asked to send a list of the names of students who were enrolled in the course as well as those who had responded. Although plans had been made to write to those students who did not respond, this was not necessary as a 100 per cent response was obtained. Thirty responses were randomly selected for use.

In the ten units that had courses which enrolled part of the senior students, all were administered the inventory by the
instructor. In all but three cases, almost 100 per cent of the students responded; notes from the instructors indicated that they did not believe additional requests would be fruitful. In these units, the researcher compiled a list of all senior women enrolled in home economics from the student directory and drew a random sample of 30. Names of students who had responded through the required course were matched with those drawn in the random sample. Since the respondents were anonymous, the number of matched pairs was used as a basis for randomly selecting the number of responses from those obtained through the required course. The remaining students in the random sample were contacted directly by mail.

For the 14 home economics units that did not have a required senior home economics course for seniors, a random sample of 40 seniors was drawn from the student directory and they were contacted directly by mail. A sample of 40 names was originally drawn because it was recognized that students might have moved or been graduated. Because students were asked to respond between January and April, 1965, college calendars were analyzed to prevent inventories arriving during the final examination week or the quarter or semester break.

Using the student directories, a random sample of 40 senior women students was also drawn for each of the 25 humanities-science units.

Because it was believed that students contacted by mail
would probably not be too interested in responding to what they might view as "just another test," the cover letter accompanying the inventory emphasized the incentive of making a professional contribution. The cover letter is shown in Appendix G. The Home Economics College at Iowa State University from which the letter originated is not mentioned because it was believed that this information could bias the way in which the students responded to the statements in the clusters labeled, "Status of Home Economics," and "Education for Home and Family Life." Students were asked to indicate their major and year in college on the answer sheet as a double-check that they were in the sample defined for the study. The material sent to each student included: cover letter, College Environment Inventory for Women, answer sheet, and addressed, postage-paid envelope. Although anonymous responses were requested, the return envelope contained the name and return address of the student so that records of respondents could be kept.

Two follow-up attempts were made if the inventories were not returned. The first, a single postal card emphasizing the need for their responses, was sent two weeks after the original mailing. The second was a double postal card re-emphasizing

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1For the students in the two humanities-science units whose deans did not want to be noted as giving their consent for the student to respond, special copies of the cover letter were made by deleting the sentence, "The dean of your division in your university has given his (her) consent to our contacting you."
the need for their response and requesting the completion of the return postal card indicating whether they had responded, and if not, when they could. Space was also given for them to request another set of materials, if necessary. This was sent ten days after the first card. The two postal cards are shown in Appendix G. Only two trials were used because it was believed that if students did not respond after two additional requests, the chances of obtaining their responses would be small.

If, at the time the first postal cards were mailed, fewer than 15 responses had been returned from the students in a unit, another random sample of from 10 to 30 students was drawn depending upon the number of responses that had been received. These students were sent the set of materials and the same follow-up procedure was used.

In all, 2271 sets of materials were mailed directly to students, 132 were returned without response, and 1396 responses were received. Most of the former were returned unopened because of incorrect mailing addresses. Others were unanswered because the student was no longer in school; had been ill and was unwilling to take the time to respond; believed she was an atypical student due to age; and, inadvertently, a male student had been contacted. Forty responses were unusable because of incomplete answers or the student had graduated.

Through courses, 647 students were contacted; 578 responses were obtained of which 22 were not usable. The number
of students contacted and the number of responses obtained from each unit and institution, as well as the cumulative totals are shown in Table 1.
Table 1. Materials sent and responses returned from each unit and institution

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<tr>
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<th>Home economics units mail contacts</th>
<th>Humanities-science units mail contacts</th>
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DEVELOPMENT OF FINAL FORM OF COLLEGE ENVIRONMENT INVENTORY FOR WOMEN

The 200 statements in the preliminary inventory were placed in 14 rationally coherent clusters. Relative to the content of the cluster, the items were keyed either "plus" or "minus" so that all items in a cluster were keyed in the same direction. Statements keyed "plus" described what is considered to be a desirable aspect of campus life, whereas those keyed "minus" represented less desirable aspects. For example, item 5, "Faculty members invite students into their homes" was keyed "plus", whereas item 4, "Laboratory work is a 'waste of time'", was keyed "minus".

Each of the numerical responses to the "plus" statements was transformed by considering each as representing a given area under the cumulative normal distribution (CND) and transforming the response number representing area to the corresponding point on the abscissa of the CND. A response of 1 was transformed to \(-2.326\); a response of 50 to 0; and a response of 99 to \(+2.326\). Basically the same transformation was used with the "minus" statements except that the scale was inverted, i.e., a response of 1 was transformed to \(+2.326\); and a response of 99 to \(-2.326\). The transformed scores were used in all of the statistical analysis of the data.

Two analyses were performed to develop the final form of the CEIW. The first, a within group analysis, was designed to develop factors that would describe individual differences
among students in the perception of their campus environment. The second, a between group analysis, was to develop environment scales that could be used to determine institutional or unit environmental differences. Comparison of the extent to which items organized differently between the two analyses would specify the scales from the between group analysis which appear to measure institutional or unit differences intrinsic to each. Comparison of the extent to which items organized alike would specify the scales which appear to measure institutional or unit differences attributable to kinds of students enrolled in the institution.

Arguments supporting the validity of this procedure for determining scales which measure institutional differences intrinsic to the institution or attributable to kinds of students evolve from this reasoning. If there were no differences among institutions, then the scales obtained from the between group analysis should be virtually identical to the factors obtained from the within group analysis. If this argument is sound the factors derived from the 1500 individual responses would be the same as the scales from mean responses of 50 groups of 30 each, if the 30 subjects occurring in each group were not different from 30 subjects which would occur in each group through a random partitioning of the 1500 subjects into 50 groups of 30 each. Hence, differences in the two kinds of factors derived would appear to indicate actual institutional or
unit differences whereas those factors substantially alike from the two analyses would appear to describe institutional or unit differences attributable to the kinds of students enrolled. A detailed description of the statistical procedure for each analysis follows.

Within Group Analysis

Factors describing differences in students' perceptions of campus environments were derived by factor analysis from the adjusted responses of the 1500 students to each statement. The responses were adjusted by subtracting the unit mean from the responses of each student in the unit, thereby eliminating unit differences. A modification of the Wherry-Winer method (33) was used for the factor analysis procedure; the basic change was that covariances rather than correlations were used.

To begin the factor analysis, the adjusted responses to items in each of the 14 previously defined rationally coherent clusters were used in constructing a 14 x 14 cluster covariance matrix; it was calculated for each of the 50 units and then pooled. The covariance matrix was formed in this manner to eliminate institutional differences.

Upon analysis of the pooled cluster covariance matrix, however, it was apparent that four clusters would not converge and five had to be removed to achieve a nonsingular matrix. Five oblique factors were extracted from the resulting matrix
by the multiple group method and the results were rotated by graphic methods. Inspection of the graph revealed a clustering of the group factors in two areas indicating the presence of two second-order or general factors. The two general factors were incorporated into the transformation matrix during rotation. The item factor loadings were rotated to an orthogonal solution by Wherry's hierarchal procedure (32) and the results are shown in Appendix H.

Items loading on each factor were determined by inspection of the factor loadings; an item was placed in a factor if its loading was large in relation to the other item factor loadings. Consequently, some items were placed in one of the general and one of the group factors; others were placed in only one; and still others were not used. After a study of the items loading on each factor was made, it was labeled according to the dimension it appeared to define. The seven factors are:

1. General attitude towards home economics
2. General academic climate
3. Status of home economics
4. Personal dress in accordance with the "home economics" concept
5. Education for home and family life
6. Faculty-student relationships
7. Breadth of interests

The first two are general factors representing broad relationships between the group factors. The remaining five are group factors describing a unique aspect of the environment.
Reported below are the factors and items loading on each. Factor loadings are listed in the first column; decimal points are omitted as well as signs because all had positive loadings. Item numbers are listed in the second column; each retains its original number in the preliminary instrument. Items which were keyed "minus" for the purpose of computing a cluster score are indicated by a minus sign preceding the item number; all other items were keyed "plus".

FACTOR I General attitude toward home economics

This factor is a general factor relating to home economics; the items that load on it concern attitudes toward and ideas about the field and the students who major in the field.

371 19. The field of home economics is considered by the faculty as a challenging field of study.
301 24. Majors in home economics try to dress suitably when attending off-campus events where they will be identified as home economists.
274 - 34. Students believe that there is no need for home economics courses because the subject matter could be taught in other disciplines, such as chemistry and sociology.
309 43. Scholastic standards of achievement are as high in the home economics division as they are in other divisions.
239 63. Women students not majoring in home economics select home economics courses because of the contribution to future roles as homemakers.
410 76. Students majoring in home economics are as bright as students in other divisions.
298 - 81. Students believe that girls should be able to learn at home the information taught in home economics classes.
384 98. The home economics division has equal status with other divisions.

430 113. A career in home economics is recognized as an excellent choice for women students.

261 116. Women students are aware of the need to keep up to date in their career field if they become full-time homemakers.

252 137. Students come to recognize that achieving goals requires wise allocation of all available resources.

246 139. Women students are prepared for carrying their responsibility for providing a good home environment.

270 -143. Students believe that with mixers and modern equipment, the managing of a home is so easy there is little need for home economics courses.

253 161. Women students take advantage of opportunities to study the physical, mental, and social development of children.

264 164. Women students learn how to maintain a home that will contribute to family goals.

242 166. Students gain insight into the relationship between the family economic unit and the total economy.

310 179. Women students recognize that being a homemaker and mother can be challenging.

248 189. Faculty members stress professional ethics.

FACTOR II  General academic climate

This factor is also a general factor and the items that are associated with it have, in general, implications about the intellectual or scholarly activities that occur on campus or the setting provided for such activities.

458 - 22. Faculty members do not attempt to get students interested in the broad aspects of their field of study.

502 - 42. Contacts between faculty and students are rare except in class.

485 53. Students are helped to use basic principles from many fields in making decisions.
Faculty members strive to develop creative self-expression in their students.

Students do not dare to disagree with a faculty member.

Our changing world and its effect upon the subject matter studied is emphasized in courses.

"Depth" and "breadth" of knowledge in one's professional field is stressed.

Teachers make an "extra effort" to help students.

Faculty members dislike having students interrupt their work.

Friendly relations between staff and students are typical.

Students are challenged to work harder as they become enrolled in more advanced courses.

Instructors use illustrations which draw upon knowledge of several subject matter areas.

Faculty members are interested in the activities and interests of students.

A student is helped to assess his abilities and is challenged to achieve his potential.

Students make little effort to find out about new developments in their fields.

Students are concerned only about themselves and their immediate circle of friends.

Students' personal problems are of little concern to members of the faculty.

Students are helped to appreciate individual differences, such as values held, goals sought, and resources available.

Courses do not change with changing conditions; they remain the same year after year.

The development of open-mindedness in students is promoted.

Courses offer opportunities for students to carry on individual projects.

FACTOR III Status of home economics

The high end of this factor reflects an environment where home economics is a respected field of study. The home
economics unit has equal status with other units, faculty members and students in the institution consider it an important field of study, and its high scholastic standards are recognized.

318 19. The field of home economics is considered by the faculty as a challenging field of study.

