



The relationship between psycho-social factors and the scholastic achievement of college students
by Craig Stephen Brown

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION

Montana State University

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Abstract:

The purpose of this investigation was: (1) to determine the relationship between academic achievement and the psycho-social and architectural environment that existed within dormitories and (2) to determine what relationship existed between the University Residence Environment Scale (URES) and the College and University Environment Scales (CUES II).

The sample consisted of 280 students residing in four dormitories on the Montana State University campus. The subjects were fulltime students and either sophomores, juniors, or seniors. A table of random numbers was used to select the subjects proportionate to the number of students living in each of the four dormitories and proportionate to the sex of the students. Instrumentation included URES, CUES II, and the Campus Architectural Rating Scale (CARS). CARS is a nominal rating scale which differentiated architectural factors that existed between dormitories. Each subject answered the 96-item URES and the 160-item CUES II. In addition, each subject was given a rating on CARS depending on his dormitory of residence.

A multiple regression program was used to predict grade point average from a combination of URES scales, CUES II scales, CARS factors, and university computed expected grade point averages. Using these variables, 30.88% of the variance in obtained grade point average was explained at the .01 level. Expected grade point average accounted for 28.55% of the total variance which was explained. The URES scale Independence was the only other variable that significantly increased the prediction efficiency. Of the 70 correlation coefficients which were computed between the 10 URES scales and the 7 CUES II scales, 50 were significant. No CARS factor was significantly related to academic achievement. Only one URES scale, Innovation, was significantly related to academic achievement. Although the relationship between Innovation and academic achievement was significant, it was not sufficient to be useful in predicting academic achievement.

Based upon this study, several recommendations were made.

Among the recommendations were the following statements.

1. There needs to be greater use made of the findings from psycho-social investigations. Often the findings are only descriptive and no beneficial changes are implemented.
2. Investigations that predict scholastic achievement should be longitudinal in nature and control for each student's sex, socioeconomic status, ability, and high school academic record.
3. Examination of the influences of the architectural environment on man needs to be continued.
4. College administrators should consider remodeling existing dormitories rather than (1) quit student housing or (2) build new dormitories.

THE RELATIONSHIP BETWEEN PSYCHO-SOCIAL FACTORS AND THE
SCHOLASTIC ACHIEVEMENT OF COLLEGE STUDENTS

by

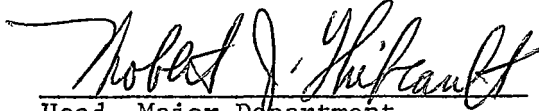
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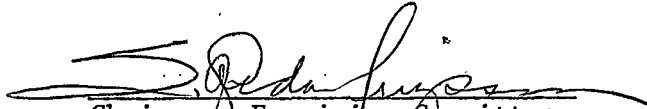
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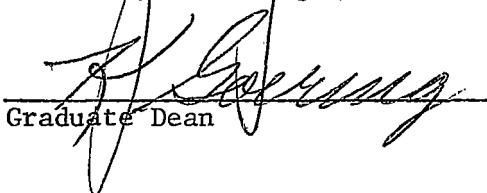
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Approved:


Head, Major Department


Chairman, Examining Committee


Graduate Dean

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ABSTRACT

The purpose of this investigation was: (1) to determine the relationship between academic achievement and the psycho-social and architectural environment that existed within dormitories and (2) to determine what relationship existed between the University Residence Environment Scale (URES) and the College and University Environment Scales (CUES II).

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Based upon this study, several recommendations were made.

Among the recommendations were the following statements.

1. There needs to be greater use made of the findings from psycho-social investigations. Often the findings are only descriptive and no beneficial changes are implemented.
2. Investigations that predict scholastic achievement should be longitudinal in nature and control for each student's sex, socio-economic status, ability, and high school academic record.
3. Examination of the influences of the architectural environment on man needs to be continued.
4. College administrators should consider remodeling existing dormitories rather than (1) quit student housing or (2) build new dormitories.

Chapter I

Introduction

The present decade is an era of increased public concern for the environment. Public pressure has resulted in government officials appropriating large sums of money for environmental research in the physical and behavioral sciences. Physical scientists have tended to use the money to examine man's influence on the environment. Behavioral scientists have tended to use the money to examine the environment's influence on man.

The college campus is one segment of the environment which has been extensively examined. Investigators such as Feller (1968), Sommer (1968), and Titus (1972) conducted research directed at determining how architectural variations within college residence halls influenced students. The purpose of these architectural environmental investigations was to isolate and identify differences in dormitories (e.g., size of rooms, color of halls, intensity of lighting) which were related to student satisfaction and scholastic achievement.

Investigators such as Kauffman (1964), Pace (1966), Astin (1968), and Evans (1970) conducted research to determine how psychosocial environments of different college campuses influenced students. The general consensus of these investigators was that each college has a unique campus environment and that the environment remains fairly consistent over a period of several years. The nature of the

campus environment is believed to influence student behaviors. For example, a campus which is socially conservative tends to cause the majority of students to be somewhat conservative in their dress, habits, and behaviors. The value of psycho-social investigations lies in the use made of the findings. If college administrators are able to identify their campuses' environmental characteristics, they may be in a better position to evaluate the type of students that should be recruited. For example, administrators on some campuses may want to recruit students with certain characteristics in order to maintain the status quo while administrators on other campuses may wish to recruit students with personality characteristics which would diversify the student population. Conversely, if a student knew the environmental characteristics of several college campuses, he would be in a better position to make a selection of which college to attend.

As a result of architectural and psycho-social environmental investigations, college administrators have instituted changes in such environmental characteristics as extracurricular activities, teaching objectives, academic standards, faculty-student relationships, housing regulations, and the architectural construction of residence halls. Brown (1968) and Sprague (1969) expressed the opinion that more information is needed concerning the influence of environmental characteristics on students. Continued investigations into the influence of environments on man may allow behavioral scientists to

build a scientific theory of environmental influences on man. Such a theory would allow behavioral scientists to identify why man's behaviors are satisfactory or unsatisfactory within certain environments.

Student housing, as a segment of the total campus environment, has just recently begun to receive the attention of environmental investigators. This study was an attempt to measure the relationships between (1) two instruments designed to measure student perceptions of a campus's psycho-social environment and (2) student scholastic achievement and selected architectural and psycho-social characteristics of student residences.

Statement of the Problem

The primary purpose of this study was to determine the relationship between selected environmental factors within student residence halls and the scholastic achievement of students. The environmental factors selected for this study are psycho-social and architectural. Furthermore, this study was concerned with the collection of data to contribute to the literature dealing with three research instruments, the College and University Environment Scales, Second Edition (hereinafter CUES II), the University Residence Environment Scale (hereinafter URES), and the Campus Architectural Rating Scale (hereinafter CARS).

Need for the Study

The need for this study was threefold. There is a need on every college campus for administrators to determine whether or not psycho-social and/or architectural factors within student residence halls do influence student scholastic achievement (Lavin, 1965). If psycho-social and/or architectural factors can be isolated and identified, then college administrators can plan the residence hall environment in the interest of students. This was the first need.

A second need for this study was in the realm of evaluating the relative usefulness of URES. In a personal letter, dated October 29, 1971, Dr. Marvin S. Gerst (co-developer of URES and presently Assistant Professor of Psychiatry in the School of Medicine at the University of California, San Diego) expressed his need for this study.

At this point we have a moderate sample of dormitories from primarily California schools and a scattering from other areas, and are just beginning a national data collection project. I would be quite interested in having some data collected at MSU.

While the URES is still technically a "research" instrument, it has gone through two revisions with the result that its psychometric properties are excellent. The feedback from institutions that have used it indicates that they find the scale helpful in conceptualizing psycho-social processes in their residences and in planning and evaluating programs and other resources.

Furthermore, in a telephone conversation with this investigator, Dr. Gerst responded enthusiastically to the possibility of comparing URES with CUES II.

The findings from this study will contribute to the literature, thus satisfying the third need for this study. When this study was conducted, the literature contained few research efforts concerning the influence on students of residence hall environments. Only one research study which used URES has been reported in the literature (Gerst & Moos, 1972).

General Questions to be Answered

This study was conducted to obtain answers to the following questions:

1. What relationship exists between student scholastic achievement and each of the 10 scales on URES?
2. What relationship exists between student scholastic achievement and each of the 29 CARS factors?
3. What relationship exists between each of the 10 scales on URES and each of the 7 scales on CUES II?
4. What proportion of the variance in student scholastic achievement can be accounted for by combining (1) expected grade point average, (2) psycho-social factors, and (3) architectural factors?

General Procedures

To accomplish the stated objectives, a table of random numbers was used to obtain a random sample of 301 subjects. The 301 students

represented 50% of the eligible students residing in four residence halls on the campus. The subjects were drawn proportionate to the total population of eligible students in the four residence halls and proportionate to the male-female population of the four residence halls. The students were enrolled in full-time courses of study and had attended Montana State University for at least two consecutive quarters. Both URES and CUES II were administered to the sample. In addition, each student in the sample was given a rating on CARS depending on the student's place of residence.

The stepwise multiple regression statistic was used to analyze the data. The analysis was made to determine which combination of URES scales, CUES II scales, CARS factors, and expected grade point average best predicted student scholastic achievement.

Correlation coefficients were computed to determine the relationship between (1) the URES and the CUES II and (2) scholastic achievement and each of the URES scales and CARS factors.

The level of significance was set at .01 in all cases.

Limitations and Delimitations

The population consisted of 301 students drawn from the sophomore, junior, and senior classes at Montana State University during the 1971-1972 school term. These 301 subjects represented

50% of the eligible students residing in four residence halls on the campus. The subjects were drawn proportionate to the total population of eligible students in the four residence halls and proportionate to the male-female population of the four residence halls. The subjects were enrolled in full-time courses of study and had attended Montana State University for at least two consecutive quarters.

Definition of Terms

The following terms are defined as they were used in this paper:

Architectural factors. The term architectural factors refers to variations in the architectural design of residence halls. Some architectural factors investigated in this study are size of room, color scheme in room, view from window, and accessibility to library.

Expected grade point average. This term refers to the numerical expected grade point average computed for each student. The Testing and Counseling Office at Montana State University computes the expected grade point averages from students' scores on the entrance (freshman) test battery and the students' high school grades.

Full-time student. A full-time student is a student who is enrolled in seven hours or more of academic credit.

Institutional environment. The term institutional environment encompasses the intellectual, social, cultural, and physical atmosphere of the campus.

Living unit. The living unit is the actual physical residence of the student. The living unit is the entire building, residence hall, or dormitory.

Perception. The term perception, as used in this study, refers to attitudes, opinions, or feelings which consciously or unconsciously influence an individual's view of a place, person, or situation.

Psycho-social factors. The phrase psycho-social factors encompasses the psychological and sociological influences which the individual perceives to operate within his living-unit or on his college campus; the reference is to sources of influence other than such architectural factors as color of room or intensity of lighting in the halls.

Scholastic achievement. The term scholastic achievement refers to the computed grade point average of the student. In this study the grade point average was computed using only the grades the student earned during the 1971-1972 school term.

Summary

Behavioral scientists have long been aware of the importance of the psycho-social and architectural environment on man. Investigators such as Titus (1972) and Evans (1970) have attempted to determine how the environment influences man. Brown (1968) and Sprague (1969) have expressed the opinion that more information is needed concerning the influence of the environment on man.

Student housing, as a segment of the total campus environment, has just recently begun to receive the attention of environmental investigators. This study was an attempt to measure (1) the relationship between two instruments designed to measure student perceptions of the psycho-social environment of a campus and (2) the relationship between student scholastic achievement and selected architectural and psycho-social characteristics of student residence hall environments.

In this introductory chapter, a brief statement has been made regarding the problem, the importance of the study, and the scope of the study.