370 - 34. Students believe that there is no need for home economics courses because the subject matter could be taught in other disciplines, such as chemistry and sociology.

377 43. Scholastic standards of achievement are as high in the home economics division as they are in other divisions.

504 76. Students majoring in home economics are as bright as students in other divisions.

396 - 81. Students believe that girls should be able to learn at home the information taught in home economics classes.

500 98. The home economics division has equal status with other divisions.

485 113. A career in home economics is recognized as an excellent choice for women students.

337 - 143. Students believe that with mixes and modern equipment, the managing of a home is so easy there is little need for home economics courses.

FACTOR IV Personal dress in accordance with the "home economics" concept

This factor describes an environment where students recognize that home economics students try to dress according to prescribed standards of appearance for a home economist.

354 24. Majors in home economics try to dress suitably when attending off-campus events where they will be identified as home economists.

475 126. Students majoring in home economics have a desire to dress according to standards that meet the "home economics" image.
FACTOR V Education for home and family life

This factor describes an environment where varied opportunities are offered to women students for acquiring insights into aspects of home and family life. These include: recognition of problems of combining homemaking and a career; responsibilities and challenges of homemaking; influences of the family; and insights into the areas of consumer education, child development, nutrition, and home management.

370  11. Courses help women students understand the varying nutritional needs of individuals at different ages.
441  18. Women students are helped to recognize problems facing married women who work outside the home.
522  31. Through course work women students gain an insight into parent-child and sibling relationships.
517  38. Women students gain insight into the factors to be considered when deciding whether to combine a career and homemaking.
647  56. Courses help women students to understand the transitions at different stages of the family life cycle.
381  68. Women students are helped to foresee a return to professional positions after their child-bearing years.
337  78. Education for family living is not a concern of this school.
385  90. Through course work students are helped to understand the laws that safeguard their interests as consumers.
478  118. Students are helped to recognize the diverse ways in which the basic needs of families are fulfilled in different societies.
640  132. Women students are aided in gaining an insight into the far-reaching influences of the family.
505  139. Women students are prepared for carrying their responsibility for providing a good home environment.
Women students are helped to recognize the problems facing married women when they become full-time homemakers.

Women students take advantage of opportunities to study the physical, mental, and social development of children.

Women students learn how to maintain a home that will contribute to family goals.

Students gain insight into the relationship between the family economic unit and the total economy.

Students develop ability to evaluate consumer information.

Opportunities exist for women students to gain insight into future roles that may be expected of them.

Women students recognize that being a homemaker and mother can be challenging.

FACTOR VI  Faculty-student relationships

This factor describes an environment in which the faculty-student relationships are friendly; contacts are frequent; and the faculty is concerned about the problems, activities, and interests of students.

Students are able to see staff members only during scheduled office hours.

Contacts between faculty and students are rare except in class.

Teachers make an "extra effort" to help students.

Faculty members dislike having students interrupt their work.

Friendly relations between staff and students are typical.

Faculty members are interested in the activities and interests of students.

Students' personal problems are of little concern to members of the faculty.
FACTOR VII  Breadth of interests

This factor reflects an environment in which a wide range of interests and concerns by students is promoted. These include: increased social responsibility; greater self-understanding; improved self-expression; growth in decision-making ability; concern for additional knowledge; and many interests apart from one's professional field. The interests are seen as being stimulated in part by the faculty.

1. Faculty members emphasize the need to keep up in one's field after graduation.

2. The faculty seem to be unconcerned about the new developments in their fields.

28. Being able to intelligently defend a position on an issue is important.

50. Students believe that once they have obtained their bachelor's degrees they've learned all they need to know.

52. In classes little emphasis is placed upon sources of information in addition to assigned readings pertinent to the course.

53. Students are helped to use basic principles from many fields in making decisions.

64. Members of the faculty seem unaware that a well-rounded program of study includes courses in the arts and humanities.

73. Our changing world and its effect upon the subject matter studied is emphasized in courses.

75. "Depth" and "breadth" of knowledge in one's professional field is stressed.

92. Each student is expected to assume responsibility for his decisions and actions.

104. Careful reasoning is highly valued in student papers and discussions.

109. Students are challenged to work harder as they become enrolled in more advanced courses.
Concern about national and international affairs is not evident on campus.

Students come to recognize that achieving goals requires wise allocation of all available resources.

A student is helped to assess his abilities and is challenged to achieve his potential.

Faculty members stress professional ethics.

Courses do not change with changing conditions; they remain the same year after year.

The development of open-mindedness in student is promoted.

Between Group Analysis

Scales describing environmental differences between institutions, units, or the interaction of institution and unit were derived by inspection from three intercorrelation matrices composed of items representing the three levels of differences. The 200 items were partitioned into six groups on the basis of analysis of variance. The items were placed in groups on these bases:

1. An item was included in Group 1 if the variance component due to institutions was "substantial"; 85 items met this criterion.

2. An item was included in Group 2 if the variance component due to units was "substantial"; 42 items met this criterion.

3. An item was included in Group 3 if the variance component due to institution by unit interaction was "substantial"; 6 items met this criterion.

4. An item was included in Group 4 if both the variance component due to institutions and units was "substantial"; 7 items met this criterion.
5. An item was included in Group 5 if both the variance component due to institutions and institution by unit interaction was "substantial"; 6 items met this criterion.

6. An item was included in Group 6 if none of the variance components were "substantial"; 54 items fit into this category.

"Substantial" was defined as .03. No items had "substantial" variance components due to both units and institution by unit interaction or due to all three variance components, i.e., institutions, units, and institution by unit interaction.

Three intercorrelation matrices were calculated using the 50 unit mean responses to items; the first, a 98 x 98, was among Groups 1, 4, and 5; the second, a 49 x 49, was between Groups 2 and 4; and the third, a 12 x 12, was between Groups 3 and 5. Correlation matrices were set-up in this manner because it was recognized that if items did not have similar variance components they could not be expected to correlate highly. Although items having more than one "substantial" variance component were included in more than one correlation matrix, no item was eventually scored in more than one scale.

Scales consisting of items with high intercorrelations were determined by inspection from each of the three matrices. Tentative scales were located by finding items that had intercorrelations of at least .60. The items in each scale were recorded and examined for consistency of content. Those that were not included in any of the scales were studied for
similarity to the content of the defined scales; where similarities were found, the appropriate correlation matrix was examined to see if any correlated above .45. If it did, the item was added to the scale. In general, this method introduced items into a scale which, while similar in content, tended to have correlations below .60 with the other items. Final choice of which items to keep in a scale was determined by maximizing the reliability of the scale. Reliabilities were calculated by the Spearman-Brown prophecy formula.

In all, 14 scales were identified; each was labeled according to the environmental dimension it appeared to define. Of the 14, eight scales appear to describe institutional differences:

1. Nonconformity
2. Faculty engendered motivation
3. Intrinsic motivation for study
4. Traditional arts-science education
5. Social responsibility
6. Freedom of expression and activity of students
7. Involvement in campus activities
8. Faculty-student relations.

Four scales seem to indicate unit differences:

1. Seminar approach to courses
2. Professional involvement
3. Status of home economics
4. Education for home and family life.

Two scales appear to describe institution by unit interaction differences:
1. Types of learning
2. Excellence of faculty.

The scales derived and the items in each are listed below. Each item retains the number it had in the preliminary inventory; it is listed in the first column. Items which are to be keyed "minus" for the purpose of computing a scale score are indicated by a minus sign preceding the item number; all other items were keyed "plus".

The first eight scales measure differences in the environments of institutions.

SCALE J Nonconformity

The high end of this scale describes an environment in which the students are open-minded and have respect for individual differences. The low end presents a picture of an environment where the students tend to have similar attitudes, dress, and actions.

16. The importance of acting on personal conviction rather than tradition is stressed.
-65. Students tend to act alike.
-66. Open displays of emotion by students are discouraged.
-100. Students tend to dress alike.
-115. A student who spends extra time in a science laboratory would be considered odd by his fellow students.
-149. Students' attitudes tend to be alike.
193. Students are helped to appreciate individual differences, such as values held, goals sought, and resources available.
196. The development of open-mindedness in students is promoted.
198. Nonconformity is highly respected here.
SCALE K  Faculty engendered motivation

The high end of this scale describes a faculty that challenges students' capabilities, creates interesting classes, and sets high scholastic standards but that does not resort to such extraneous external incentives as assigned seats and taking class attendance.

6. Students have assigned seats in large classes.
119. Classes are so interesting that students do not want to miss a class.
-128. Scholastic standards set by the faculty are not difficult to attain.
145. Faculty members put no pressure on students to attend classes.
157. Students' capabilities are really challenged by instructors.
170. A student is helped to assess his abilities and is challenged to achieve his potential.

SCALE L  Intrinsic motivation for study

This scale describes an environment in which students study because of a strong inner drive to learn; in addition, they are concerned more with acquiring knowledge than securing high grades.

20. Students become so engrossed in their studies that they lose all sense of time.
61. Students study because of a desire to learn.
-83. Students are content with putting forth a minimum of effort.
94. Students study because of a desire for knowledge, not just to earn high grades.
135. Students use most of the time during weekends for studying.
-168. Students resort to cheating to pass courses.
SCALE M Traditional arts-science education

The environment characterized by this scale is one in which the students reflect the classic picture of the "educated" person. They have a wide range of interests, are struggling to identify their personal beliefs and concept of self, and are developing greater facility in self-expression. These interests are promoted, in part, by the faculty and the facilities and opportunities provided on campus.

10. Excellent collections of paintings, phonograph records, and unusual books and collections are available for use by students.
17. Students can convey ideas effectively in writing.
36. Students are interested in literature, art, music, drama, etc.
47. Students are concerned about finding an answer to the question, "What do I believe?"
48. Large crowds of students attend the plays, concerts, and art exhibits on campus.
54. Faculty members strive to develop creative self-expression in their students.
55. Interest in specialization is higher among students than general education.
59. A choice of facilities and opportunities exist on this campus to satisfy individual needs.
64. Members of the faculty seem unaware that a well-rounded program of study includes courses in the arts and humanities.
71. Physical science or math courses are elected by non-majors.
85. Students' discussions are concerned with topics relating to art, music, or the theater.
144. Students are concerned about finding an answer to the question, "Who am I?"
148. Large crowds of students would be attracted to science displays on campus.

SCALE N Social responsibility

The high end of this scale describes an environment in
which students are concerned about their roles in social and political affairs on the local, national, and international levels. Expressions of this are shown by student support of charitable agencies; by interest in national elections; by awareness of problems of other cultures and the underprivileged.

39. Students are helped to recognize the interdependence of cultural groups, nations, and races.

58. Students develop a strong sense of responsibility about their role as citizens.

69. Students are unconcerned about underprivileged people.

77. An awareness of the problems of underdeveloped countries and an interest in aiding them is encouraged.

89. National elections are closely followed.

117. Concern about national and international affairs is not evident on this campus.

146. Students willingly participate in activities which aid charitable and social agencies.

191. Students are aware of the influence of major political movements upon family, community, state, and nation.

SCALE 0 Freedom of expression and activity of students

The environment described by this scale is one in which there is faculty respect for students' opinions; equal treatment of all students; and lack of excessive supervision of students' lives.