Chapter II presents a review of selected literature pertinent to this study.

Chapter III contains a description of the population, research instruments, and procedures used in the study.

Chapter IV includes the results and the description of the results.

Chapter V includes the study's findings, conclusions, and recommendations.

Chapter II

Review of Selected Literature

The purpose of this chapter was to review literature related to selected aspects of this study. The literature has been organized into four categories. The first category is composed of literature which relates to certain demographic differences in university housing upon student attitudes and scholastic achievement. The second category presents a review of recent trends in university housing. The third category contains literature relating to the development and use of two instruments, the CUES II and the URES. Category four is concerned with factors which have been used to predict the scholastic achievement of college students. A summary of the presented literature concludes the chapter.

The Influence of Demographic Differences Upon Student Attitudes and Achievement

Policy decisions related to university housing are influenced by the philosophies of university administrators. Administrative philosophies regarding university housing may be categorized as either traditional or contemporary. Administrators who adhere to traditional philosophy attempt to have absolute control over where students reside. Administrators who adhere to contemporary philosophy are neutral and unconcerned about where students reside. The influence that college housing types and policies have on student attitudes and scholastic

achievement has been examined in the literature. The following section contains selected findings from the literature concerning the influence of demographic differences in university housing upon student attitudes and scholastic achievement.

A Comparison of Student Attitudes
and Achievement by Types of Housing

Numerous investigators have focused on the differences between students living in different types of housing: home, residence hall, off-campus, or Greek housing. Several of these investigations are summarized in the paragraphs which follow.

Baird (1969b) investigated the influence college residence had X on students' "self-concepts," goals, and achievement. His sample included 5,129 students who lived in dormitories, fraternities, or sororities, off-campus apartments, on-campus apartments, off-campus rooms, and at home. Fraternity and sorority students had more college social achievements but were not found to have superior grade point averages. Baird concluded that place of residence had little effect on the scholastic achievement of students.

The relationship of residence and economic factors to the first semester scholastic achievement of freshmen male students at Oklahoma State University were examined by Starks (1971). He administered each of the following instruments: (a) Survey of Interpersonal Values, (b) Survey of Study Habits and Attitudes, and (c) Guilford-Zimmerman

Temperment Survey. In addition, ACT scores for each student were acquired from the American College Testing Program and a questionnaire was developed and used to obtain socioeconomic data on each student. The students were then grouped according to whether they lived in a dormitory, in a fraternity, or off-campus. No significant differences were found between the three living groups on both the Survey of Interpersonal Values and the Guilford-Zimmermen Temperment Survey. The fraternity men were found to have placed a greater value on sociability while the off-campus men placed a greater value on independence. The findings raised a question about the extent to which a student's preference for different types of housing is related to values which the student holds.

Magoon and Maxwell (1965) investigated place of residence as a demographic difference which might distinguish high and low achieving students. A sample of 287 students was drawn from a list of University of Maryland students who earned a grade point average of 3.5 or more on a 4.0 scale. For a contrasting group, a sample of 225 students from the same college and sex groupings was drawn from a roster of students who had been academically dismissed or placed on probation for low grades. Place of residence while attending the University did not significantly differentiate high-achieving from low-achieving students.

The relationship between types of housing at Kansas State Teachers College and selected academic and behavioral factors was

investigated by Christie (1969). He identified the students who lived in residence halls, sororities, or small complexes, or who were commuters, or married students. Christie concluded there was no significant relationship between a student's choice of housing and his sex, disciplinary status, grade point average, or persistence in school attendance.

Ryan (1970) utilized a biographical and attitudinal survey with a sample of 1,416 Villanova University freshmen. The students included in the sample had been permitted to live wherever they wished. The sample was divided into three categories: (a) those living on campus; (b) those living at home; and (c) those away from home but living off campus. No significant relationship was found between type of college housing and student scholastic achievement.

Students living in three types of housing were interviewed by Ridge (1969). Students living in off-campus housing and students in Greek housing were found to have no more positive attitudes towards their campus environments than did dormitory residents. On-campus students who desired to live off campus reported a need for increased freedom and responsibility and for improved living conditions.

Willingham (1962) compared freshmen fraternity members and independent students on the basis of attrition and grades. One finding indicated that fraternity pledges have somewhat lower attrition rates during the freshmen year. Another finding was that relative to

ability, independent students and fraternity members earn comparable grades. Willingham concluded that social ties in fraternities probably reduce the number of pledges who drop out of college for non-academic reasons.

The preceding review of selected literature indicated that the type of residence in which a college student lives has little, if any, influence over his scholastic achievement. The literature which follows suggests that a student's selection of his college residence does have a profound influence over his developmental maturation and life goals.

Havighurst (1953) stated that all humans are constantly in the process of developing. He proposed eight major periods through which each healthy individual passes during his lifetime. Each of these periods contains specific developmental tasks which the individual must perform. A developmental task may be defined, according to Havighurst, as a task which occurs at specific periods in an individual's lifetime. Successful performance of these tasks results in happiness and leads to successful completion of future tasks. Failure with developmental tasks results in unhappiness, disapproval by society, and difficulty with future tasks.

The developmental task of the college student involves the basic problem of learning about himself (Havighurst, 1953; Erikson, 1959). The college student must begin to answer many questions: Who

am I?; What are my life goals?; How can I cope with my new responsibility for "self-independence"?. College students are involved in an active process of testing different value systems and roles.

The different settings in which college students live (i.e., home, college residence hall, or off-campus apartment) provide different atmospheres in which the students may test value systems and life roles. These characteristic settings, as defined by Segal (1967), will be described before considering the effect of each type of residence setting on the development of students.

Characteristics of home. This atmosphere differs little from when the college student was in high school. Graduation from high school seldom allows the college student living at home to markedly alter his behavior. Parents are still present and are still giving support. The college student is not suddenly given mature adult status within the home. If the college student living at home does something which violates his parents' value system, he is going to receive the same critical evaluation he received as a high school student. In this setting developmental maturation occurs within the atmosphere of long established family relationships. Peer influence is not dominant.

Characteristics of the college residence hall. A student's residence hall is the physical structure within which the student

resides while living on the college campus. In this environment the college student can gradually break his dependence on his parents and begin to grow towards independence. Generally, the authority within the residence hall is impersonal when compared to the highly personalized authority of parents. Peer pressure is intense. Residence hall living exposes the student to many peers who are also involved in the process of testing their value systems.

Characteristics of college students' off-campus residences.

Living at home is a continuation of the high school experience. Residence hall living is a gradual change towards independence. Off-campus living provides an opportunity for the college student to experience being responsible for himself within an adult society. He must live by society's rules, not necessarily by his parents' values nor his college's regulations. What a student does within his off-campus residence is his own business as long as he respects the general rules of society.

Each of these three types of college student residences provides different atmospheres in which the students may perform their developmental tasks. Segal (1967) has described the influence college residence has on the developmental maturation of students. The paragraphs which follow summarize Segal's descriptions.

The student living at home. The family is readily able to recognize changes in the student's behavior which represents a desire for independence and a trying out of different value systems. The student living at home is likely to receive spontaneous evaluation of his behavior from his family. This rapid evaluation may result in the suppression of certain behaviors before the developing college student formulates his own judgment. Segal (1967) stated that the student residing at home often receives " . . . rapid evaluation that may push to more intense rebellion than is readily necessary and with no peer pressure immediately available as a further training ground (Segal, 1967, p. 310)."

The student in the college residence hall. In residence halls, rules are impersonal. The student is free to try out new value systems. The student residing in a residence hall is able to look at his peers and observe what they are doing and how they are testing their values. The residence hall environment does impose some restrictions on the student, e.g., in an impersonal atmosphere in which the group is emphasized, the student may feel extreme pressure to act like his peers and not to be different.

The student in off-campus residences. The student residing off campus has all of the advantages and disadvantages of adult living. He has to shop, cook, budget, and carry out the garbage. He is allowed

to behave as he wishes as long as he does not violate the values of society. Without adult supervision, this student can experiment to extremes with his value system. With this additional freedom there are also additional hazards, e.g., fewer models offering examples of how to behave and fewer opportunities to see different resolutions of conflicting values.

The preceding paragraphs have described how residential settings for college students offer different environments within which the college student may work towards his developmental maturation. Each setting has the potential to advance the student's development. The three investigations reported in the following paragraphs report the influence college residences have exerted on students.

Alfert (1968) found that a student's stage of development influenced his choice of residence while attending college. The more mature students at the University of California tended to select off-campus living where they could exercise their developing independence. The more immature students preferred to reside at home while attending college. Residence halls seemed to provide an intermediate housing service. Students who were in the process of attempting to decrease parental supervisory functions and were experimenting with new roles and values tended to prefer residence halls.

Chickering (1969) examined characteristics, attrition, and development of students over a five-year period in 13 small colleges.

Individual growth and development for some students was found to be fostered by living in a dormitory. Individual growth and development was inhibited for other students living in the same dormitory.

Cooley (1963) found the place of student residence to be related to the student's vocational choice. Cooley's subjects were all graduates of public high schools in eastern Massachusetts. They presumably could have resided at home while attending the five nearby colleges represented in the investigation. No significant socio-economic differences existed among the subjects. Cooley examined the records of all his subjects who entered graduate school after completing undergraduate programs. Graduate students who majored in science tended to have resided outside their home during their undergraduate years in college. Graduate students not in science curriculums tended to have resided at home during their undergraduate programs.

The literature reviewed led to the following two conclusions. First, place of residence had little effect on the student's grade point averages. Second, place of student residence had considerable influence over students' developmental maturation. Why, then, do so many college and university administrators require their students to live in specified facilities without regard to the students' individual differences and needs?

One answer is that large amounts of money have been invested in on-campus residence halls. The universities need to have these

buildings occupied in order to meet the press of debts incurred by construction.

The literature suggests another reason why students are often required to reside in specified facilities. Parents seem to favor a strengthening of the university's traditional role of imposing strict rules on campus conduct; this includes telling students where they are to live. Two research efforts conducted at the University of Oregon concerned the influence parents have on where their children live while attending college. These studies are described in the following paragraphs.

Johnson, Bowlin, and Ellis (1968) failed to study the influence on scholastic achievement of student's place of residence. Their failure was caused by the refusal of parents of University of Oregon freshmen male students to grant permission for their children to live off campus. Postcards were mailed to the parents of these students. On the returned postcards, only 2.7% of the parents indicated they would allow their sons to live off campus. Only 21 of the 788 eligible freshmen males had received parental permission to live off campus.

Two years later, Ellis and Bowlin (1970) investigated parents' and students' attitudes toward off-campus living at the University of Oregon. Their survey revealed sharp differences in attitudes. The parents wanted their children to live on campus, while the college students tended to favor off-campus living.

At this point in the review of literature, the evidence seems to indicate that no single type of housing is best for all students. Students need to have housing while at college which meets their individual needs and differences. Expenses incurred in the construction of residence halls and parental attitudes seem to be important factors which are resulting in college housing policies that are often unpopular with students and unsympathetic to student needs.

A multitude of factors other than place of residence have been examined to determine their relationships to the scholastic achievement of college students. A descriptive presentation of some of these factors follows.

The Influence of Residences'
Physical Factors on Student
Attitudes and Achievement

Research relating to behavioral and psychological influences of physical environment was reviewed by Drew (1971). He discovered that researchers were interested in determining what behavioral changes occur when physical environments are changed. He also discovered that research in this area was sporadic and contaminated by unsophisticated methodology.

Research into the influence of physical aspects of student housing on student behavior can be divided into two major categories:

- (a) research using the residence hall as the unit of analysis and
- (b) research using the student's own room as the unit of analysis.

The majority of investigations used the residence hall as the unit of analysis. The following paragraphs contain selected examples of research which used the residence hall as the unit of analysis.

Fairchild (1963) was concerned with the impact of residence hall size on the personalities of students. She stated that living units which have over 30 occupants tend to foster "qualities of anonymity and irresponsibility characteristic of bureaucracy . . . (Fairchild, 1963, p. 173)."

The influence of the size of the living unit on student behavior was also investigated by Sinnett, Sachson, and Eddy (1972). These investigators found residents of small dormitories generally more pleased with their living facilities than were residents of large dormitories. Group formation and interpersonal relations were more easily developed in small dormitories than in large dormitories.

Feller (1968) examined the effect of varying corridor illumination on the noise level in a residence hall at the University of Iowa. He used four portable noise meters over a four-day period to determine the average level of noise in each of four corridors. During the same four days of the following week, he determined the average noise level of the same four corridors. During the second week Feller lowered the illumination in each corridor from 75 watts to 40 watts. A reduction in corridor illumination in dormitories was found to be a practical way to reduce noise in the dormitory.

Many students were housed in a motel near the campus while dormitories at the State University of New York at Albany were being constructed. Goldman (1966) utilized the Mooney Problem Check List, the California Test of Personality, and grade point averages to determine what influence emergency housing facilities had upon student adjustment and grade point averages. He compared the students living in the motel with matched-pairs of students living in dormitories. Goldman found college students were able to adapt successfully to emergency housing facilities. Neither student adjustment nor grade point averages were hindered.

Tentative conclusions from the four investigations described in the preceding paragraphs are: (a) students living in large dormitories have a feeling of anonymity; (b) small dormitories are more conducive to the development of interpersonal relationships than are larger dormitories; (c) if noise is an irritating factor in a dormitory, a reduction in corridor illumination may result in a reduction of the noise; and (d) college students are able to adapt to temporary housing conditions without adverse personality and grade-point-average changes.

The preceding research used the residence hall as the unit of analysis. A less popular approach is to use individual student rooms as the unit of analysis. The most prolific investigator using this approach is Robert Sommer. Sommer and his associates have visited many

campuses and interviewed students in over 1,000 dormitories. The following paragraphs describe some of Sommer's findings.

Gifford and Sommer (1968) visited student rooms on eight campuses to determine (a) whether the student or students were studying immediately prior to the visitation and (b) the location in the room where the students were studying. Few students were found to be studying at their desks. When the student chose to study at his desk, it was generally because his assignments required a firm surface. For many assignments, students preferred large surface areas (e.g., the bed or the floor) over their desks. These investigators then compared their findings with the grade point averages of the students. No significant differences in grade point averages were found between students who were studying at their desks and students who were studying elsewhere in their rooms.

The relationship between the odds that a student will be studying in his room and the number of individuals in the room was examined by Sommer (1969b). He found an inverse relationship between studying and occupants. As the number of occupants in the room increased, the odds were less that the occupants would be studying.

Sommer (1968) reported student reactions to four types of housing (i.e., apartment units, small cluster residence halls, two high rise buildings, and three reconverted army barracks). The barracks were the most aesthetically unpleasant of the four types of housing.

In addition, the barracks had the poorest soundproofing of the dormitories. The administration, however, usually had a long waiting list of upperclassmen waiting to move into the barracks. Sommer wanted to determine why the barracks were such popular student residences. An examination of the rooms and interviews with the residents revealed that the barracks were the only rooms which afforded the residents visual privacy. For the students, visual privacy was more important than auditory privacy.

Student rooms need to be as varied as the students who live in them (Sommer, 1969a). Graduate students need facilities different from those of undergraduates. Males need facilities different from those of females. Science students need facilities different from those of art students. Sommer found that most dormitories were built with all rooms the same. The rooms often had unmoveable furniture which would not allow the student to modify the room to suit his needs. Dormitory policy often restricted students from hanging pictures and making any adaptation within the rooms. Sommer (1969a) and Geeslin (1971a, 1971b) concluded that dormitory facilities need to be built in such a way as to provide for as many individual differences as possible. Housing policies need to be developed to allow students to arrange the rooms to meet their individual needs.

A final study seems pertinent at this point. Titus (1972) asked students to express their housing needs and preferences. The

following matters were found to be important to the students:

1. convenience (physical arrangement)
2. freedom
3. location
4. quietness and privacy
5. price
6. easy access to meals
7. short distance to classrooms
8. student's role in establishing control and regulations
9. freedom to entertain the opposite sex
10. freedom to decorate own rooms
11. living with a few close friends
12. baths shared by not more than 10 people
13. refrigerator permitted in rooms
14. moveable furniture
15. convenient parking spaces
16. outside physical activity space
17. recreation room and television room in residential unit, and
18. adequate study area in student rooms

In this chapter, literature was reviewed to determine what influence physical aspects of housing have on student attitudes and scholastic achievement. The following conclusions are apparent:

1. Sporadic research efforts have appeared in the literature.

2. Weaknesses in the research methodology are apparent.
3. Two general approaches have been taken, i.e., the total hall as the unit of analysis and the individual student room as the unit of analysis.
4. The larger the hall the less desirable it is to students.
5. Visual privacy is more important to students than auditory privacy.
6. Student grades are not influenced by the location in a room the student studies.
7. Although college students can adapt easily to their living units, the units should be designed to allow for individual differences among students.

The preceding literature was reviewed to determine the influence of the location of residence and factors within housing which influence student behavior. The literature reviewed in the section which follows concerns whether student behaviors are influenced by proprietorship of an automobile.

Achievement and Proprietorship of an Automobile

In a previously cited study, Magoon and Maxwell (1965) compared the grade point averages earned by students who had automobiles and students who did not have automobiles. They selected 287 students at the University of Maryland who had earned a grade point average of 3.5

or higher on a 4.0 scale. For comparative purposes, a sample of 225 students was selected from a roster of students who had either been dismissed or placed on academic probation. Ownership and use of an automobile did not differentiate the successful students from the unsuccessful students.

Brandes (1966) also compared grade point averages of students with automobiles and students without automobiles. He drew a random sample at Ohio University of 200 students with automobiles and 200 students without automobiles. The sample was stratified by class. No significant difference in grade point average was found between students with automobiles and students without automobiles.

At the University of Oregon, Hawk and Bowlin (1965) examined the effect of automobile ownership on "typical" freshmen. "Typical" freshmen were defined as freshmen students between the ages of 17 and 19 years, single, living in dormitories, and in their first term of college. Hawk and Bowlin found only 104 typical freshmen had brought automobiles to the campus. The control group (freshmen with automobiles) was matched with 104 typical freshmen without automobiles. The two groups were matched by sex, number of hours spent in part-time jobs, predicted grade point averages, and parents' educational level. The investigators concluded that grade point average was not significantly related to automobile ownership.

Christiansen (1967) examined the relationship between student

adjustment and the proprietorship of automobiles. The population was 232 winter quarter freshmen at Brigham Young University. Four groups were determined by categorizing students with respect to their use of an automobile. These four categories are described below.

Group 1. Students who needed automobiles and drove (resided outside a radius of eight blocks from the campus).

Group 2. Students who did not need automobiles and drove (resided within a radius of eight blocks from the campus).

Group 3. Students who did not need an automobile and did not drive (resided within a radius of eight blocks from the campus).

Group 4. Students who commuted (resided outside of the Provo-Orem, Utah area).

Only students who entered Brigham Young University directly from high school were studied. Married students and older students were excluded since they could all be justified in owning an automobile. Also excluded were students who needed automobiles and did not drive. These students were assumed either to live near or with someone who gave them rides or to live near public transportation facilities.

Christiansen defined "adjustment" to mean (a) scholastic achievement as reflected by the student's grade point average and (b) personality characteristics as measured by the nine-component

personality scales of the Minnesota Multiphasic Personality Inventory.

The findings indicated that student use of an automobile did not relate to scholastic achievement or personality traits.

The four investigations which were reviewed were found to be in agreement. A college student's grade point average is not influenced by ownership or use of an automobile. Investigators concerned with the impact of environmental influences on the scholastic achievement of college students need not control for proprietorship and use of automobiles within the populations being studied.

Selected literature concerning whether a residence hall's closing hours influences scholastic achievement is discussed in the following section.

Achievement and Residence Hall Closing Hours

Two investigations were found which examined the relationship between scholastic achievement and the closing hour policies of residence halls. Houtz and Norris (1968) found no significant change in scholastic achievement when no closing hour policy existed for senior women.

MacKay and Nelson (1970) investigated the influence of closing hours on scholastic achievement of sophomore women at Western Washington State College. Sophomore women residing in the residence halls during the 1966-1967 school term were subjected to closing hour regulations.

They comprised the control group. The sophomore women residing in the residence hall during the following year were not subjected to closing hour regulations. These 1967-1968 sophomore women comprised the experimental group. Adequate matching of the two groups was assumed because (a) both classes had been subjected to the same general curricular patterns, (b) a large number of students were included in the population, and (c) both classes had been admitted under the same policies. In addition, an analysis of covariance was performed to control for possible differences in academic aptitude of the two groups. No significant relationship was found between scholastic achievement and the closing hours of residence halls.

Many investigators have examined the relationship between scholastic achievement and room assignment policies. The following section contains descriptions of such investigations.

Achievement and Room Assignments

"The assignment of students to rooms and buildings may be the most significant educational program conducted through housing (Riker, 1965, pp. 11-12)." Riker reported that most colleges and universities assign students to rooms based on such criteria as (a) when the student applied for the room or (b) the undergraduate class to which the student belongs. These procedures tend to result in heterogeneous roommate groupings. The literature contains investigations concerning whether different roommate grouping procedures influence scholastic

achievement. Four investigations concerning the effect of ability grouping upon roommates are reported in the following paragraphs.

Roommates assigned by ability. Hall and Willerman (1963) examined the influence college roommates had upon the grades, study habits, and other activities of each other. They paired dormitory roommates with various combinations of academic ability. They also conducted a similar correlation study on roommates who had selected one another. Controlling for academic ability, students with high-ability roommates obtained better grades than students with low-ability roommates.

Freshmen males attending California State Polytechnic College during the fall quarter of 1956 and 1957 were studied by Murray (1960). First, he examined the grade point averages of students who lived alone. These students earned grade point averages not significantly different from the grade point averages of other students with similar ability. Murray also compared the grade point averages of students with the ability of their roommates. Roommate ability tended to be in a negative direction, i.e., the grades earned by the roommate of higher scholastic ability tended to move in the direction of grades earned by the roommate of lower ability.

DeCoster (1966) studied the effects of homogeneous housing assignments for high-ability students during the 1963-1964 and 1964-1965 school terms. High-ability students were defined as those who had

earned at least a 90th percentile rank among Florida State University students on the School and College Ability Test (SCAT). During the 1963-1964 school terms, a 25% concentration of high-ability students were assigned to two living units for women and two living units for men. The 25% concentration did not influence the scholastic achievement of the high-ability students. During the 1964-1965 school term, the concentration of high-ability students in these same four dormitories was increased to 50%. The 50% concentration was found to make a significant difference. The high-ability students living in close proximity to one another had higher scholastic achievement than did the high-ability control group students assigned randomly to identical physical living groups.

During the 1965-1966 school term at Florida State University, DeCoster (1968) continued his earlier experiments. He increased the concentration of high-ability students living in the four dormitories from 50% to 100%. He compared the high-ability students in the four dormitories with a control of randomly assigned high-ability students. The high-ability students living in a 100% concentration were found to have a higher level of scholastic achievement and to perceive homogeneously assigned living units as more desirable. In addition, DeCoster stated that he was convinced housing personnel could make important contributions to learning by utilizing more enlightened assignment procedures.

Literature reviewed in the preceding paragraphs indicates that the ability of a student may have a pronounced influence on the scholastic achievement of his roommate.

Researchers have investigated whether roommate assignments based on the curriculum major of the students influence scholastic achievement. Four investigations of this nature are reported in the following paragraphs.