- 21. Women students must have written permission to be gone overnight from their dormitory or sorority.

- 25. Campus organizations are closely supervised to guard against mistakes.
44. A paper can rate a high grade even though the opinion expressed is opposed to that of the instructor's.
62. Everyone gets the same treatment at this school, regardless of his family, his affiliations, race, religion, etc.
70. Students do not dare to disagree with a faculty member.
-133. Ways that student complaints can be expressed are so snarled with red tape they discourage such attempts.
-154. If a college regulation creates personal inconvenience, a student is expected to remain silent.

SCALE P Involvement in campus activities

The high end of this scale describes an environment in which students actively participate in campus elections, organizations, and events.

8. Students show much enthusiasm and support for college events.
67. Participation in campus political activities is encouraged.
97. Student elections generate much enthusiasm on campus.
138. Care of school property is one of the responsibilities assumed by students.
-190. It is difficult to find students willing to serve as chairman or president of campus organizations.

SCALE Q Faculty-student relationships

The high end of this scale describes an environment in which the faculty-student relationships are friendly; contacts are frequent; and the faculty is concerned about the problems, activities, and interests of students.

5. Faculty members invite students into their homes.
13. New students are given adequate help in adjusting to campus life.
26. Students are encouraged to plan and are given help in planning long-range goals.
41. Faculty members are more interested in research than in teaching undergraduate students.
42. Contacts between faculty and students are rare except in class.
82. Teachers make an "extra effort" to help students.
96. Faculty members treat students as their social equals.
108. Friendly relations between staff and students are typical.
141. Faculty members are interested in the activities and interests of students.
184. When conflicts in time occur between class meetings and important speakers on campus, faculty members are willing to excuse class in order that students may attend.
188. Students' personal problems are of little concern to members of the faculty.

Four scales describe differences in the units' environments.

SCALE R Seminar approach to courses

The high end of this scale characterizes a climate in which the courses are sufficiently unstructured to allow for a study of ideas from related disciplines and for class discussion.

40. Limited opportunities for oral reports, discussions, panels, etc., exist in classes.
53. Students are helped to use basic principles from many fields in making decisions.
57. At the end of a course, students are asked to evaluate the course.
121. Being asked to contribute to a class discussion is an accepted part of classroom routine.
SCALE S  Professional involvement

The environment described by this scale centers around the students' concern about the profession of her choice. Aspects of concern involved are: professional ethics; keeping informed about the changes in one's field; and possible return to a profession after an absence of several years.

1. Faculty members emphasize the need to keep up in one's field after graduation.
68. Women students are helped to foresee a return to professional positions after their child-bearing years.
116. Women students are aware of the need to keep up to date in their career field if they become full-time homemakers.
189. Faculty members stress professional ethics.

SCALE T  Status of home economics

The high end of this scale reflects an environment where home economics is a respected field of study. The home economics unit has equal status with other units; faculty members and students in the institution consider it an important field of study; and its high scholastic standards are recognized.

19. The field of home economics is considered by the faculty as a challenging field of study.
24. Majors in home economics try to dress suitably when attending off-campus events where they will be identified as home economists.
34. Students believe that there is no need for home economics courses because the subject matter could be taught in other disciplines, such as chemistry and sociology.
43. Scholastic standards of achievement are as high in the home economics division as they are in other divisions.
63. Women students not majoring in home economics select home economics courses because of the contribution to future roles as homemakers.

76. Students majoring in home economics are as bright as students in other divisions.

81. Students believe that girls should be able to learn at home the information taught in home economics classes.

113. A career in home economics is recognized as an excellent choice for women students.

126. Students majoring in home economics have a desire to dress according to standards that meet the "home economics" image.

143. Students believe that with mixers and modern equipment, the managing of a home is so easy there is little need for home economics courses.

175. Girls majoring in home economics are primarily interested in "getting" husbands.

SCALE U Education for home and family life

The high end of this scale describes an environment where varied opportunities are offered to women students for acquiring insights into aspects of home and family life. These include: recognition of problems of combining homemaking and a career; responsibilities and challenges of homemaking; influences of the family; and insights into the areas of consumer education, child development, nutrition, and home management.

11. Courses help women students understand the varying nutritional needs of individuals at different ages.

18. Women students are helped to recognize problems facing married women who work outside the home.

31. Through course work women students gain an insight into parent-child and sibling relationships.

38. Women students gain insights into the factors to be considered when deciding whether to combine a career and homemaking.

56. Courses help women students to understand the transitions at different stages of the family life cycle.
- 78. Education for family living is not a concern of this school.

90. Through course work students are helped to understand the laws that safeguard their interests as consumers.

118. Students are helped to recognize the diverse ways in which the basic needs of families are fulfilled in different societies.

132. Women students are aided in gaining an insight into the far-reaching influences of the family.

139. Women students are prepared for carrying their responsibility for providing a good home environment.

150. Women students are helped to recognize the problems facing married women when they become full-time homemakers.

161. Women students take advantage of opportunities to study the physical, mental, and social development of children.

164. Women students learn how to maintain a home that will contribute to family goals.

166. Students gain insight into the relationship between the family economic unit and the total economy.

176. Students develop ability to evaluate consumer information.

179. Women students recognize that being a homemaker and mother can be challenging.

scales V and W measure institution by unit environmental differences.

SCALE V Types of learning

The high end of the scale reflects an environment in which learning is based on broad student understandings of the subject matter in contrast to the memorization of facts.

75. "Depth" and "breadth" of knowledge in one's professional field is stressed.

-153. Memorization of what is in the textbook and one's class notes are enough to pass courses around here.

177. Principles rather than specific facts are emphasized in courses.
SCALE W Excellence of faculty

The name of this scale is self-descriptive; it describes an environment where the students recognize the faculty as one of quality.

107. Faculty members make professional contributions nationally by serving as officers of organizations, giving talks, etc.
167. The faculty in my major area are outstanding.

Some items, although they indicated significant differences at the institution, unit, or institution by unit interaction level, were not used in the final form of the instrument. Reasons for items not being included were: lack of similarity of content to the defined scales; or apparent similarity of content but correlations with other items in the particular scale were below .45. Items not used are shown in Appendix I.

All of the scales were compared on the basis of the extent to which the items organized themselves like the factors obtained from the within group analysis and the results are shown in Table 2. Eleven of the 14 scales are completely different and appear to measure either institution, unit, or institution by unit interaction differences inherent to each. That is, the different organization of the items from the two analyses suggests that students respond to the items in these scales primarily on the basis of actual conditions and the responses obtained are not dependent upon the characteristics of the respondents.
Table 2. Comparison of scales developed from between group analysis with factors derived from within group analysis

<table>
<thead>
<tr>
<th>Scales measuring institutional differences</th>
<th>Factors from between group analysis</th>
<th>Factors from within group analysis</th>
<th>Items in the scales same</th>
<th>Items in factors not scales</th>
<th>Items in scales not factors</th>
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</thead>
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<td>Nonconformity</td>
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<tr>
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<td>0</td>
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<td>Intrinsic motivation for study</td>
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<td></td>
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<td>Faculty-student relationships</td>
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Table 2. (Continued)

<table>
<thead>
<tr>
<th>Scales from between group analysis</th>
<th>Factors from within group analysis</th>
<th>Items from the same scales</th>
<th>Items in factors not scales</th>
<th>Items in scales not factors</th>
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<td>Scales measuring unit differences</td>
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<tr>
<td>Scales measuring institution by unit interaction differences</td>
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</table>
Seven of the 11 scales describe institutional differences:

1. Nonconformity
2. Faculty engendered motivation
3. Intrinsic motivation for study
4. Traditional arts-science education
5. Social responsibility
6. Freedom of expression and activity of students
7. Involvement in campus activities.

Two describe unit differences:

1. Seminar approach to courses
2. Professional involvement.

The remaining two scales describe institution by unit interaction differences:

1. Types of learning
2. Excellence of faculty.

Three scales are seen to resemble three of the factors; consequently, they appear to be more indicative of differences attributable to the kinds of students enrolled. This suggests that students respond to items in these scales primarily on the basis of their characteristics rather than on the basis of actual conditions. One of these, Faculty-student relationships, describes an institutional difference; the remaining two, Status of home economics, and Education for home and family life, appear to describe unit differences. These three scales will be marked with an asterisk to distinguish them from the others.
The correlation matrix between scales and the reliabilities (Spearman-Brown prophecy formula) of the scales were calculated and are shown in Table 3.

Table 3. Intercorrelations\(^a\) between and reliabilities\(^b\) of scales

<table>
<thead>
<tr>
<th>Scales</th>
<th>J</th>
<th>K</th>
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<th>M</th>
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<th>O</th>
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<th>Q</th>
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\(^a\)Decimal points have been omitted.

\(^b\)Reliabilities are underlined.

The Scales, J through O, describing institutional differences are seen to correlate at least .46; the Scales, R, S, T, and U, representing unit differences have correlations above .63, and the two Scales, V and W, representing institution by unit interaction differences, correlate .63. Scales V and W also correlate at least .37 with Scales J through O and Q. The large correlations between scales measuring institution, unit, and institution by unit interaction differences, respectively,
make it apparent that the scales at each level are not measuring independent environmental characteristics.

The scale reliabilities are spuriously high because the scales are composed of items selected because the correlations were high. Expectations are, however, that the reliabilities of the scales would not be substantially changed for another sample of students from each of the same 25 institutions; they would, however, be expected to be somewhat smaller for another sample of 25 institutions.

In the development of any instrument it is generally informative to compare the scales developed with those obtained from similar instruments. The scales obtained in the CEIW were compared with those obtained in the CCI, CUES, and MSEI (Table 4). It appears that five of the CEIW scales approximate six of the CCI factors, two of the CEIW scales are similar to two of the CUES scales, and three of the CEIW scales seem similar to three of the MSEI factors. However, a study of the descriptions of each scale of the ten pairs make it apparent that while there are some similarities in aspects of the environment described there are also substantial differences.

Because it is hoped that the CEIW will be used by institutions in studying their environments, a revised method of responding using a scale which has fewer choices and the appropriate transformations for item responses are given in Appendix J. This revised scale is suggested as it is believed
Table 4. Scales from the CEIW which appear similar to factors from the CCI, CUES, and MSEI.

<table>
<thead>
<tr>
<th>CEIW Scales</th>
<th>CCI Factors</th>
<th>CUES Scales</th>
<th>MSEI Factors</th>
</tr>
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<tr>
<td>Faculty engendered motivation</td>
<td>Academic achievement</td>
<td>Scholarhip</td>
<td>Intrinsic motivation for academic achievement</td>
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<tr>
<td>Intrinsic motivation for study</td>
<td></td>
<td>Intrinsic motivation</td>
<td></td>
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<tr>
<td>Traditional arts-science education</td>
<td></td>
<td>Awareness</td>
<td>Breadth of interests</td>
</tr>
<tr>
<td>Social responsibility</td>
<td>Social form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freedom of expression and activity of students</td>
<td>Group life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellence of faculty</td>
<td>Intellectual climate</td>
<td>Academic climate</td>
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that it is easier for students to respond on a scale that has fewer choices. The scale involving more choices was used originally because a continuous type of response is desirable when factor analysis is used to develop scales as it avoids the appearance of "difficulty" factors.
USE OF THE COLLEGE ENVIRONMENT INVENTORY FOR WOMEN
IN STUDYING THE ENVIRONMENTS OF INSTITUTIONS

Two methods for studying the environments of institutions are illustrated: the first compares all 25 institutions on each of the 14 scales; the second describes the environmental profile of one institution on all 14 scales.