Roommates assigned by curriculum. Volkwein (1966) matched freshmen male roommates according to their ages, their academic major, and size of their high school. He found no significant differences in the number of roommates who requested roommate changes between students matched by the three variables and randomly assigned roommates. Volkwein concluded that roommate compatibility was not increased by assigning students to rooms based on age, academic major, or the size of the student's high school.

Elton and Bate (1966) attempted to determine the effect a University of Kentucky housing policy had on the grade point average of students. The housing office assigned freshmen students to rooms occupied by students with similar majors. Assigning students to housing according to similarity of academic major did not significantly influence first semester scholastic achievement of the students. In addition, a student's first semester grade point average was not found to be an accurate predictor of the grade point average of his roommate.

Crew and Biglette (1965) found a degree of scholastic similarity between roommates. They compared academic performance of freshmen male roommates with that of the freshmen male population at the University of Maryland. Roommates who had taken the same courses as freshmen were identified. A comparison was made between the predicted and earned grades of these students with the predicted and earned grades of the general population of freshmen males taking the same courses. Living together and taking the same courses was found to influence academic achievement of roommates.

Brown (1968) arranged freshmen room assignments so that (a) the ratio of science students to humanities students was four to one on two floors of a residence hall and (b) the ratio of humanities students to science students was four to one on two other floors. On one science dominated floor and one humanities dominated floor, a series of intellectual discussions were held. The dominance of a vocational group had a significant impact on the feelings about college major, satisfaction with college, and social interaction. On all floors a significant number of the minority curriculum group students switched to the curriculum of the majority group. On both floors where discussion groups were held, the students tended to become more active in science or humanity activities respectively than did the students who had no intellectual discussions on their residence hall floors.

In this section, four investigations were described which

researched the problem of whether roommate assignments based on the curriculum major of the students influenced scholastic achievement. Three investigations which examined the impact of high concentrations of freshmen within a residence hall are described in the following section.

Roommates assigned by class standing. Beal and Williams (1966) compared University of Oregon freshmen living units, upperclassmen living units, and mixed-class undergraduate living units. They used biographical data, academic and disciplinary records, and an attitude questionnaire. Scholastic achievement of the students was not related to the concentration of freshmen in the residence hall.

Another examination of the relationship between the percentage of freshmen in a residence hall and the grade point averages of the occupants was made by Herbert (1966). His sample consisted of 1,783 freshmen male students living in four dormitories. No significant difference was found in the relationship between the percentage of freshmen assigned to a residence hall and the scholastic achievement of the residence hall as a total unit.

Chesin (1967) examined the effect of assigning freshmen males to (a) freshmen-only residence halls and (b) to halls with students of all undergraduate classes. He concluded that the presence of upperclassmen in a dormitory is not a significant factor in influencing the attitudes, values, or behaviors of freshmen male students.

The preceding literature reviewed in this chapter has been concerned with the influence of selected demographic differences in university housing upon student attitudes and scholastic achievement. The literature which follows describes recent trends in student housing.

Recent Trends in Student Housing

Between the years 1955 and 1965, the number of high school graduates increased by 85%; the number of those graduates who went to college increased by 110%. In 1970, more than 50% of the 18-year-olds entered college; in 1950 only 25% of the 18-year-olds entered college. Between 1950 and 1970, the total number of institutions of higher education increased from 1,850 to 2,500. Between 1950 and 1970, the average enrollments for the institutions of higher education doubled (Newman, 1971).

Between the years 1950 to 1970, colleges and universities were pressed to provide enough student housing to meet the demands. Faced with such pressures, dormitories were quickly planned and constructed throughout the country. It was inevitable that many of these dormitories were built keeping in mind the beds per square foot rather than the quality of life per square foot (Tolmach, 1971). After extensive research, Green stated:

The dormitories built in the last fifty years were not . . . designed as places of discovery, nor were they designed as laboratories for experimenting with different life-styles. University administrators have assumed the obligation of providing

efficient, compact housing for a maximum number of students in minimum space, if possible close to classes, otherwise on available land. They have built indestructable, inflexible structures, measuring the living area in terms of either "beds" or "spaces." Physical layout resembles turn-of-the-century prisons, monoliths of concrete and brick. A relentless corridor cuts each floor, separating double-occupancy rooms. Gang baths bedeck either end of the corridor. Dining halls and impersonal lounges that look like bus terminals complete the picture. If a house mother and rules are added, the result is instant prison for the hapless student who has to live there (1972, p. 12).

During the past few years, college enrollments have leveled off and dormitory occupancy has dwindled. Dormitories throughout the country are operating at an 80% occupancy rate (Tolmach, 1971; Green, 1972; Graves, 1972). Some dormitories have been closed due to insufficient numbers of students (Tolmach, 1971). The increased vacancy rate in dormitories is not only a reflection of the leveling off of the college enrollment. It is also a reflection of (a) increasing student dissatisfaction with existing dormitories, (b) student preference for off-campus living, and (c) the increasing popularity of the two-year community college (Adams, 1972).

The leveling off of college enrollment, probably will not continue for long. Statistical projections by the Office of Education and the Census Bureau indicate that college enrollments will increase 50% by 1980 (Adams, 1972; Green, 1972). This means that an additional two million students will be seeking some type of student housing in the next seven years. Although these statistical projections may cheer some college administrators, many administrators believe that a

problem of significant magnitude has arisen.

An increasing number of students are dissatisfied with the student housing that they have been offered. These students, in increasing numbers, are electing to pay higher rent fees in order to live in substandard off-campus housing. College administrators must decide whether the projected increase in college enrollments will increase demand for on-campus student housing or whether the occupancy rate in the present facilities will continue to drop as more students reject the existing facilities (Geeslin, 1971a; Graves, 1971). The college administrator is faced with three basic alternatives, i.e., he may elect to get out of the student housing business altogether, he may build new dormitories which are attractive to students, or he may remodel the existing dormitories. Each of these alternatives is discussed in the next three sections.

Quit the Student Housing Business

Student housing was previously described in this chapter as a developmental bridge between the student living at home and the student living off campus but not at home. Many students need to break the ties from home slowly, and student housing appears to be a practical means by which students can do so. Without student housing, many students would be forced to live in off-campus residences before they were developmentally ready for such independence. Therefore, student housing may be seen as important to the developmental maturation of

some students (Segal, 1967).

Another important aspect of student housing is the cost of living in student housing. Compared with off-campus housing units in many college towns, student housing is economical (Green, 1972). Some students could not afford to attend college if their housing fee increased significantly. Therefore, student housing is important in providing low-cost housing for students that cannot afford to live off campus (Chase, 1972; Schuh, 1973).

College administrators need to give careful consideration to the impact of their getting out of the student housing business altogether. The impact on some students may be detrimental.

Many colleges and universities have already begun to get out of student housing. The Association of Colleges and Universities reported that 78% of the institutions of higher education do not plan any dormitory construction during the next two years. The Department of Housing and Urban Development has \$300 million available for university housing loans, but few institutions of higher education are applying for these funds (Adams, 1972).

The State University of New York has cut back residence hall construction by \$400 million. All the State University of New York campuses are to become mainly commuter campuses. Northern Illinois University and the University of Massachusetts have discontinued all future dormitory construction for an indefinite period of time (Tolmach, 1971).

Kutztown State Teachers College has attempted a unique approach to providing student housing. The College has arranged for a private corporation to construct and lease modular townhouse apartments. Many of the students are willing to pay the higher fee necessary in order to live in the townhouse apartments. In this manner, the college is providing student residences while it is divesting itself of the housing business (Cuneo, 1972).

Rather than get out of student housing, some colleges and universities have elected to build new dormitories that are attractive to students. In the next section are the results which have been found by institutions that have built attractive housing for students.

Build Dormitories Attractive to Students

In 1971 the Educational Facilities Laboratory, New York, New York, funded a research project to determine what students wanted in their dormitories. Students who had moved off their college's campuses expressed a desire to return to campus if there were:

1. a variety of living options from which to choose,
2. a chance for small groups to establish a feeling of closeness through shared interests,
3. privacy, meaning control over one's environment and an absence of rules and regulations, and
4. the option of renting rooms without board (Green, 1972, p. 12).

There is no ideal dormitory arrangement. Students, as individuals, want rooms that reflect their individual differences. Some students want coeducational dormitories, while others want

apartments or special interest dormitories. Within the dormitories the students want permission to paint and hang pictures; they want to be able to select furniture from a central storage area (Geeslin, 1971; Titus, 1972; Schuh, 1973).

San Francisco Theological Seminary has elected to built new student housing that will be attractive to students. The Seminary built townhouse apartments for students comparable to the housing available throughout the city. The Seminary administrators reasoned that quality housing would attract students; if not, then the housing could be rented or leased to private citizens. So far, the Seminary reports that students have reacted favorably to the townhouse apartments and high occupancy rates have been obtained (Switzer, 1971).

The literature (e.g., Tolmach, 1971; Switzer, 1971) indicates that new dormitories can be built that will be attractive to students. The key to these new dormitories is variety and allowance for individual differences (Davis, 1971; Chase, 1972). University administrators should, however, investigate the possibility of remodeling existing dormitories before investing in new dormitories.

Remodel Existing Dormitories

The College Housing Branch of the U.S. Department of Housing and Urban Development (HUD) believes that the student housing challenge for the next decade is the remodeling of existing dormitories.

Many colleges (e.g., University of Kansas, University of

Massachusetts, Oberlin College, and American University) have had successful experiences with dormitories that they have remodeled. Dormitories that were "always" well below total occupancy are now experiencing a waiting list of students seeking to live in the newly remodeled structures. Seniors are even wanting to move back on campus if they can live in the remodeled dormitories. Campuses that remodeled dormitories report that dormitory destruction has significantly decreased (Tolmach, 1971; Graves, 1972; Schuh, 1973).

Each dormitory that is remodeled offers the students the opportunity for more choice in housing than before. For example, if the administrators of a college decided to remodel three dormitories, a wide variety of student housing can be offered to the students. One dormitory may offer few luxury features but be popular because of its bargain rent. Another dormitory may be a luxury apartment with maid service and private phones. The third dormitory may be a student-run cooperative. The dormitories that were not remodeled would offer conventional dormitory features to students. The remodeling of only three of several dormitories would enable a college to offer a wide variety of types of student housing.

In summary, whether a college builds new dormitories or remodels the existing dormitories does not matter. The point is that when students are given a choice in type of university housing, occupancy rates climb.

The literature reviewed in the following paragraphs pertains to the development and use of two instruments designed to measure students' perception of the psycho-social climate of a university.

Two Instruments Which Measure Universities'
Psycho-social Climates

Approximately 15 years ago the College Characteristics Index (hereinafter CCI) was developed by Pace and Stern (1958). This was the first instrument which would allow behavioral scientists to assess the characteristics of a university environment. Since the advent of the CCI, several similar research instruments have been developed. Two of these newer instruments, the CUES II and the URES, were used in this investigation. The following two sections pertain to the development and use of both of these newer instruments.

The Development and Use of
CUES II

The original edition of CUES II, CUES, was developed by Pace (1963) following a careful analysis of two earlier instruments, the CCI and the Activities Index (hereinafter AI). A brief description of the CCI and the AI precedes the detailed description of the development and use of CUES II.

The CCI. Feeder (1965) reported that an entirely new area of behavioral research exploration was initiated by Pace and Stern's (1958)

investigation into the characteristics of college environments. Pace and Stern's 1958 investigation and subsequent investigations into educational environments were based on a sociological view of schools. Each school was viewed as an organized institution which had unique norms and goals. The nature of these norms and goals were believed to influence the overall climate of the school (Waltz & Miller, 1969).

The CCI was developed by Pace and Stern (1958). This was the first in a series of instruments designed to measure students' perceptions of their college environments. The instrument was based on a modification of H. A. Murray's (1938) needs-press personality theory. According to Murray's theory, a "press" is an external pressure within the environment which is relevant to the satisfaction of or the frustration of a need. The internal counterpart of press was called "need" by Murray. Stern (1963) wrote that both needs and press can be inferred from characteristic daily activities and events. Needs are what the individual does. Press is what is done to the individual in a given environmental setting.

The press concept was used to determine the types of items composed for the CCI. The CCI is a "True-False" instrument which was developed to allow respondents to describe their college environments. The statements describe activities, policies, procedures, attitudes, and impressions that might be true of various undergraduate environments. The CCI statements are organized into 30 ten-item press scales. Although

the environmental press concept determined the types of items to be included, it was of no help in deciding content. To determine content of the items, Pace and Stern relied on their own knowledge of higher education and their own judgment as to what aspects of the college environment were meaningful to students and educators.

The AI. As previously described, the press concept was used to determine the type of items composed for the CCI. Press items were presumed to be the environmental counterpart of personality needs. Personality needs were measured by an objective "self-report," the AI (Stern, 1956). The AI was prepared originally by Stern in collaboration with Bloom, Stein, and Lane for use in the Chicago studies of student personality assessment (Stern, Stein & Bloom, 1956). The AI has 300 statements of ordinarily acceptable activities to which the subject responds "like" or "dislike." The statements describe such personal needs as dominance, nurturance, and achievement. AI statements are classified into 30 scales of 10 items each, 1 scale for each scale included in the CCI. The 30 scales in the AI correspond to 30 needs as described by Murray (1938).

Pace (1963) has suggested two ways of viewing the 300-item CCI. The first was the psychological approach in which responses of individuals are of primary importance. This approach applies views about personality assessment described by Stern, Stein, and Bloom (1956). A factor analysis made by Saunders (1962) revealed that the

30 environmental press scales in the CCI and the 30 personality need scales in the AI were not entirely parallel. In the second approach, the unit of analysis was the college rather than the individual. In deriving institutional scores and norms, an analysis of environmental differences between institutions is made. This approach attempts to locate patterns which best describe the environments. After 1959, Stern and Pace pursued these two approaches independently following their own respective interests. Stern pursued the psychological approach and Pace pursued the unit analysis approach.

CUES. As a further development of the CCI, Pace (1963) developed a new and carefully standardized 150-item instrument known as CUES. This instrument was published by Educational Testing Service in 1963. CUES measures five facets of the campus environment: Practicality, Community, Awareness, Propriety, and Scholarship.

CUES has three important advantages over the CCI: (1) more parsimonious evaluation of the institutional differences in educational environments; (2) greater score reliability; and (3) scores that can be related to more representative data (Michael & Boyer, 1965). CUES has been used in numerous investigations. Ten investigations which utilized the instrument are cited in the following paragraphs in order to illustrate the wide variety of ways in which CUES has been used.

Schoen (1966) used CUES to compare the atmosphere of the main campus of a small eastern university with that of its experimental New

College. Considering the commuter nature of the main campus and the relatively isolated and closed nature of the New College, it was interesting that Schoen found no significant differences between student perceptions of the two campuses.

Wilson and Dollar (1970) utilized CUES to determine if differences existed in the perceptions of junior college environments among (a) administrators, (b) faculty teaching transfer courses, (c) students majoring in transfer programs, (d) faculty teaching vocational-technical courses, and (e) students majoring in vocational-technical courses. A random sample of 50 students was selected from each of the two student groups. The entire faculty and administration were included. Administrators were found to be in complete agreement with the vocational-technical faculty but were in disagreement with the academic faculty over the state of the campus environment. The vocational students and the academic students were found to be in agreement regarding the campus environment. Wilson and Dollar concluded by questioning the extent to which students value different parts of their environment, i.e., although the vocational students and the academic students were in agreement with regard to environmental perceptions, this did not necessarily mean that both groups were in agreement as to what the campus environment should be like.

CUES was used at the University of Minnesota by Berdie (1966). He observed the relationships between the experiences reported by

students, changes in students' attitudes, and the general characteristics of students. He found students changed their perceptions of the campus after attending college for six months. These changes in perceptions were found not to be related to the student's (a) residence, (b) method of transportation to school, or (c) college aptitude and later achievement.

Berdie (1968) again used CUES for an environmental investigation at the University of Minnesota. He had freshmen complete the instrument in 1964 while they registered for their first classes at the University. He administered the same instrument to the same students in the spring of 1965 and 1966. The findings indicate that student perceptions changed between the time a student began his college experience and after he had been attending college for some time. The greatest change occurred in the first year. The difference in perception of the campus environment was not significant between the end of the freshmen year and the end of the sophomore year. Berdie was led to conclude that first semester freshmen have "expectations" of the college environment. Students develop "perceptions" of the college environment after attending the college for at least one year.

Speerstra (1969) found differences between what students perceived to be the environment of a small, Catholic women's liberal arts college and the institutional objectives. CUES significantly differentiated between the images the institution attempted to project

and student perceptions of the institution.

Duling (1969) used CUES to examine differences in environmental perceptions between various subgroups and found significant differences. Transfer students rated the institution, Colorado State University, higher scholastically than did native students. Students living in fraternities and sororities perceived the university to be more group-centered and practical than did male non-fraternity students. Married students perceived higher scholarship than did single students.

Lindahl (1967) used CUES to assess the impact of living arrangements on student environmental perceptions. All five scales showed significant differences between resident students and commuter students. Resident students perceived significantly more campus loyalty, friendliness, and togetherness than did commuter students. Commuter students rated aesthetic and personally enriching qualities of the campus higher than did resident students.

Centra (1968) sought student perceptions of (a) the total campus environment and (b) the resident halls' environments. He administered two instruments, CUES and a rewritten CUES designed to apply to residence hall environments. The students were from six conventional dormitories and four living-learning centers. Living-learning centers are housing units which include faculty offices, classrooms, a library, and an auditorium. There was no significant difference in the perceptions of dormitory students when compared to perceptions of students living in

living-learning units. In addition, Centra found the students' perceptions of the total campus, based on CUES, was similar to students' perceptions of their residence environments, based on the rewritten CUES.

Gelso and Sims (1968) wanted to determine if significant differences existed in the perceptions of a residential, junior college environment. They used CUES to compare perceptions among (a) students who lived at home, (b) students who lived in college dormitories, and (c) faculty members. Gelso and Sims found that faculty members and off-campus students viewed the campus as more cohesive, friendly, and group orientated than did dormitory students.

Martin (1968) administered CUES to freshmen, graduate students, and faculty at the University of Saskatchewan. He discovered that the freshmen were generally satisfied, as measured by all five scales, with the college at the beginning of the school term. Freshmen satisfaction decreased as the year progressed. No significant relationship was found between freshmen satisfaction with the college and their grade point averages. Graduate students and faculty held basically the same opinion of the college and both were less satisfied than were the freshmen at the end of the school term.

After obtaining tens of thousands of student responses to CUES's items, Pace (1969) revised the instrument. The newer instrument is called CUES II. The new instrument has seven scales. The two new scales are comprised of items that appeared in the original five scales

and were considered appropriate for the new special interest areas. These scales are called (a) Campus Morale and (b) Quality of Teaching and Faculty-Student Relationships. CUES II consists of 160 items: 100 scale items and 60 experimental items. The newer instrument is more reliable and more psychometrically adequate than the original instrument (Pace, 1969).

Since CUES II is a relatively new instrument, a dearth of literature exists. Three recent investigations using the instrument are presented below.

An investigation into student perceptions of their living units was made by Spence (1971). He used CUES II. He attempted to discover whether a different environmental press existed in Madison College than in other Michigan State University environments. Students in Madison College lived in the same structure that housed their classrooms and the Madison faculty offices. Two other environments were selected for comparative purposes. One of the environments contained the basic college at Michigan State University, the University College. This two-year college was located in a coeducational living-learning residence hall which had classroom facilities and faculty offices. The other environment selected was the College of Social Science, which was not based on the living-learning idea nor on the residential college concept. This college was selected because of the curricular similarity to Madison College, i.e., social science. The Madison faculty and

students perceived the highest level of Scholarship and Quality of Teaching and Faculty-student Relationship. While all the students in Spence's sample perceived a high level of Campus Morale, the Madison faculty perceived a higher level of Campus Morale than did the faculty members in the other environments.

Bell (1971) also used CUES II. He compared environmental perceptions between sorority, fraternity, and residence hall students. Bell found (a) dormitory students perceived the highest degree of campus practicality, order, friendliness, cohesiveness, and group orientation; (b) female students perceived the college environment to be more polite, considerate, and thoughtful; and (c) female sorority students earned a significantly higher grade point average than did the other student groups.

CUES II was used by Rossier (1970) to investigate whether different administrative patterns influenced the perceptions of junior college students. She administered the instrument to students who attended two different junior colleges. One of these campuses had a pattern of decentralized administration. The results indicated that the students did not significantly differ on any of the seven scales with regard to their campus perceptions. Centralized administration did not produce significantly different student perceptions of the campus environment than did decentralized administration of the college.

Both CUES and CUES II have been used in many ways to serve

many purposes. The first edition has been used as a standard upon which to validate other emerging environmental assessment instruments (Olson, 1969). As of this date, most investigations into student perceptions have been descriptive in nature and little has been done to effect changes in the campus environment based on results from the environmental research investigations.

The Development and Use of URES

Behavioral scientists have been interested in determining the influence of psycho-social environmental factors within living units. Data in this area is needed before university administrators can systematically plan campus environments in ways that will be conducive to students' optimum satisfaction and students' maximum scholastic achievement. The lack of a psychometrically adequate instrument with which to measure psycho-social aspects of student living units has inhibited the accumulation of a substantial amount of meaningful data. A new instrument, URES, may prove to be a means by which to measure the psycho-social environments within student housing units. A chronological summary of attempts to measure the psycho-social environment within student housing units will precede a description of the development and use of URES.

Instruments which measure residences' psycho-social environments.

A survey of the literature revealed six instruments designed to measure

the environment within residence halls. The instruments will be presented in chronological order. The first instrument, the Residence Hall Experience Questionnaire, was developed by Johnson (1965). His questionnaire consisted of seven categories: Institutional Support, Development of the Individual, Experience of Group Living, Provisions of Atmosphere, Satisfaction of Physical Needs, Supervision of Conduct, and Support for the College. The subjects were asked to mark the 54 items, based on a four-point scale ranging from "Strongly Agree" to "Strongly Disagree." Johnson found that student and resident hall staff perceptions were significantly different. The larger the hall, the greater was the difference.

Clareq (1968) was the only other investigator to use Johnson's (1965) instrument. He discovered that students and staff at four public colleges in New York State were fairly close in agreement concerning the purpose of residence halls. Significant differences existed in the perceptions of the actual residence hall experience between students and staff.

Duvall (1968) constructed the second instrument, the Residence Hall Environment Index. He examined student and staff perceptions of residence hall environmental conditions at Indiana University. The instrument contained 50 statements which were categorized into five scales: Group Living, Programming, Student Government, Counselor, and Physical Facilities. He compared the responses of 1,100 students with

those of 189 staff personnel in the counseling center. The respondents were asked what conditions (a) were desirable and (b) actually existed at the university. Students rated the items on the Student Government scale as most desirable while the counselors rated items on the Counselor scale as most desirable. The students indicated that the conditions described in the Group Living scale existed most often, while the counselors felt that the factors described in the Counselor scale existed most often. Both groups indicated that conditions in the Student Government scale existed least often.

The third instrument, a 128-item House Analysis Survey, was constructed by Standing (1969). The instrument included items designed to measure (a) house characteristics and (b) the climate of learning in different types of housing. Standing examined the impact of housing on (a) adjusted grade point averages and (b) the intellectual disposition of freshmen. Standing found that intellectual disposition was not influenced by place of residence. A positive house climate was inversely related to the academic performance and satisfaction within the house. He also found no significant difference in the mean adjusted grade point averages of freshmen grouped according to the type of house in which they lived.