Differences in the environments of institutions or in the home economics or humanities-science units for the 25 institutions were determined by calculating mean scale scores for each of the 50 units, making scatter plots of the scores, and studying the resulting figures. Mean scale scores for each unit were calculated by summing the transformed item scores across both the items in the scale and the 30 respondents in the unit; the sum was divided by the product of 30 times the number of items in the scale. Mean scale scores for each unit are shown in Appendix K.

For each scale, mean scores for the humanities-science unit were plotted on the abscissa and for the home economics unit on the ordinate. The 14 scatter plots are shown in Figures 1 through 14.

Environmental Characteristics of Institutions

Conceptually, the scatter plots for those scales which describe institutional differences would arrange the institutions along the diagonal. This array is expected because if
the scale is measuring an institutional environmental characteristics, then students in both units should perceive it equally. Ideally their perceptions should be "identical" and hence the scores on the scale for both units would be the same.

The data in Figures 1 through 8 on which the eight scales measuring institutional environmental differences are arrayed, indicates a tendency for the two sets of scores for an institution to be near or on the diagonal. These serve to verify the expectation. The primary cause of deviations from the diagonal is probably due to student sampling error.

These figures and a consideration of what each scale measures reveal aspects of the environment at a particular institution and make possible comparisons among the environments of institutions. Detailed analyses of the environments in all institutions are not presented because this information would be of interest largely to the administrators and faculty of the particular institution. Rather a detailed analysis of only one institution will be made later to illustrate the kind of environmental descriptions that can be obtained from the data.

Environmental Characteristics of Units

Expectations about the appearance of the scatter plots of the four scales measuring unit environmental differences fall into three cases:
Figure 1. Mean scale scores of each unit for Scale J Nonconformity
Figure 2. Mean scale scores of each unit for Scale K
Faculty engendered motivation
Figure 3. Mean scale scores of each unit for Scale L
Intrinsic motivation for study
Figure 4. Mean scale scores of each unit for Scale M
Traditional arts-science education
Figure 5. Mean scale scores of each unit for Scale N
Social responsibility
Figure 6. Mean scale scores of each unit for Scale 0
Freedom of expression and activity of students
Figure 7. Mean scale scores of each unit for Scale P
Involvement in campus activities
Figure 8. Mean scale scores of each unit for Scale Q*
Faculty-student relationships
1. all or most of the scale scores are high for the home economics units and low for the humanities-science units and consequently, the points indicative of institutions' positions fall below the diagonal

2. all or most of the scale scores are high for the humanities-science units and low for the home economics units and consequently, the points indicative of institutions' positions fall below the diagonal

3. the scale scores are mixed; i.e., scores are high for the home economics unit and low for the humanities-science unit in one institution but the positions are reversed in another and consequently, the points indicative of institutions' positions fall on both sides of the diagonal.

Case 1 would be interpreted as a high environmental press in all or most of the home economics units and a low press in all or most of the humanities-science units whereas Case 2 would have the reverse interpretation. Case 3 would indicate that there is no general tendency among either of the units toward the environmental characteristic being measured by the scale. In addition, it would be expected that there would be variations in the degree to which each environmental dimension would be present in the 25 home economics units and in the 25 humanities-science units. Thus, institutional differences would also be discernible.

Inspection of Figures 9 through 12 reveals that they are examples of Case 1. From this study it appears that students in the home economics units perceive their courses as being somewhat unstructured; it suggests that women students in the humanities-science units see relatively structured courses.
Figure 9. Mean scale scores of each unit for Scale R
Seminar approach to courses
Figure 10. Mean scale scores of each unit for Scale 8 Professional involvement
Figure 11. Mean scale scores of each unit for Scale T*
Status of home economics
Figure 12. Mean scale scores of each unit for Scale U*
Education for home and family life
Home economics students seem to be more concerned about their future professional roles than are the humanities-science students. Also, it appears that students in the home economics units perceive home economics as a more respected field of study and see more opportunities for home and family life education than do the students in the humanities-science units.

It appears that there is greater similarity in students' perceptions of the environments in the home economics units considered as a group and the humanities-science units as a group than there is between the home economics unit and the humanities-science unit in the same institution. For example, consider Institution S. Each of the dimensions measured by the four Scales, R, S, T, and U, appear to be perceived by the home economics students in Institution S more like the home economics students in the other 24 than like the women students in the humanities-science unit in the same institution.

**Environmental Characteristics Contributed to by Both Institutions and Units**

The third group of environmental scales developed is more difficult to categorize because differences are attributable to the interaction of the total institution and the particular unit in which the student is enrolled. Therefore, no clear-cut description of the expected arrangement of positions of institutions on the scatter plots is possible.

Inspection of Figures 13 and 14 shows an array of
Figure 13. Mean scale scores of each unit for Scale V
Types of learning
Figure 14. Mean scale scores of each unit for Scale W Excellence of faculty
institutions' positions about the diagonal. The only general interpretation possible is that students' perceptions of the characteristics measured by the two scales are influenced both by their experiences in the institution and unit. Hence, students in different units in the same institution perceive varying degrees of emphasis on the learning of principles rather than specific facts in course work and see differences in the quality of their faculty.

Specific information on the degree to which students in each of the 50 units perceive either of the factors will not be presented but a comprehensive description of the environment in one arbitrarily selected institution will be reported in the next section.

Analysis of the Environment in Institution G

The foregoing analysis of the scatter plots describes institutional and unit differences in environments in the 25 institutions, but it does not provide a clear description of the aspects of a particular institution's environment. Figure 15 was consequently prepared for one institution, G, for illustrative purposes. On the abscissa are plotted the units and scales; on the ordinate, the scale scores. By plotting the mean scale scores for each of the two units, a profile of the environment in an institution is obtained. For comparative purposes, the over-all mean scale score of the 25 units and the
Figure 15. Comparison of the mean scale scores of students in home economics and humanities-science units in Institution G with similar majors in the 25 institutions

1 Home economics units

2 Humanities-science units

--- Over-all mean scale score of 25 units

--- Mean scale score of units in Institution G

*** Highest and lowest mean scale scores of 25 units
highest and lowest mean scores of the 25 units have also been graphed for each scale.

Inspection of Figure 15 and a consideration of what each scale measures results in a description of women students' perceptions of the environment at Institution G.

The first eight scales describe differences in the environmental characteristics of institutions; inspection of Figure 15 shows that on these scales the mean scale scores for both units in Institution G are almost identical. Hence, interpretations are written to describe how all women in the institution appear to perceive their environment.

SCALE J Nonconformity

Mean scale scores for the home economics and humanities-science units at Institution G are below the over-all means of their respective units. Also, neither is substantially above the lowest score of the 25 units. Hence, it appears that women students perceive themselves as a conforming group; expressions of their conformity are shown in similar thoughts, dress, and actions.

SCALE K Faculty engendered motivation

The home economics and humanities-science mean scale scores at Institution G are above the over-all means of each of their respective groups of units; both are also below the highest scores of the 25 units. Interpretation of these
positions suggests that women students see faculty motivation stemming from such external pressures as unannounced quizzes, assigned seats in class, the taking of class attendance frequently, etc.

SCALE L Intrinsic motivation for study

Mean scale scores of both units in Institution G are somewhat above the over-all mean; they are also well below the highest mean scale scores of the 25 units. Consequently, it appears that women students at this institution perceive themselves as motivated to study more by a desire to obtain knowledge than to achieve high grades.

SCALE M Traditional arts-science education

The mean scale score of the home economics unit at Institution G is the lowest of the units whereas the humanities-science unit is slightly above the lowest score of the 25 humanities-science units. Women students see themselves as having limited interests and being relatively unconcerned about their personal beliefs and concept of self. In addition, they appear to be unaware of facilities and opportunities available on their campus that encourage such activities.

SCALE N Social responsibility

The humanities-science units' mean scale score in Institution G is the lowest one of the comparable 25 units; the home economics units' score appears just above the lowest score
of its comparable units. These very low scores indicate that women students perceive themselves as relatively unconcerned about their responsibility in social and political roles on the local, national, and international levels. Expressions of this are seen on the campus by little support of charitable agencies; by lack of interest in national elections; and by lack of awareness of the problems of other cultures and the underprivileged.

SCALE O Freedom of expression and activity of students

The mean scale score of the home economics unit at Institution G is approximately half-way between the lowest of the 25 units and the over-all mean; the humanities-science mean scale score is in approximately the same position. Interpretation indicates that women students at this institution perceive limited faculty respect for students' opinions; somewhat unequal treatment of students; and supervision of students' lives.

SCALE P Involvement in campus activities

The positions of the mean scale scores of the home economics unit and the humanities-science unit at Institution G are near the lowest mean scale scores of their respective units. Hence, the positions suggest that women students see themselves as participating only to a limited extent in campus elections, organizations, and events.
SCALE Q* Faculty-student relationships

The mean scale scores of both units at Institution G are almost identical with the over-all mean of their respective units. This suggests that women students perceive faculty-student relationships as reasonably friendly with contacts between the two occurring somewhat frequently. The faculty is also perceived as expressing some concern about the problems, activities, and interests of students.

The next four scales indicate unit differences. Inspection of Figure 15 shows that there are substantial differences in the mean response of the home economics students and the women students in the humanities-science unit at Institution G. Thus, interpretations are written for students' perceptions of their environment in each unit as well as to compare them with women students in comparable units in other institutions.

SCALE R Seminar approach to courses

Positions of the mean scale scores of both units at Institution G are almost the same as the over-all mean of their comparable units; however, the mean score of the home economics unit is .44 above the mean score of the humanities-science unit. Women students in the home economics unit at Institution G appear to perceive their courses as being sufficiently unstructured to allow for a study of ideas from related disciplines and for class discussion. Women students in the humanities-science unit appear to see their courses as being
structured, thus allowing for only a limited study of related ideas. Comparison of each unit with the 25 units in their group indicates that neither deviates substantially from the over-all impression of students in each group.

\textit{SCALE S} Professional involvement

The mean scale score of the home economics unit at Institution G lies above the over-all mean; the corresponding score for the humanities-science unit is just below the over-all mean. The mean score of the former is .73 above the mean score of the latter. Interpretation indicates that the home economics students at Institution G perceive themselves as being more concerned about the profession of their choice than do the humanities-science students in this institution. In addition, the home economics students appear to show more concern about their future profession than do many of the students majoring in home economics in the other institutions; the humanities-science students indicate somewhat less concern than do the students in the humanities-science units in the other institutions.

\textit{SCALE T} Status of home economics

The position of the mean scale score of the home economics unit at Institution G is almost identical to the over-all mean of these 25 units; the mean scale score of the humanities-science unit lies about one-third of the distance between the over-all mean and the lowest score of the 25 units. The mean scale score of the home economics unit is .83 above the mean
scale score of the humanities-science unit. Home economics students perceive home economics as a more respected field of study than do the humanities-science students at Institution G. Comparison of each units' mean score with their respective overall mean indicates that home economics students do not deviate substantially in their perception of the status of home economics from the general impression of all students in home economics in the 25 units. The humanities-science students at Institution G see home economics as a much less respected field of study than do students in most of the humanities-science units in other institutions.