The Living-Learning Concept Questionnaire, the fourth instrument, was developed and used by Landry (1970). He compared responses from (a) residence hall students, (b) off-campus students, and (c) residence

hall directors about the living-learning concept. This questionnaire is in two parts. Part One is an open-ended survey which allows the respondent to describe in his own words what a residence hall needs to provide to help students attain their academic goals. Part Two has five 10-item scales: Academic Achievement, College Adjustment, Personal Health, Meaning in Life, and Physical Environment. Landry did not find significant differences in the perceptions of residence hall directors, resident students, and off-campus students on three of the scales. Resident hall directors agreed with the statements in the Personal Health scale and the Physical Environment scale more than did the resident students or the off-campus students.

The fifth instrument, entitled the Residence Hall Environment Scale, was constructed by Meador (1972). This 119-item rating scale purported to measure six aspects of the residence hall experience: Autonomy, Competence, Emotions, Identity, Integrity, and Interpersonal Relationship. After carefully developing his instrument, Meador tested its reliability by administering it to 597 students at Western Illinois University. Meador concluded that he had developed a reliable instrument to help identify the impact of the residence hall environment upon the growth and development of individual students. No further use of this instrument has been reported in the literature to date.

In 1968, Gerst and Moos developed URES, the sixth instrument.

The development and use of URES. The development of the sixth instrument, URES, was begun in 1968 by Gerst and Moos (1972). They attempted to create an instrument which would allow behavioral scientists to systematically investigate the psycho-social environment in college residence halls (Aulepp & Banning, 1971).

URES contains 96 "True-False" questions. The instrument is organized into 10 scales: Involvement, Emotional Support, Independence, Traditional Social Orientation, Competition, Academic Achievement, Intellectuality, Order and Organization, Innovation, and Student Influence.

The demographic variable of student's sex was correlated with each of the 10 scales. The finding based on the sex composition of the living unit is that women's residences foster emotionally supportive environments, stress traditional social values, and place little emphasis on competition and scholastic achievement (Gerst & Moos, 1972).

URES appears to be a subjective instrument in that the interpretation of scores depends on the philosophy and personal bias of the person who is interpreting. For example, a high score on Emotional Support may signify something good to an individual who perceives one of the residence hall's main purposes to be nurturance. The same score may indicate an undesirable quality to another individual who believes that university residences should attempt to encourage complete "self-sufficiency" on the part of the students. Once the university housing

staff formulates a housing philosophy, URES may be useful in determining whether the qualities they feel are best for the students are in operation within the residence. In addition, the instrument may be used to measure the effect of innovative residence hall programs on the students' perceptions of the house environment (Aulepp & Banning, 1971; Baird, 1973).

Thus far in Chapter II, selected literature has been reviewed related to: (a) demographic differences in student housing upon student attitudes and scholastic achievement; (b) recent trends in student housing; and (c) the development and use of two instruments designed to measure student perceptions of college environments. The fourth category in this review of selected literature is concerned with investigations which attempt to predict academic achievement of college students.

Prediction of Scholastic Achievement

This paper is concerned with the use of psycho-social instruments to predict scholastic achievement. Therefore, the following discussion is a summary of findings from selected literature dealing with the prediction of scholastic achievement.

Two recent texts (Lavin, 1965; Astin, 1971) have made important contributions to the literature dealing with the prediction of scholastic achievement of college students. Lavin made an exhaustive review of the

literature and summarized the findings. Astin made statistical computations of the relationships between selected student characteristics and student scholastic achievement. Astin's data were based on information from 36,581 freshmen students who were enrolled in 180 colleges and universities during the 1966-1967 school term.

After carefully reviewing the literature, Lavin organized his discussion relative to the prediction of scholastic achievement into four categories: basic correlates, personality factors, sociological factors, and psycho-social factors. Lavin's organization will be utilized in the discussion which follows.

Basic Correlates of Scholastic Achievement

The term "basic correlate" was coined by Lavin (1965). According to Lavin, a basic correlate is a factor which, theoretically, is more significantly related to scholastic achievement than are other variables. Lavin reported that there are three basic correlates of scholastic achievement: socioeconomic status (hereinafter SES), sex, and ability. Astin (1971) reported a somewhat different list of basic correlates: sex, academic record in high school, and tests of academic ability. Combining the basic correlates in the writings of Lavin and Astin, there are four factors: SES, sex, ability, and academic record in high school. Each of these four basic correlates will be discussed individually in the paragraphs which follow.

SES. The literature is in agreement that SES is related to scholastic achievement (Lavin, 1965; Jensen, 1969; Astin, 1971). Generally speaking, the higher an individual's SES, the higher his scholastic achievement. The relationship between SES and scholastic achievement changes to an inverse relationship at the upper-upper SES level (Lavin, 1965). Lavin concluded that SES did not have a causal relationship with scholastic achievement. An individual's SES tends to be a summarization of a variety of factors that are related to scholastic achievement. For example, individual's in lower SES levels do not often come from homes that have an emphasis on obtaining high scholastic achievement; therefore, individual's reared in a low SES environment do not experience the high degree of pressure for scholastic achievement that is experienced by individual's from higher SES environments. Failure to control for this basic correlate may cause investigators to draw inaccurate conclusions from their data (Lavin, 1965).

Sex. The literature was in agreement that sex is related to scholastic achievement (Lavin, 1965; Veldman, 1968; Astin, 1971). When ability is controlled, females consistently have higher levels of scholastic achievement than do males; more accurate predictions can be made for women than for men (Cramers & Stevic, 1972).

Astin (1971) compared the freshmen grade point averages of 19,524 men and 17,057 women in 180 colleges during the 1966-1967 school term. His findings are presented in Table 1.

TABLE 1

Comparison Between Freshmen GPA's of 19,525
Men and 17,057 Women*

GPA Interval	Percent with GPA's in the interval	
	Men	Women
3.50 - 4.00	4	6
3.00 - 3.49	10	16
2.50 - 2.99	20	27
2.00 - 2.49	30	30
1.50 - 1.99	22	15
1.00 - 1.49	10	5
.50 - .99	3	1
.00 - .49	1	1/2

*Astin, 1971, p. 4.

The findings presented in Table 1 indicate that freshmen women earn higher grade point averages than freshmen men. Failure to control for this variable may mislead investigators who are attempting to predict scholastic achievement (Lavin, 1965).

Ability. The literature is in agreement that ability is related to scholastic achievement (Lavin, 1965; Astin, 1971). After reviewing the existing literature, Lavin concluded that ability is generally found to account for 35% to 45% of the variance in scholastic achievement. Astin computed correlations between ability and college scholastic achievement. Astin's computations were made from data taken from the college records of 36,581 freshmen students in 180 colleges during the

1966-1967 school term. Astin found that ability accounted for 35% and 43% of the variance in the grades earned by men and women, respectively. These findings are in accord with the findings of Lavin.

Lavin stated that prediction research is no longer concerned with demonstrating the fact that ability factors have an influence on the scholastic achievement of college students. Rather, researchers are attempting to improve predictions through the use of nonability factors, e.g., personality and sociological factors.

Academic record in high school. The literature is in agreement that a student's academic record in high school is related to college scholastic achievement (Lavin, 1965; Colgan, 1969; Cramer & Stevic, 1971a, 1971b; Astin, 1971).

Lavin stated, "Of all the measures used in these prediction batteries, the one that consistently emerges as the best single predictor is the high school average or high school rank (1965, p. 52)."

Astin's statement is in agreement with Lavin's:

Of all of the information available about the high school student, his record of academic performance is the best single indicator of how well he will do in college. This fact has been documented in thousands of studies (Astin, 1971, p. 5).

Colgan (1969) collected data on students in three high school graduating classes. His data included high school teacher ratings, high school grade point averages, College Entrance Examination Board scores on the Verbal and the Mathematics tests, the California Tests

of Mental Maturity, the Iowa Tests of Educational Development, and the Cooperative English and Reading Tests. Colgan reported that high school teachers were able to predict college grade point averages more efficiently and as accurately as could be accomplished with test batteries. Colgan concluded that the teachers were able to make subjective evaluations of factors more adequately than could be measured by tests. The correlations between teacher ratings and college scholastic achievement, and between high school scholastic achievement and college scholastic achievement were both about .40.

Astin (1971) utilized data from 36,581 student records and computed correlations of .50 for men and .51 for women between the high school and college scholastic achievement.

The correlations found by Colgan (1969) and Astin (1971) can both be classified as moderate correlations that indicate a substantial relationship between a student's high school scholastic achievement and his college scholastic achievement. Even though the relationship between high school grades and college grades is substantial, the relationship is far from perfect. When considering the importance of high school achievement in predicting college achievement, it is important to remember that high school achievement is influenced by other factors, e.g., sex, SES, and ability. A student's academic record in high school is, therefore, not an independent basic correlate and must be investigated with this in mind (Lavin, 1965). The best

predictions of the scholastic achievement of college students can be obtained by utilizing the multiple regression analysis combining the students' high school scholastic achievement with other variables (Astin, 1971).

The preceding discussion has been concerned with the relationship of four basic correlates to the scholastic achievement of college students. The discussion which follows is concerned with the influence of three other variables (personality factors, sociological factors, and psycho-social factors) which have been investigated as possible variables to aid in predicting the scholastic achievement of college students.

Personality Factors as Predictors of Scholastic Achievement

Psychologists have tended to look for the effect of personality factors that cut across variations in social environments. The accumulated research is not sufficient to allow conclusions regarding the relationship between scholastic achievement and personality factors (Lavin, 1965; Baird, 1973). The studies report weak relationships and the findings are often inconsistent.

Lavin reported that psychologists have used personality factors as predictors of scholastic achievement while giving no consideration to how sociological factors influence scholastic achievement. Personality factors may be useful predictors of scholastic achievement

only when the social setting is used as a significant variable.

Sociological Factors as Predictors
of Scholastic Achievement

Sociologists have tended to look at the characteristics of social environments that transcend the individual's personality. The sociological tradition of research places an emphasis upon role relationships in the educational context. Examination of student-to-student relationships have revealed that sociometric measures of acceptability are related to scholastic achievement. However, no causal relationship has been established according to Lavin (1965).

Student-teacher relationships have some degree of influence upon the student's scholastic achievement. Lavin stated that a student's scholastic achievement will be higher when the student's attitudes and values are similar to those of the teacher than when his attitudes and values differ from the teacher's.

Family relationships have been found to influence scholastic achievement. Research indicates that the successful student typically comes from a family where the parents express warmth and interest to the student, where the student is allowed some voice in decision making, and where the family is generally in agreement regarding important issues (Lavin, 1965).

Psychologists and sociologists have tended to work apart from each other when attempting to predict scholastic achievement. A new

trend, psycho-social research, is bringing the psychologist and the sociologist together in their attempts to predict scholastic achievement (Baird, 1973).

Psycho-social Factors as Predictors of Scholastic Achievement

Lavin (1965) found personality factors were good predictors at some schools and not at others. He concluded that the predictive usefulness of personality factors may be related to the social situation in which the personality factors operate.

Murray's (1938) needs-press personality theory, discussed previously in this chapter, has been used by Stern and Pace (1958) to assess the relationships between student personalities and school environments. Little research has been conducted involving psycho-social influences on scholastic achievement of college students (Lavin, 1965). Two psycho-social instruments, CUES II and URES, were used in this study to predict scholastic achievement.

The literature reviewed has described the relationships that exist between scholastic achievement and (a) four basic correlates (sex, SES, ability, high school record); (b) personality factors; (c) sociological factors; and (d) psycho-social factors. Astin (1971) examined the effect on prediction efficiency of combining several of these correlates and factors into one prediction equation. He collected data on 38,681 students who began college in 1965 and graduated in

1969. Each of these students completed a detailed questionnaire about his background characteristics, high school achievement, future plans, and personality characteristics. Astin computed a multiple regression analysis between scholastic achievement and student characteristics.

The data in Table 2 presents Astin's findings.

TABLE 2
Correlations Between Freshmen GPA and Various
Combinations of Predictors*

Predictor(s)	Correlations with Freshmen GPA for	
	Men	Women
1. High School Grades	.51	.52
2. (1) + Aptitude Test Scores	.52	.55
3. (2) + College Selectivity	.54	.58
4. (4) + 13 Personal Characteristics	.59	.61

*Astin, 1971, p. 12.

When Astin added various predictors to his basic predictor (i.e., high school grades), the correlations with college grades became higher. By combining variables, Astin was able to predict 34.81% (R^2) of the men's variance and 37.51% (R^2) of the variance in women's scholastic achievement. This means that Astin was unable to explain about 65% of the variance in college student scholastic achievement.

Table 3 presents Astin's data relative to the personality characteristics that were found to influence the scholastic achievement of college men and women.

TABLE 3

Student Characteristics That Predict Freshmen College GPA
After Controlling for Sex, High School Grades,
Academic Ability, and College Selectivity*

Students who do better than expected	Students who do worse than expected
Was a member of a scholastic honor society.	Turned in papers or themes late.
Attended a private high school.	Came late to class.
Rates self high on academic ability.	Made wisecracks in class.
Rates self high on drive to achieve.	Went to movies frequently.

*Astin, 1971, p. 13.

The eight personality characteristics presented in Table 3 were found to be related to freshmen scholastic achievement. The overachiever was more likely than the underachiever to: (a) have graduated from a private high school; (b) have been a member of a scholastic honor society; (c) rate himself high on academic ability; and (d) rate himself high on drive to achieve. The underachiever was more likely than the overachiever to: (a) have turned in papers or themes late; (b) have come late to class; (c) have made wisecracks in class; and (d) have been a frequent movie-goer (Astin, 1971).

Problems in Predicting
Scholastic Achievement

The literature reviewed indicated that there are at least six basic weaknesses in research designs that influence the outcome of most studies which attempt to predict scholastic achievement. These six weaknesses are described in the following paragraphs.

1. One cannot conclude that the predictor is a causal determinant of the criterion simply because a significant relationship exists between predictor and criterion. Too often causality is inferred when such an inference is not supported by the data and design (Lavin, 1965).

2. Prediction studies are influenced by the race of the population being studied. The use of a regression equation developed on an Anglo sample results in overestimates of the minority students' future performance. Too often race is not considered in prediction studies (Cramer & Stevic, 1972).

3. Grades, the criterion, are often difficult to equate. High grades given by one instructor may be more difficult to obtain from another instructor. There are intra-university and inter-university differences in grading practices. Too often variability of grading policies and practices is not considered in prediction studies (Lavin, 1965).

4. Investigators of most prediction studies assume the relationships are linear. The possibility that the relationships are

curvilinear is ignored. If this assumption is inaccurate, the investigator will not make correct interpretations of his findings (Lavin, 1965; Weiss, 1970; Cramer & Stevic, 1971b).

5. The basic correlates of scholastic achievement (i.e., sex, SES, ability, and high school record) are often uncontrolled. Failure to control for the basic correlates will contribute error to the findings (Lavin, 1965; Cramer & Stevic, 1972).

6. Most of the studies are static rather than longitudinal. More studies should be longitudinal because longitudinal studies can deal with many significant questions that cannot be investigated in static studies (Lavin, 1965).

Cramer and Stevic (1971a) stated that every year there are several investigations which attempt to delineate the variables related to achievement in colleges. They stated that the level of predictability has been relatively weak in each of the studies. Cramer and Stevic summarized their review of the literature by stating that:

. . . while the results of this quest have not been entirely successful or useful, we do seem to be moving toward the establishment of more sophisticated research designs that may ultimately answer the questions of why some students achieve and others do not, why some students persist and others leave (1971a, p. 35).

The preceding paragraphs have reviewed selected literature concerned with predicting scholastic achievement of college students. The final section of this chapter contains a summary of the information presented in Chapter II.

Summary

The purpose of this chapter was to review literature related to selected aspects of this study. The literature was organized into four categories. Each of these four categories will be described in the following sections.

The Influence of Demographic Differences Upon Student Attitudes and Achievement

The literature reviewed in this category indicated that no single type of housing is best for all students. Students need to have housing while at college which meets their individual needs and differences. Certain demographic differences (e.g., closing hour policy and the proprietorship of automobiles) were found to have little influence on student scholastic achievement. Other demographic differences (e.g., roommates' ability and similarity of academic major among roommates) were found to be significantly related to the scholastic achievement of college students.

Recent Trends in Student Housing

Between the years 1950 and 1970, colleges and universities were pressed to provide enough student housing to meet the demand. Faced with such pressures, dormitories were quickly planned and constructed throughout the country.

In recent years (a) the college enrollments have leveled off;

(b) students have begun to express dissatisfaction with existing dormitory facilities; (c) students have begun to express a preference for off-campus living; and (d) two-year community colleges have grown in popularity. These influences have resulted in increased vacancy rates in dormitories throughout the country.

Statistical projections indicate that the number of students who attend college may increase by as much as 50% by 1980. College administrators must decide whether the projected increase in college enrollments will increase demand for on-campus housing or whether the occupancy rate in the present facilities will continue to decline. Three basic alternatives face college administrators: (a) quit the student housing business altogether; (b) build new dormitories that are attractive to students; or (c) remodel the existing dormitories.

Two Instruments Which Measure Universities' Psycho-social Climate

In 1958 the first instrument, the CCI, was developed to assess the psycho-social characteristics of a university environment. Since the advent of the CCI, several similar research instruments have been developed. Two of these newer instruments, the CUES II and the URES, were used in this investigation. Literature related to the development and use of both of these instruments was described in this chapter. The CUES II was described as the most widely used psycho-social instrument; several examples of studies which used the CUES II were

cited. URES was described as a relatively new psycho-social instrument. While CUES II was designed to assess the psycho-social environment of the total university campus, URES was designed to measure the psycho-social environments of a particular segment of the total university campus, student housing.

Prediction of Scholastic Achievement

This investigation involves an attempt to predict scholastic achievement by the use of psycho-social instruments. Therefore, literature was reviewed concerning the prediction of scholastic achievement.

Four basic correlates of scholastic achievement were found (i.e., sex, SES, ability, and academic record in high school). Each of these basic correlates was described individually in relationship to the prediction of scholastic achievement. The literature reviewed indicated that too many investigators failed to control for the basic correlates. Failure to control for the basic correlates was found to result in many misinterpretations of data.

Evidence was cited which indicated that the best predictions of scholastic achievement were obtained by using a multiple regression equation which controlled for the basic correlates. Even with proper statistical controls, the results of prediction studies of this type have been relatively weak and not too helpful in making decision

regarding student success.

A new area of prediction research, using psycho-social instruments, was described. The literature indicated that psycho-social investigations may be helpful in conceptualizing some of the factors that influence student scholastic achievement. Few investigations were found which used psycho-social instruments to predict scholastic achievement, probably because the instruments are so new.

Finally, several methodological weaknesses common to prediction studies were described.

In the following chapter, Chapter III, the subjects of the study are identified, the procedures are discussed, the instruments used are described, the hypotheses listed, and the procedures used in the data assessment and statistical analysis are explained.

Chapter III

Methodology

This investigation was an attempt to determine whether student scholastic achievement was influenced by the psycho-social and architectural environments of the students' dormitories.

In Chapter I, the problem to be investigated, the general questions to be answered, and the need for the study were reported. Chapter II contained a review of selected literature pertinent to the influence of university housing on student scholastic achievement. In this chapter, the subjects of the study are identified, the research procedures are discussed, the instruments used are described, the hypotheses are listed, and the statistical procedures are explained. The data for this study were collected between May 1, 1972 and May 18, 1972.

Subjects

The subjects eligible to be included in this study's population were delimited to include only members of the sophomore, junior, and senior classes at Montana State University during the 1971-1972 school term. In addition, each subject had to be enrolled as a full-time student, to be living presently in one of the four dormitories, and to have lived in his dormitory for at least two consecutive quarters.

The Business Office at Montana State University prepares a

computerized list of all students enrolled in the university at the beginning of each quarter. This list contains information concerning each student's status (e.g., whether he is a full-time or a part-time student, his place of residence, and his curriculum major). The subjects selected for participation in this study were drawn from a list of students prepared by the Business Office.

The computerized printout supplied by the Business Office listed in alphabetical order 691 eligible students. The 691 students were distributed among nine dormitories. (See Table 4 for the population distribution by dormitory.) Only four of these nine dormitories

TABLE 4

Population Distribution by Dormitory

Dormitory	Sex of Subjects	Number of Subjects
Hannon	F	12
Hapner	F	12
Hedges South	F	266
Pryor	F	7
Hedges North	M	122
Culbertson	M	35
Mullen	M	23
Langford	M	80
Roskie	M	134
Total		N = 691

(Hedges North, Hedges South, Roskie Hall, and Langford Hall) contained a large enough number of eligible students to allow for proper

psychometric analysis. The 602 students living in these four dormitories comprised 85.8% of the total eligible dormitory population at Montana State University.

A sample of 301 subjects (50% of the eligible subjects) was proportionately selected from the four dormitories by use of the random number sampling technique (Snedecor & Cochran, 1967). Table 5 presents the numerical distribution of the subjects selected for participation in each of the four dormitories.

TABLE 5
Distribution by Dormitory of Subjects
Included in Sample

Dormitory	Sex	Eligible <u>Ss</u> in Dormitory	N of Sample	Percent of Total
Hedges North	F	266	133	44.2
Hedges South	M	122	61	20.3
Langford	M	134	67	22.3
Roskie	M	80	40	13.2
Totals		602	301	100.0

Research Procedures

A letter was mailed to each of the 301 subjects in the sample. (See Appendix D for a copy of the letter.) The letter explained the

purpose of the investigation, urged the subjects to participate, and told the subjects when and where to report. In addition, a notice was displayed in several locations on each floor of the four dormitories. (See Appendix E for a copy of the notice.) This notice was intended to remind the subjects to participate in the investigation.

Two hundred twenty-one subjects reported for the administration of the instruments. These subjects were instructed to read the directions printed on the front of CUES II and URES and then to complete the two instruments at their own speed. Most subjects were finished with both instruments within 50 minutes.

The 70 subjects who did not appear for the administration of the two research instruments were contacted in their dormitory rooms in the evenings between May 6, 1972 and May 18, 1972. Of these 70 subjects, 58 completed the instruments at the personal request of this investigator. Only 12 subjects refused to participate in the investigation. A table of random numbers was used to select an additional 12 subjects. These 12 people were contacted by this investigator in their dormitory rooms. They agreed to complete the instruments. Table 6 presents the data concerning subject participation by dormitory.

Of the 301 students, 21 failed to give complete sets of information (e.g., a missing social security number or inaccurate or incomplete responses to some of the items on CUES II and URES).

Therefore, the number of subjects for which usable data were obtained and analyzed was $n = 280$.

TABLE 6

Subject Participation by Dormitory

Dormitory	Participating <u>Ss</u> who reported to test site	Participating <u>Ss</u> contacted in rooms	Participating <u>Ss</u> obtained by 2nd random drawing	Total sample
Hedges North	118	12	3	133
Hedges South	53	6	2	61
Roskie	52	8	7	67
Langford	8	32	0	40
Totals	231	58	12	301

Instrumentation

The instruments used in the data collection phase of this study were CUES II (Pace, 1969), URES (Gerst & Moos, 1972), and CARS (Blank, 1972). (Copies of these instruments are in Appendices A, B, and C.)