SCALE G Education for home and family life

Mean scale scores of the home economics unit and the humanities-science unit at Institution G are, respectively, below the over-all unit mean scale score and the same as the over-all unit mean scale score. Positions of the two units' mean scale scores differ by .61; the home economics unit has the highest score. Interpretation suggests that the home economics students at Institution G see more opportunities for home and family life education than do the humanities-science students. However, the positions of the unit means of Institution G being near or on the over-all unit mean scale scores indicate that, in general, students in other institutions see more opportunities for obtaining home and family life education than do the students in the respective units of Institution G.
The two scales below are descriptive of institution by unit interaction differences; again, unit mean scale scores need to be interpreted for each unit in comparison with the other unit in the same institution and with the 25 units of which it is a member.

SCALE V  Types of learning

The mean scale score of the home economics unit in Institution G is just below the over-all mean of the 25 units; the mean scale score of the humanities-science unit is substantially below the over-all mean of the 25 units. The two unit mean scores differ by .42; the home economics unit has the higher score. Although women students in both units at Institution G appear to perceive the learning in their courses as relying upon specific facts, the humanities-science students perceive it to a greater degree. Students in both units in Institution G appear to perceive an emphasis on rote learning to a greater extent than do students in the comparable units in other institutions; again, however, the humanities-science students see it to a larger extent than do the home economics students.

SCALE W  Excellence of faculty

The home economics units' mean scale score is above the over-all mean of the 25 units; the humanities-science units' score is below the over-all mean of the comparable 25 units. The mean scale score of the home economics unit is .31 above the corresponding score of the humanities-science unit. Women
students in the home economics unit in Institution G perceive a faculty of relatively high quality whereas the humanities-science students do not see the quality as being high. The investigator invites the reader to compare the perceptions of the home economics and humanities-science women students concerning the quality of the faculty at Institution G with the comparable units in the other 24 institutions and subsequently, to draw his own conclusions.
SUMMARY

The major purpose for the investigation was achieved, i.e., the development of an instrument, the College Environment Inventory for Women (CEIW), which can be used to identify undergraduate women students' perceptions of their college environment in general and in home economics units, in particular. Methods for using the CEIW to study the environment of a home economics unit and its related institution and for comparing the environments among them are also illustrated.

The preliminary instrument was developed by defining the term environment, listing the 14 factors that appeared to be important to women students, and writing items for each factor. Ideas for possible factors and items came from several sources: proposed objectives for women's higher education and objectives for general education and related literature; reports summarizing developments in higher education; and environmental factors and items identified by instruments of a similar nature.

A panel of seven faculty members at Iowa State University (ISU) reviewed the preliminary instrument and offered suggestions concerning the directions for responding; clarity of the statements; possible additional items; and the ability of senior women to respond. Most of their suggestions concerned the rewording, deleting, and adding of items to the inventory which contained 255 items divided unequally among the 14 categories.

Twelve junior women students at ISU were administered the
preliminary inventory to determine time needed to respond and clarity of the directions and/or statements. Few had difficulty with directions or statements. Since most believed it took too much time to respond, the number of items was reduced to 200.

The preliminary instrument was next administered to at least 30 senior women students enrolled in the home economics units and to at least 30 senior women students enrolled in the humanities-science unit in 25 selected institutions. The institutions were ISU and 24 others randomly selected from a list of 32 institutions which met the following criteria: the enrollment in the junior and senior classes in home economics was at least 75; the majors offered in the humanities-science unit were similar to those offered in the same unit at ISU; the enrollment of senior women in the humanities-science unit was at least 40; and the student directory of the institution listed the students' university address, major and/or college in which enrolled, and the year in school. The senior women students in each unit of an institution were randomly selected from appropriate lists of eligible students compiled from the student directory.

Students were asked to respond to the statements by indicating the extent to which it was descriptive of their environment, an adaptation of the judgment of certainty method of response.
Two analyses were performed in the development of the final form of the inventory. The first, a within group analysis, was designed to determine factors that would indicate individual differences among students in the perceptions of their campus environment. Factors were derived by a modification of the Wherry-Winer method of factor analysis using the adjusted responses of the 1500 students. Seven factors were identified; two general factors and five group factors: General attitude towards home economics; General academic climate; Status of home economics; Personal dress in accordance with the "home economics" concept; Education for home and family life; Faculty-student relationships; and Breadth of interests.

The second, a between groups analysis, was to develop environmental scales that could be used to measure institution, unit, or institution by unit interaction differences. Scales were determined by inspection from three intercorrelation matrices composed of items representing institution, unit, and institution by unit interaction differences. The correlation matrices were calculated from the unit mean response to items. Fourteen scales were identified by this analysis: eight indicative of institutional differences; four of unit differences; and two of institution by unit interaction differences.

Comparison of the extent to which items organized differently and alike between the two analyses specified the scales which appear to measure environmental dimensions attributable to actual differences or to the kinds of students enrolled in
the institution. Three of the 14 scales fit the latter description and they are marked below with an asterisk.

The eight scales describing institutional environmental differences are:

1. Nonconformity
2. Faculty engendered motivation for achievement
3. Intrinsic motivation for study
4. Traditional arts-science education
5. Social responsibility
6. Involvement in campus activities
7. Freedom of expression and activities of students
8. Faculty-student relationships.

The four scales indicative of unit environmental differences are:

1. Seminar approach to courses
2. Professional involvement
3. Status of home economics
4. Education for home and family life.

The two scales descriptive of institution by unit interaction differences are:

1. Types of learning
2. Excellence of faculty.

A method for comparing the environments among institutions was illustrated. While no over-all generalizations can be made in regards to environmental characteristics attributable to all institutions or institution by unit interaction, it appears that on the four scales descriptive of unit differences there is greater similarity among the environments in home economics.
units considered as a group and the humanities-science units as a group than there is between the home economics unit and the humanities-science unit of the same institution.

A method for studying the environmental characteristics of an institution is illustrated using the data from one institution.
LITERATURE CITED


ACKNOWLEDGEMENTS

Appreciation is expressed to the 1974 senior women students who responded to the preliminary form of the College Environment Inventory for Women because it is recognized that without their responses the instrument could not have been developed.

A sincere thank you is expressed to the American Home Economics Association for receipt of the Omicron Nu Research Fellowship for 1964-1965 and to Iowa State University for the provision of additional funds through their unsponsored research program. Without this financial aid, the research could not have been undertaken or completed.

The investigator expresses her gratitude to Dr. Hester Chadderdon for both her challenging and wise guidance throughout this investigation. To the investigator, she exemplifies the "characteristics a major professor should have". Dr. Leroy Wolins is thanked for the statistical design of the study, for his guidance in the statistical analysis of the data, and for reading parts of the manuscript. The generous gifts of his time and energy have truly been appreciated and the investigator is grateful for having had the privilege of working with him.

Appreciation is also expressed to the seven ISU faculty members who reviewed the preliminary instrument; the home economics instructors who administered the preliminary form of the CEIW to the senior girls in their classes; and the 12
junior women at ISU who responded to an early form of the preliminary instrument. Mrs. Dorothy M. Stockamp and the pupils in her 1964-1965 stenography class are also recognized for the many after school hours they spent in typing the envelopes with the names and addresses of students to whom the inventory was sent.

The investigator's husband is warmly thanked for contributions that ranged from helping to "stuff" envelopes with the original set of materials to listening to progress reports of the study and the providing of many words of encouragement.

Mrs. Marilyn Caylor is thanked for her assistance in the preparation of the final copies of the dissertation.
APPENDIX A. PRELIMINARY FORM OF THE COLLEGE ENVIRONMENT INVENTORY FOR WOMEN AND ANSWER SHEET
College Environment Inventory

Alyce Fanslow, Iowa State University

In this booklet are 200 statements; each is a statement about some phase of college life. Collectively, they have reference to teaching practices and classroom activities; to faculty-student relationships; to student clubs, activities, concerns, and interests; to rules and regulations, etc. Because institutions differ from each other in a variety of ways, the statements may or may not be descriptive of your institution. You are asked to decide to what extent the statements are descriptive of your institution. Your answers should indicate what you think describes college life at your institution, not what you might personally prefer. Responses to this inventory are to be made anonymously; you are asked only to indicate your major and class year on the answer sheet.

DIRECTIONS

Following are statements describing different aspects of the environment at a college or university. On the answer sheet indicate for each of the statements the extent to which it is descriptive of the environment at your college or university by selecting a number from 1 to 99.

If the statement describes some aspect of the environment well or describes an event which occurs frequently, write 99 in the blank.

If the statement describes situations opposite to the situation at your college or university or describes an event which occurs infrequently, write 1 in the blank.

If it is moderately descriptive or occurs to some extent, select a number between 1 and 99.

For example, the statement, "Women students gain insight into the factors to be considered when deciding whether to combine a career and homemaking," might be very descriptive of some women students but not of others. You would indicate this condition by selecting a number from the middle range of the scale, say 53, indicating that slightly more than half of the women students gain some insight into these factors.

If you are uncertain about how descriptive the statement is about your college or university, write 50 in the blank.

The following scale may help you keep these directions in mind.

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Because some of you are enrolled in colleges and others in universities, the word university has been used to refer to the total institution. The word division refers to the college, department, or division within the university in which you are enrolled.

Please keep in mind while you are responding to these statements that we are asking you to describe aspects of your university environment as you know it; therefore, there are no "right" or "wrong" responses to any of the statements. When you are deciding upon the response to statements which describe the general environment, think of the entire university, not just the division in which you are enrolled. Please indicate exactly what you think describes your university; be as frank and objective as possible.

Please indicate your responses on the answer sheet. Do not leave any statements blank.
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1. Faculty members emphasize the need to keep up in one's field after graduation.
2. Students are able to see staff members only during scheduled office hours.
3. Instructors give unannounced quizzes or tests.
4. Laboratory facilities in the home economics division are excellent.
5. Faculty members invite students into their homes.
6. Students have assigned seats in large classes.
7. It is difficult to get a group of students together for an unplanned activity, such as a card game, going to a movie, etc.
8. Students show much enthusiasm and support for college events.
9. Laboratory work is a "waste of time."
10. Excellent collections of paintings, phonograph records, and unusual books and collections are available for use by students.
11. Courses help women students understand the varying nutritional needs of individuals at different ages.
12. Students who earn high grades are respected by other students.
13. New students are given adequate help in adjusting to campus life.
14. Students help each other with their courses.
15. Members of campus organizations can be classified as "joiners" but not "doers."
16. The importance of acting on personal conviction rather than tradition is stressed.
17. Students can convey ideas effectively in writing.
18. Women students are helped to recognize problems facing married women who work outside the home.
19. The field of home economics is considered by the faculty as a challenging field of study.
20. Students become so engrossed in their studies that they lose all sense of time.
21. Women students must have written permission to be gone overnight from their dormitory or sorority.
22. Faculty members do not attempt to get students interested in the broad aspects of their field of study.
23. Students are encouraged to use the scientific method of problem solving.
24. Majors in home economics try to dress suitably when attending off-campus events where they will be identified as home economists.
25. Campus organizations are closely supervised to guard against mistakes.
26. Students are encouraged to plan and are given help in planning long-range goals.
27. The faculty seem to be unconcerned about the new developments in their fields.
28. Being able to intelligently defend a position on an issue is important.
29. Women students are serious and purposeful about preparation for their profession.
30. Courses offered help students to recognize the effect of industrial progress on social well-being.
31. Through course work women students gain an insight into parent-child and sibling relationships.
32. Instructors expect students to take comprehensive notes in class.
33. A student cannot get help with his personal problems without answering many personal questions.
34. Students believe that there is no need for home economics courses because the subject matter could be taught in other disciplines, such as chemistry and sociology.
35. Development of students' ability to learn independent of supervision is a concern of faculty members.
36. Students are interested in literature, art, music, drama, etc.
37. The academic atmosphere emphasizes preparation for a profession.
38. Women students gain insight into the factors to be considered when deciding whether to combine a career and homemaking.

39. Students are helped to recognize the interdependence of cultural groups, nations, and races.

40. Limited opportunities for oral reports, discussions, panels, etc., exist in classes.

41. Faculty members are more interested in research than in teaching undergraduate students.

42. Contacts between faculty and students are rare except in class.

43. Scholastic standards of achievement are as high in the home economics division as they are in other divisions.

44. A paper can rate a high grade even though the opinion expressed is opposed to that of the instructor's.

45. There are several meeting spots in which a group of students can be found.

46. The competition for high achievement is intense.

47. Students are concerned about finding an answer to the question, "What do I believe?"

48. Large crowds of students attend the plays, concerts, and art exhibits on campus.

49. Emphasis is placed upon the importance of poise.

50. Students believe that once they have obtained their bachelor's degrees they've learned all they need to know.

51. Future goals of students center around a happy family life.

52. In classes little emphasis is placed upon sources of information in addition to assigned readings pertinent to the course.

53. Students are helped to use basic principles from many fields in making decisions.

54. Faculty members strive to develop creative self-expression in their students.

55. Interest in specialization is higher among students than interest in general education.

56. Courses help women students to understand the transitions at different stages of the family life cycle.

57. At the end of a course, students are asked to evaluate the course.

58. Students develop a strong sense of responsibility about their role as citizens.

59. A choice of facilities and opportunities exist on this campus to satisfy individual needs.

60. Faculty members address students by "Mr., Mrs., or Miss."

61. Students study because of a desire to learn.

62. Everyone gets the same treatment at this school, regardless of his family, his affiliations, race, religion, etc.

63. Women students not majoring in home economics select home economics courses because of the contribution to future roles as homemakers.

64. Members of the faculty seem unaware that a well-rounded program of study includes courses in the arts and humanities.

65. Students tend to act alike.

66. Open displays of emotion by students are discouraged.

67. Participation in campus political activities is encouraged.

68. Women students are helped to foresee a return to professional positions after their child-bearing years.

69. Students are unconcerned about underprivileged people.

70. Students do not dare to disagree with a faculty member.

71. Physical science or math courses are elected by non-majors.

72. Students talk about their deeper concerns with each other.

73. Our changing world and its effect upon the subject matter studied is emphasized in courses.

74. Student votes carry equal weight with faculty votes on student-faculty committees.
75. "Depth" and "breadth" of knowledge in one's professional field is stressed.

76. Students majoring in home economics are as bright as students in other divisions.

77. An awareness of the problems of underdeveloped countries and an interest in aiding them is encouraged.

78. Education for family living is not a concern of this school.

79. Students go home or off-campus weekends whenever they have a chance.

80. Talk among students centers around their boy or girl friends.

81. Students believe that girls should be able to learn at home the information taught in home economics classes.

82. Teachers make an "extra effort" to help students.

83. Students are content with putting forth a minimum of effort.

84. In order that students' assignments will be completed on time, instructors periodically check up on their progress.

85. Students' discussions are concerned with topics relating to art, music, or the theater.

86. Psychology and sociology courses place little emphasis on factors that influence one's social and emotional development.

87. Students do not let religious beliefs enter into the decisions they make in daily living.

88. Students accepting leadership roles do so because of a desire for recognition.

89. National elections are closely followed.

90. Through course work students are helped to understand the laws that safeguard their interests as consumers.

91. Women students are unconcerned about securing professional positions after they graduate.

92. Each student is expected to assume responsibility for his decisions and actions.

93. Faculty members dislike having students interrupt their work.

94. Students study because of a desire for knowledge, not just to earn high grades.

95. Individual differences of students are recognized by grouping students of similar background into the same section of basic courses.

96. Faculty members treat students as their social equals.

97. Student elections generate much enthusiasm on campus.

98. The home economics division has equal status with other divisions.

99. History, government, and literature courses are elected by non-majors.

100. Students tend to dress alike.

101. Realistic evaluation of their accomplishments is expected of students.

102. Students experience conflicts between the religious beliefs learned at home and subject matter studied.

103. Emphasis is placed on education for leadership.

104. Careful reasoning is highly valued in student papers and discussions.

105. Counseling services are used by students in selecting a vocation.

106. Women students come to college primarily to find a suitable marriage partner.

107. Faculty members make professional contributions nationally by serving as officers of organizations, giving talks, etc.

108. Friendly relations between staff and students are typical.

109. Students are challenged to work harder as they become enrolled in more advanced courses.

110. Instructors' enthusiasm for their subject matter carries over to their students.

111. When students are disciplined, all are treated as equals; no one gets special treatment.
112. Students have a specialized vocabulary that is unique to students.

113. A career in home economics is recognized as an excellent choice for women students.

114. Students who talk with staff members outside of class are considered "apple polishers."

115. A student who spends extra time in a science laboratory would be considered odd by his fellow students.

116. Women students are aware of the need to keep up to date in their career field if they become full-time homemakers.

117. Concern about national and international affairs is not evident on campus.

118. Students are helped to recognize the diverse ways in which the basic needs of families are fulfilled in different societies.

119. Classes are so interesting that students do not want to miss a class.

120. Students agree that when disciplinary measures are imposed the "punishment fits the crime."

121. Being asked to contribute to a class discussion is an accepted part of classroom routine.

122. Students accept deviations in behavior from the traditional moral virtues, such as honesty, sincerity, and loyalty.

123. Visits to welfare organizations, slum districts, or other contacts with underprivileged people are a part of courses.

124. Students recognize home economics as a field primarily concerned with the family and factors that influence it.

125. Instructors use illustrations which draw upon knowledge of several subject matter areas.

126. Students majoring in home economics have a desire to dress according to standards that meet the "home economics" image.

127. Student discussions include talk about the physical and/or biological sciences.

128. Scholastic standards set by the faculty are not difficult to attain.

129. The objectives of course work are clearly defined for students.

130. Students have little faith in the future because of the prevalence of nuclear weapons in the world.

131. Organizations exist in which faculty and students participate on an equal basis.

132. Women students are aided in gaining an insight into the far-reaching influences of the family.

133. Ways that student complaints can be expressed are so snarled with red tape they discourage such attempts.

134. Students get grades in courses because of who they are.

135. Students use most of the time during weekends for studying.

136. Counseling services are used by students to obtain help with personal problems.

137. Students come to recognize that achieving goals requires wise allocation of all available resources.

138. Care of school property is one of the responsibilities assumed by students.

139. Women students are prepared for carrying their responsibility for providing a good home environment.

140. The examinations given are a good measure of the student's knowledge of course material.

141. Faculty members are interested in the activities and interests of students.

142. An honors program is available for qualified students.

143. Students believe that with mixes and modern equipment, the managing of a home is so easy there is little need for home economics courses.

144. Students are concerned about finding an answer to the question, "Who am I?"

145. Faculty members put no pressure on students to attend classes.

146. Students willingly participate in activities which aid charitable and social agencies.

147. Subject matter presented in classes unnecessarily duplicates that in assigned readings.
| SCALE: |
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| Not Descriptive | Uncertain | Descriptive |
| 1 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 99 |

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145. Faculty members put no pressure on students to attend classes.

146. Students willingly participate in activities which aid charitable and social agencies.

147. Subject matter presented in classes unnecessarily duplicates that in assigned readings.
148. Large crowds of students would be attracted to science displays on campus.

149. Students' attitudes tend to be alike.

150. Women students are helped to recognize the problems facing married women when they become full-time homemakers.

151. Course instruction involves a thorough probing into the fundamentals of the subject.

152. Faculty members are impatient with students who do the minimum amount of work.

153. Memorization of what is in the textbook and one's class notes are enough to pass courses here.

154. If a college regulation creates personal inconvenience, a student is expected to remain silent.

155. The attitude of students is that it is all right to break the rules as long as you are not caught.

156. A characteristic of the courses taught is that they progress systematically from topic to topic.

157. Students' capabilities are really challenged by instructors.

158. Group pressure is strong among students to follow accepted codes of behavior.

159. Women students are concerned about the extent to which intimate relations should be permitted with men.

160. Student-faculty committees exist which recommend administrative policies.

161. Women students take advantage of opportunities to study the physical, mental, and social development of children.

162. Athletes get more recognition for their athletic successes than do students who reach high academic standards.

163. Science courses place little emphasis on how science can help us better understand the world around us.

164. Women students learn how to maintain a home that will contribute to family goals.

165. Future financial security is a major goal of students.

166. Students gain insight into the relationship between the family economic unit and the total economy.

167. The faculty in my major area are outstanding.

168. Students resort to cheating to pass courses.

169. Women students come to think of themselves as "second class" citizens.

170. A student is helped to assess his abilities and is challenged to achieve his potential.

171. Students make little effort to find out about new developments in their fields.

172. Students give little thought to whether they eat well-balanced meals.

173. Faculty members who teach graduate students have a higher status than those teaching undergraduates.

174. Students read books and magazines not required by class assignments.

175. Girls majoring in home economics are primarily interested in "getting" husbands.

176. Students develop ability to evaluate consumer information.

177. Principles rather than specific facts are emphasized in courses.

178. Opportunities exist for women students to gain insight into future roles that may be expected of them.

179. Women students recognize that being a homemaker and mother can be challenging.

180. Students dress suitably for classes, social events, and other affairs.

181. Responsibility for initiating change in campus activities is avoided by students even though they recognize the need for change.

182. The student is aided in selecting his career by faculty advisers.

183. Students take courses which help them to understand some of the factors that influence their physical development.
184. When conflicts in time occur between class meetings and important speakers on campus, faculty members are willing to excuse class in order that students may attend.

185. Field trips are a waste of time, money, and energy.

186. Students are concerned only about themselves and their immediate circle of friends.

187. Dining is made a gracious social event several times each week in residences.

188. Students' personal problems are of little concern to members of the faculty.

189. Faculty members stress professional ethics.

190. It is difficult to find students willing to serve as chairman or president of campus organizations.

191. Students are aware of the influence of major political movements upon family, community, state, and nation.

192. When research results are used to support conclusions, students are concerned with the reliability of the data.

193. Students are helped to appreciate individual differences, such as values held, goals sought, and resources available.

194. Courses do not change with changing conditions; they remain the same year after year.

195. Opportunities exist for the development of skill in organizing and directing others.

196. The development of open-mindedness in students is promoted.

197. The library has an outstanding collection of books and journals in my major area.

198. Nonconformity is highly respected here.

199. Courses offer opportunities for students to carry on individual projects.

200. Preparation for examinations is difficult for students because they are uncertain of what is expected of them.

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ANSWER SHEET

COLLEGE ENVIRONMENT INVENTORY

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APPENDIX B. REVIEWERS OF THE PRELIMINARY FORM OF THE INVENTORY

1. Dr. Frederick Brown  
   Department of Psychology

2. Miss Marie Budolfson  
   Department of Home Management

3. Mrs. Jean Hanson  
   Department of Child Development

4. Dr. William Kenkle  
   Department of Sociology

5. Dean Helen R. LeBaron  
   College of Home Economics

6. Dr. Marguerite Scruggs  
   Department of Home Economics Education

7. Dr. Leroy Wolins  
   Departments of Psychology and Statistics
Letter to Deans of the Home Economics Units

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
AMES, IOWA

Department of Home Economics Education

October 15, 1964

Dean
College of Home Economics
___________ University

Dear Dean ____________:

We are in the process of developing an instrument to measure women students' perceptions of environmental characteristics of home economics departments or divisions. Some of the characteristics being explored are academic climate, faculty-student relationships, standards of achievement, student dignity, status of home economics on campus, professional preparation, civic responsibility, and preparation for home and family living. In addition to developing an instrument that could be used by a college home economics unit to investigate its environmental characteristics, this study will explore the relationship between certain factors in institutions and the characteristics identified. For example, an examination of the relationship between undergraduate enrollments and the environmental characteristics will be included in this investigation.

The preliminary instrument has been developed by defining the environmental factors that appear to be important to women students and then writing items for each factor. These have been reviewed by home economists, guidance personnel, psychologists, and sociologists at Iowa State University.

The plan is to administer the preliminary instrument to all seniors enrolled in home economics and to 30 senior women in the arts-science unit in each of a sample of 25 institutions. Women students from the arts-science division are being included in the study so that items indicative of institution, unit, or institution by unit interaction differences can be determined. Thus, scales can be developed which measure environmental differences at each of the levels.
In the development of the inventory the responses of students will be factor analyzed. On the basis of clusters of items resulting from this analysis and the rational content of the clusters, scales will be developed. After obtaining students' scores for each scale, the data will be analyzed to determine whether that environmental characteristic is associated with both or one of the two divisions.

We propose to administer the preliminary instrument to all seniors majoring in home economics in one of two ways: (1) by contacting them through a required home economics course for seniors, if one exists, or (2) directly by mail after identification through the directory. We expect to administer the instrument during January and February, 1965.

If a required home economics course for seniors is offered in January or February, we would like to contact the instructor of the course to see if an arrangement can be made with her to administer the instrument. This would involve distributing the instrument in one class period and collecting it the next. As the instruments are to be answered anonymously, we request that all students returning a completed instrument cross out their names on a master list. Those students not responding would be contacted directly by mail. Response time to the instrument averages 45 minutes. In the event that such an arrangement cannot be made with the instructor of the core course or if no such course is offered, women majoring in home economics would be contacted directly by mail.

Because your home economics unit is one in the sample of 25, may we have your permission to administer the instrument to senior women majoring in home economics in your institution? If so, we would also appreciate the following information:

1. Is there a required home economics course for seniors which meets during January or February, 1965?
2. If so, what is the name of the course and the instructor?

For your convenience, a self-addressed postal card listing the desired information is included.

If you approve the collection of data from your home economics students, we will contact the dean of the arts-science unit for permission to collect data from 30 students enrolled in his unit. Upon the completion of this study, a copy of the instrument developed will be sent to you.
Mrs. Alyce Fanslow is a graduate student working toward the Ph.D. degree at ISU; her major field of study is home economics education. She is the 1964-1965 recipient of the Omicron Nu Research Fellowship.

Sincerely,

Dr. Hester Chadderdon

(Mrs.) Alyce M. Fanslow

Enclosure

Postal Card Enclosed in Letter to Deans of the Home Economics Units

1. Permission is given to administer your instrument to senior women majoring in home economics here. Yes No

2. A required home economics course for seniors is offered here which meets during Jan. or Feb., 1965. Yes No

3. Name of course

4. Instructor teaching course

Dean
College of Home Economics
University
Letter to Deans of the Humanities-Science Units

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
AMES, IOWA

Department of Home Economics Education

November 15, 1965

Dear Dean:

We are in the process of developing an instrument to measure college women students' perceptions of environmental characteristics of home economics departments or divisions. Some of the characteristics being explored are academic climate, faculty-student relationships, standards of achievement, student dignity, status of home economics on campus, professional preparation, civic responsibility, and preparation for home and family living. Women students from the arts-science unit are being asked to respond to this instrument so that items indicative of institution, unit, or institution by unit interaction differences can be determined. Thus, scales can be developed which measure environmental differences at each of the levels.

The preliminary instrument has been developed by defining the environmental factors that appear to be important to women students and then writing items for each factor. The plan is to administer the preliminary instrument to all senior women enrolled in home economics and to 30 senior women in the arts-science unit in each of a sample of 25 institutions. The responses will be factor analyzed and, on the basis of clusters of items resulting from the analysis and the rational content of the clusters, scales will be developed. After obtaining students' scores for each scale, the data will be analyzed to determine whether the environmental characteristic is associated with both or one of the two divisions.

We propose to administer the instrument to the 30 senior women selected from the arts-science unit directly by mail after identification through college directories during January and February, 1965. Response time to the instrument averages 45 minutes.
Because your arts-science unit is one of a sample of 25 we would like to use in this study, may we have your permission to send the instrument to 30 senior women enrolled in the arts-science unit in your institution? For your convenience, a self-addressed postal card on which to indicate your reaction is included. Dean has indicated her willingness to cooperate in this study.

Mrs. Alyce Fanslow is a graduate student working toward the Ph.D. degree at Iowa State University; her major field of study is home economics education.

Sincerely,

Dr. Hester Chadderdon

(Mrs.) Alyce M. Fanslow

Enclosure

Postal Card Enclosed in Letter to Deans of the Humanities-Science Units

Permission is given to administer your instrument to at least 30 senior women enrolled in the arts-science units here

____Yes   ____No

Dean
College of Arts and Science
___________University
APPENDIX D. INSTITUTIONS PARTICIPATING IN THE STUDY

1. Auburn University
2. Brigham Young University
3. Colorado State University
4. Cornell University
5. Florida State University
6. Iowa State University
7. Kansas State University
8. Michigan State University
9. North Dakota State University
10. Ohio State University
11. Oklahoma State University
12. Pennsylvania State University
13. Purdue University
14. Texas Technological College
15. University of Arizona
16. University of Connecticut
17. University of Maryland
18. University of Minnesota
19. University of Missouri
20. University of Rhode Island
21. University of Tennessee
22. University of Wisconsin
23. Utah State University
24. Washington State University
25. Winthrop College
Letter to Instructors

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
AMES, IOWA

Department of Home Economics Education

December 1, 1965

Dr.
College of Home Economics
University

Dear Dr. __________________:

The senior students enrolled in the home economics division at (name of institution) are among those enrolled in a sample of 25 institutions we would like to use in the development of an instrument. The inventory we are in the process of developing will measure college women students' perceptions of environmental characteristics of home economics departments or divisions. We have contacted your dean and received her permission to contact the home economics seniors there. She has also indicated that you teach (name of course), a required course for home economics seniors, which is offered in January or February, 1965.

Some of the characteristics we hope to explore through the development of this inventory are: academic climate, faculty-student relationships, standards of achievement, student dignity, status of home economics on campus, professional preparation, civic responsibility, and preparation for home and family living. The preliminary instrument has been developed by defining the environmental factors that appear to be important to women students and then writing items for each factor. These have been reviewed by home economists, guidance personnel, psychologists, and sociologists at Iowa State University.

The plan is to administer the preliminary instrument to all seniors enrolled in home economics and to 30 senior women in the arts-science unit in each of a sample of 25 institutions.
Women students from the arts-science division are being included in this aspect of the study so that items indicative of institution, unit, or institution by unit interaction differences can be determined. Thus, scales can be developed which measure environmental differences at each of the levels.

In the development of the inventory the responses of students will be factor analyzed. On the basis of clusters of items resulting from this analysis and the rational content of the clusters, scales will be developed. After obtaining students' scores for each scale, the data will be analyzed to determine whether that environmental characteristic is associated with both or one of the two divisions.

We propose to administer the preliminary inventory to all seniors majoring in home economics in one of two ways: (1) by contacting them through a required home economics course for seniors, if one exists, or (2) directly by mail after identification through your college directory. A sample of students in the arts-science unit will be contacted by mail after identification through the directory.

Briefly, administration of the inventory in the required home economics course would involve distributing the instrument in one class period and collecting it the next. As the inventories are to be answered anonymously, we request that all students returning a completed answer sheet cross out their names on a master list prepared by the instructor. Those students not responding would be contacted by us directly by mail; their addresses would be identified through the college directory. Response time to the inventory averages 45 minutes. A copy of the more detailed instructions for administering the inventory is enclosed.

Would you, therefore, be willing to administer the preliminary inventory for us during January or February, 1965? If so, we would like the following information:

1. The number of senior students enrolled in the course.

2. The date you would like to administer the inventory.

For your convenience, a self-addressed postal card listing the desired information is included.

Mrs. Alyce Fanslow is a graduate student working toward the
Ph.D. degree at Iowa State University; her major field of study is home economics education.

Sincerely,

Dr. Hester Chadderdon

(Mrs.) Alyce M. Fanslow

Enclosures (2)

Postal Card Enclosed in Letter to Instructors

1. I will administer your inventory for you Yes No
2. Number of senior students enrolled in course
3. Date I would like to administer the inventory

Dr. College of Home Economics University
APPENDIX F. DIRECTIONS TO INSTRUCTORS ADMINISTERING INVENTORY

Directions for Administration of Inventory:

1. Make a list of all senior women students enrolled in your course.

2. Explain to students what you are asking them to do using suggestions given below.

3. Decide with students when they are to return the answer sheet to you. May we request that no more than one week elapse before they return the answer sheet to you?

   Encourage the students to set aside a definite time on their calendars when they can focus their undivided attention on responding to the inventory. Mention that preliminary trials indicate that it will take them approximately 45 minutes.

4. Point out that the directions for responding to the inventory are included in the booklet; ask them to read them carefully. Emphasize that we are interested in each student's viewpoint and encourage them to work independently.

5. Pass out inventories and answer sheets.

6. Have students turn in completed answer sheets on day previously decided upon, and have them cross out their names on the class list you have previously prepared. If some students have not completed them, encourage them to bring them in by the next class period.

7. Return only the answer sheets and the master class list to us. A self-addressed mailing label and postage for that purpose are enclosed.

8. Please make every effort to have all students respond. Those students not responding to the inventory will be contacted directly by mail.

Suggestions for Motivating Students to Respond:

1. Explain that the purpose of the research in which we are asking them to participate is to develop an inventory that can be used by any home economics division to identify and study women students' perceptions of college environmental characteristics. You might mention some of the environmental characteristics being explored, such as academic
climate, faculty-student relationships, standards of achievement, student dignity, status of home economics on campus, professional preparation, civic responsibility, and preparation for home and family living. Students' responses will be used to determine which statements should be retained and which ones relate to each characteristic. You can indicate that being able to evaluate environmental characteristics is important because it is one measure of the degree to which a division is accomplishing its educational objectives.

2. In answer to the question, "Why Should I Respond to the Inventory?" you might indicate that they can consider it a professional contribution that they can make to the field of home economics.
APPENDIX G. CORRESPONDENCE WITH STUDENTS

Letter to Students
HAVE YOU EVER FELT THAT YOUR INSTRUCTORS WERE DEMANDING TOO MUCH OF YOU?

HAVE YOU EVER NOTICED THE "WARM" OR "COLD" RELATIONSHIPS THAT EXIST BETWEEN STUDENTS AND FACULTY?

HAVE YOU EVER WONDERED WHY SOME UNIVERSITIES HAVE A REPUTATION FOR BEING "WORK" SCHOOLS AND OTHERS "PARTY" SCHOOLS?

TODAY, YOU ARE BEING GIVEN AN OPPORTUNITY TO ANSWER QUESTIONS LIKE THESE TO HELP DETERMINE WOMEN STUDENTS' PERCEPTIONS OF THE ENVIRONMENTS IN THEIR COLLEGE OR UNIVERSITY.

HOW?

BY RESPONDING TO THE STATEMENTS IN THE ENCLOSED COLLEGE ENVIRONMENT INVENTORY. DIRECTIONS FOR RESPONDING ARE INCLUDED IN THE INVENTORY. PLEASE FOLLOW THEM CAREFULLY.

WHEN?

YOU MAY NOT HAVE TIME RIGHT NOW; YOUR PLANS FOR THE DAY HAVE BEEN MADE. WE ASK, HOWEVER, THAT YOU RESPOND TO THE INVENTORY WITHIN THE NEXT 7 DAYS. PLEASE PUT US ON YOUR CALENDAR FOR A DEFINITE TIME WHEN YOU CAN GIVE US YOUR UNDIVIDED ATTENTION. PRELIMINARY TRIALS INDICATE THAT IT WILL TAKE APPROXIMATELY 45 MINUTES. THE DEAN OF YOUR DIVISION IN YOUR UNIVERSITY HAS GIVEN HIS (HER) CONSENT TO OUR CONTACTING YOU.

WHAT WILL COME OF IT?

SOME RESEARCH HAS ALREADY BEEN COMPLETED WHICH IDENTIFIES COLLEGE ENVIRONMENTAL CHARACTERISTICS, USING BOTH MEN AND WOMEN STUDENTS, BUT LITTLE HAS BEEN DONE TO DETERMINE WOMEN STUDENTS' PERCEPTIONS OF THEIR ENVIRONMENTS. THAT IS THE PURPOSE OF THE STUDY IN WHICH WE ARE ASKING YOU TO PARTICIPATE.

EDUCATIONAL OBJECTIVES FOR HIGHER EDUCATION FOR WOMEN STUDENTS HAVE BEEN CONSIDERED AND THE STATEMENTS IN THE INVENTORY WERE DESIGNED TO EXPLORE THEM. YOUR RESPONSES TO THE INVENTORY, AND THOSE OF 2,999 OTHER WOMEN STUDENTS ENROLLED IN 25 UNIVERSITIES ACROSS THE COUNTRY WILL BE ANALYZED AND SCALES DEVELOPED FOR EACH ENVIRONMENTAL CHARACTERISTIC IDENTIFIED. THUS, AN INVENTORY WILL BE AVAILABLE FOR USE BY ANY UNIVERSITY TO STUDY ITS CAMPUS ENVIRONMENT AS PERCEIVED BY WOMEN STUDENTS.

WHY SHOULD YOU DO IT?

BECAUSE YOU WILL BE MAKING A CONTRIBUTION TO THE BETTER UNDERSTANDING OF UNIVERSITY ENVIRONMENTS; PERHAPS, EVENTUALLY, TO THE IMPROVEMENT OF CAMPUS LIFE. THIS IS AN OPPORTUNITY FOR YOU TO MAKE A PROFESSIONAL CONTRIBUTION. IT SOUNDS LIKE A BIG TASK, DOESN'T IT? THAT IS WHY WE NEED YOUR HELP.

WHAT DO WE WANT BACK?

ONLY THE ANSWER SHEET. USE THE ENCLOSED POSTAGE-PAID, SELF-ADDRESSED ENVELOPE. YOUR RETURN ADDRESS, INCLUDING YOUR NAME, HAS BEEN INDICATED ON IT SO THAT WE CAN DETERMINE WHO HAS RETURNED THE INVENTORY.

LAST REQUEST:

MAY WE ASK THAT YOU SET ASIDE A TIME NOW ON YOUR CALENDER TO COMPLETE THE INVENTORY WITHIN THE NEXT SEVEN DAYS? THANK YOU. GOOD-BY UNTIL THEN.

Dr. Hester Chadderton
Professor

(Mrs.) Alyce M. Fanslow
Graduate Student
First Follow-Up Postal Card

WE NEED YOUR HELP! Recently, you received a College Environment Inventory to which you were asked to respond. Possibly your answer sheet is now in the mail; if so, please ignore the rest of this card.

It is extremely important that we include your reactions in this study. After revision, we hope that the inventory will be satisfactory for determining women students' perceptions of their college environment. However, it will be impossible to make a wise choice of statements unless we secure a large number of returns. Therefore, please respond to the inventory, and return the answer sheet within the next 3 days. If you need an inventory, drop me a card and I will send you one.

(Mrs.) Alyce M. Fanslow
Iowa State University

Second Follow-Up Postal Cards

WE ARE STILL IN NEED OF YOUR HELP!

Several weeks ago you received a College Environment Inventory to which you were asked to respond. We have not received your response as yet; therefore, would you please respond to the inventory within the next day and return the answer sheet to us?

Because it is most important that your reactions are included in this study, we request that you fill out the attached self-addressed postal card indicating when we can expect your response.

Our many thanks for your help!

(Mrs.) Alyce M. Fanslow
Iowa State University
Check One:

1. I have responded to the College Environment Inventory and mailed the answer sheet on (date). 

2. I expect to respond to the Inventory on (date) and will mail the answer sheet immediately.

3. I have misplaced or did not receive the materials sent me. Please mail me the following:

   - College Environment Inventory
   - Answer sheet
   - Return envelope

   Miss Street
   Street

APPENDIX H. FACTOR LOADINGS OF ITEMS ON FACTORS DERIVED FROM THE WITHIN GROUP ANALYSIS

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\(^a\)Minus sign preceding item number indicates item was keyed "minus" for computing cluster scores.
\(^b\)Decimal points have been omitted.
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APPENDIX I. ITEMS\(^1\) INDICATING SIGNIFICANT DIFFERENCES
AT THE INSTITUTION, UNIT, OR INSTITUTION
BY UNIT INTERACTION LEVELS BUT NOT USED
IN SCALES

3. Instructors give unannounced quizzes or tests.

4. Laboratory facilities in the home economics division are excellent.

9. Laboratory work is a "waste of time!".

12. Students who earn high grades are respected by other students.

37. The academic atmosphere emphasizes preparation for a profession.

49. Emphasis is placed upon the importance of poise.

51. Future goals of students center around a happy family life.

60. Faculty members address students by "Mr., Mrs., or Miss".

79. Students go home or off-campus weekends whenever they have a chance.

80. Talk among students centers around their boy or girl friends.

87. Students do not let religious beliefs enter into the decisions they make in daily living.

88. Students accepting leadership roles do so because of a desire for recognition.

95. Individual differences of students are recognized by grouping students of similar background into the same section of basic courses.

98. The home economics division has equal status with other divisions.

99. History, government, and literature courses are elected by non-majors.

\(^1\)Each item retains the number it had in the preliminary inventory.
102. Students experience conflicts between the religious beliefs learned at home and subject matter studied.

103. Emphasis is placed on education for leadership.

105. Counseling services are used by students in selecting a vocation.

106. Women students come to college primarily to find a suitable marriage partner.

114. Students who talk with staff members outside of class are considered "apple polishers".

120. Students agree that when disciplinary measures are imposed the "punishment fits the crime".

122. Students accept deviations in behavior from the traditional moral virtues, such as honesty, sincerity, and loyalty.

123. Visits to welfare organizations, slum districts, or other contacts with underprivileged people are a part of courses.

134. Students get grades in courses because of who they are.

136. Counseling services are used by students to obtain help with personal problems.

142. An honors program is available for qualified students.

147. Subject matter presented in classes unnecessarily duplicates that in assigned readings.

155. The attitude of students is that it is all right to break the rules as long as you are not caught.

158. Group pressure is strong among students to follow accepted codes of behavior.

160. Student-faculty committees exist which recommend administrative policies.

162. Athletes get more recognition for their athletic successes than do students who reach high academic standards.

165. Future financial security is a major goal of students.
172. Students give little thought to whether they eat well-balanced meals.

173. Faculty members who teach graduate students have a higher status than those teaching undergraduates.

178. Opportunities exist for women students to gain insight into future roles that may be expected of them.

180. Students dress suitably for classes, social events, and other affairs.

183. Students take courses which help them to understand some of the factors that influence their physical development.

187. Dining is made a gracious social event several times each week in residences.

197. The library has an outstanding collection of books and journals in my major area.

Items which indicated institutional differences were: 3, 37, 49, 51, 79, 80, 87, 88, 95, 98, 102, 103, 105, 114, 120, 122, 123, 136, 142, 147, 155, 158, 162, 165, 172, 173, 180, 187, 197.

Items which signified unit differences were: 4, 60, 99, 103, 106, 134, 178, 183.

Items which indicated institution by unit interaction differences were: 9, 12.
APPENDIX J. REVISED METHOD OF RESPONSE
AND APPROPRIATE TRANSFORMATIONS
OF ITEM RESPONSES

The following directions explaining the revised method of responding are suggested for use with the instrument:

Following are statements describing different aspects of the environment at a college or university. On the answer sheet indicate for each of the statements the extent to which it is descriptive of the environment at your college or university by selecting a number from 1 to 11.

If the statement describes some aspect of the environment well or describes an event which occurs frequently, write 11 in the blank.

If the statement describes situations opposite to the situation at your college or university or describes an event which occurs infrequently, write 1 in the blank.

If it is moderately descriptive or occurs to some extent, select one of the numbers between 1 and 11. For example, the statement, "Women students gain insight into the factors to be considered when deciding whether to combine a career and homemaking", might be very descriptive of some women students but not of others. You would indicate this condition by selecting a number toward the middle range of the scale, say 7, indicating that slightly more than half of the women students gain some insight into these factors.

If you are uncertain about how descriptive the statement is about your college or university, write 6 in the blank.

The following scale may help you keep these directions in mind.

Not Descriptive Uncertain Descriptive

1 2 3 4 5 6 7 8 9 10 11

...
Table 5 indicates the transformed score for each student response to an item dependent upon the direction in which the item was keyed; the transformed scores were derived from a table of normalized ranks.

Table 5. Transformations for student's item responses

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Unit mean scale scores can then be calculated from the transformed responses and a profile of the environment can be plotted for study.
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*a Home economics units

*b Humanities-science units

Over-all mean

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