CUES II

The original edition of CUES (Pace, 1963) consists of 150 statements about college faculty, rules and regulations, curricula, student life, instruction and examinations, and extracurricular

organizations. The instrument is designed to allow students to describe the intellectual-social-cultural climate or atmosphere of their campus. Students indicate whether each statement is generally true or false. The 150 statements are organized into five scales: Practicality, Community, Awareness, Propriety, and Scholarship.

Based upon the findings of studies using CUES between 1963 and 1969, Pace (1969) refined his instrument and developed the 160-statement CUES II. For CUES II, Pace retained 100 of the original 150 statements from CUES and added 60 experimental statements. The 100 statements from the original CUES were divided into five scales of 20 statements each. In the CUES II Technical Manual, Pace (1969) described the five scales as follows:

Scale 1. Practicality. The twenty items that contribute to the score for this scale describe an environment characterized by enterprise, organization, material benefits, and social activities. There are both vocational and collegiate emphases. A kind of orderly supervision is evident in the administration and the classwork. As in many organized societies there is also some personal benefit and prestige to be obtained by operating in the system, knowing the right people, being in the right clubs, becoming a leader, respecting one's superiors, and so forth. The environment, though structured, is not repressive because it responds to entrepreneurial activities and is generally characterized by good fun and school spirit.

Scale 2. Community. The items in this scale describe a friendly cohesive, group-oriented campus. There is a feeling of group welfare and group loyalty that encompasses the college as a whole. The atmosphere is congenial; the campus is a community. Faculty members know the students, are interested in their problems, and go out of their way to be helpful. Student life is characterized by togetherness and sharing rather than by privacy and cool detachment.

Scale 3. Awareness. The items in this scale seem to reflect a concern about the emphasis upon three sorts of meaning--personal, poetic, and political. An emphasis upon self-understanding, reflectiveness, and identity suggests the search for personal meaning. A wide range of opportunities for creative and appreciative relationships to painting, music, drama, poetry, sculpture, architecture, and the like suggests the search for poetic meaning. A concern about events around the world, the welfare of mankind, and the present and future conditions of man suggests the search for political meaning and idealistic commitment. What seems to be evident in this type of environment is a stress on awareness of self, of society, and of aesthetic stimuli. Along with this push toward expansion, and perhaps as a necessary condition for it, there is an encouragement of questioning and dissent and a tolerance of non-conformity and personal expressiveness.

Scale 4. Propriety. These items describe an environment that is polite and considerate. Caution and thoughtfulness are evident. Group standards of decorum are important. There is an absence of demonstrative, assertive, argumentative, risk-taking activities. In general, the campus atmosphere is mannerly, considerate, proper, and conventional.

Scale 5. Scholarship. The items in this scale describe an environment characterized by intellectuality and scholastic discipline. The emphasis is on competitively high academic achievement and a serious interest in scholarship. The pursuit of knowledge and theories, scientific or philosophical, is carried on rigorously and vigorously. Intellectual speculation, an interest in ideas, knowledge for its own sake, and intellectual discipline--all these are characteristics of the environment (Pace, 1969, p. 11).

CUES II contains two subscales in addition to the five major scales. These subscales, Campus Morale and Quality of Teaching and Faculty-student Relationships, are composed of statements from each of the original five scales. Campus Morale consists of 22 statements. Quality of Teaching and Faculty-student Relationships consists of 11 statements. In the CUES II Technical Manual, Pace (1969) described the two subscales as follows:

Scale 6. Campus Morale. The items in this scale describe an environment characterized by acceptance of social norms, group cohesiveness, friendly assimilation into campus life, and, at the same time, a commitment to intellectual pursuits and freedom of expression. Intellectual goals are exemplified and widely shared in an atmosphere of personal and social relationships that are both supportive and spirited.

Scale 7. Quality of Teaching and Faculty-student Relationships. This scale defines an atmosphere in which professors are perceived to be scholarly, to set high standards, to be clear, adaptive, and flexible. At the same time, this academic quality of teaching is infused with warmth, interest, and helpfulness toward students (Pace, 1969, p. 11).

Scoring procedures. CUES II may be scored two ways, depending on the type of analysis the investigator desires to make. Pace (1969) recommended that CUES II be used only for inter-institutional analysis and that individual student scores not be analyzed. Scoring CUES II for inter-institutional analysis involves using the 66+/33- method. Pace has described this scoring procedure as follows:

- a. Add the number of items answered by 66 percent or more of the students in the keyed direction.
- b. Subtract the number of items answered by 33 percent or fewer of the students in the keyed direction.
- c. Add 20 points (22 for "Campus Morale" and 11 for "Quality of Teaching and Faculty-student Relationships") to the difference, so as to eliminate any possibility of obtaining a negative score (Pace, 1969, p. 13).

The other way to score CUES II is based on the usual psychometric method whereby the number of items on each of the seven scales responded to in the keyed direction provides the basis for obtaining seven scores for each subject. Means and standard deviations are

then obtained for each subgroup measured.

Norming of CUES II. Pace (1969) reported that he normed CUES II following a national data collection project. He first stratified educational institutions according to four geographical areas (Northeast, South, Midwest, and Mountain and Far West), according to level of programs (United States Office of Education types II, III, and IV; that is, B.A. only; B.A., M.A., and first professional; and B.A., M.A., Ph.D., and advanced professional), and according to control (public or private). Second, he determined the distribution of institutions and the distribution of enrollments. Third, Pace developed norms based on the distribution of institutions and the distribution of enrollments.

Table 7 and Table 8 present data for the five major scales. Table 7 presents the CUES II norm distribution based on 100 colleges and universities. Table 8 presents the percentile equivalents for CUES II scores based on the national reference group of 100 colleges and universities.

Reliability of CUES II. Pace (1969) reported that CUES II reliability estimates ranged between .83 and .94. Table 9 presents the reliability estimate for each scale and subscale of CUES II. These estimates provide evidence that each CUES II scale has a high degree of internal consistency. The estimates were based on the

TABLE 7

Distribution of Scores of 100 Schools: CUES, Second Edition*

Scores	Practicality	Community	Awareness	Propriety	Scholarship
40					1
39			1		1
38		2	1		
37		6	2		5
36		1	2		2
35		2			2
34		1	3		3
33	3	7	3		5
32	2	3		2	4
31	2		3	1	
30	2	4	4	3	4
29		6	1	1	4
28	5	4	4	2	3
27	2	7		1	7
26	3	2	3	3	7
25	3	5	3	2	2
24	4	5	5	1	4
23	5	7	1	5	3
22	7	7	2	4	2
21	5	5	7	2	8
20	8	3	5	4	2
19	5	3	3	4	4
18	3	1	2	8	2
17	5	2	6	3	7
16	8	2	8	5	3

Table 7 (continued)

Scores	Practicality	Community	Awareness	Propriety	Scholarship
15	2	4	5	3	1
14	5	3	6	9	4
13	1	1	2	7	
12	2			4	4
11	2	2	5	6	1
10	3	3	3	5	2
9	3	1	2	3	
8	2		1	4	
7	3	1	3	1	2
6			2	5	
5	1				1
4	2			2	
3	1		1		
2	1		1		
N	100	100	100	100	100
Mean	18.95	24.61	20.22	16.55	24.07
Standard Deviation	7.41	7.59	8.70	6.92	8.15

* Pace, 1969, p. 19

TABLE 8

Percentile Equivalents for CUES Scores, Second Edition
(Based on Reference Group of 100 Colleges and Universities)*

Scores	Percentiles				
	Practicality	Community	Awareness	Propriety	Scholarship
40					100
39			100		99
38		100	99		98
37		98	98		98
36		92	96		93
35		91	94		91
34		89	94		89
33	100	88	91		86
32	97	81	88	100	81
31	95	78	88	98	77
30	93	78	85	97	77
29	91	74	81	94	73
28	91	68	80	93	69
27	86	64	76	91	66
26	84	57	76	90	59
25	81	55	73	87	52
24	78	50	70	85	50
23	74	45	65	84	46
22	69	38	64	79	43
21	62	31	62	75	41
20	57	26	55	73	33
19	49	23	50	69	31
18	44	20	47	65	27
17	41	19	45	57	25
16	36	17	39	54	18

Table 8 (continued)

Scores	Percentiles				
	Practicality	Community	Awareness	Propriety	Scholarship
15	28	15	31	49	15
14	26	11	26	46	14
13	21	8	20	37	10
12	20	7	18	30	10
11	18	7	18	26	6
10	16	5	13	20	5
9	13	2	10	15	3
8	10	1	8	12	3
7	8	1	7	8	3
6	5		4	7	1
5	5		2	2	1
4	4		2	2	
3	2		1		
2	1				
1					
0					

* Pace, 1969, p. 20

coefficient alpha (Cronbach, 1951). The coefficient alpha formula was used for two reasons. First, the coefficient alpha formula takes into account the sum of the variances on each item rather than the averages or the mean. Second, the coefficient alpha formula allows each item to be scored in exactly the same manner as the total scale is scored (i.e., +1, 0, -1 and the addition of a constant to eliminate a negative).

TABLE 9

Reliability Estimates for Each of the Seven Scales
of CUES II Based on the Coefficient Alpha*

Scale	Coefficient Alpha
Practicality	.89
Community	.92
Awareness	.94
Propriety	.89
Scholarship	.90
Campus Morale	.90
Quality of Teaching and Faculty-student Relationships	.83

* Pace, 1969, pp. 32, 35, and 44

Table 10 presents data concerned with the standard error of the mean score for each of the seven scales. Using two standard errors to define the limits of the .05 level of confidence, the unbiased true

mean will be within 1.5 points of the obtained mean of each of the five major scales (Pace, 1969, p. 42). The standard error of the mean is not reported for the two special subscales.

TABLE 10.

Mean Score, Standard Deviation, and Standard Error of the Seven CUES II Scales*

Scale	Mean	Standard deviation	Standard error
Practicality	18.95	7.41	.74
Community	24.61	7.59	.76
Awareness	20.22	8.70	.87
Propriety	16.55	6.92	.69
Scholarship	24.07	8.15	.81
Campus Morale	24.86	7.46	**
Quality of Teaching and Faculty-student Relationships	13.89	3.69	**

* Pace, 1969, pp. 19, 32, and 35

** No standard error for these measures were reported in the technical manual.

Validity of CUES II. The validity of each subject's response to any "self-report" is difficult to assess (Rossier, 1972). Pace simply stated that:

The assumed validity of the collective perception approach lies in the argument that "fifty million Frenchmen can't be wrong." Regardless of individual behavior, or assorted physical facts

such as money or size, the environment, in a psychological sense, is what it is perceived to be by the people who live in it. Even if one grants the possibility of self-deception on a large scale, the perceived reality, whatever it is, influences one's behavior and response. Thus, realistically, what people think is true is true for them (Pace, 1969, p. 7).

In the Seventh Mental Measurements Yearbook (Buros, 1972), both Dressel and Mitchell stated that establishing validity is a problem that may forever elude the developers of psycho-social environmental instruments such as CUES II.

No attempt was made to assess the validity of student responses to CUES II in this study. An assumption was made by this investigator that each student's response to each CUES II statement was accurate and truthful.

URES

The development of URES was begun in 1969 by Gerst and Moos (1972). At the date of this study, URES had been copyrighted but had not been published for national distribution.

URES is designed to assess student perceptions of the psycho-social climate which exists within their residence halls. Gerst and Moos began URES by formulating more than 500 items. Repeated administration of the instrument, followed by careful statistical analysis, has resulted in the present 96-item URES. The 96 "True-False" URES items are divided into 10 subscales. The 10 subscales are distributed among four general organizational categories. The

four general categories and 10 subscales were defined by Gerst and Moos (1972). Gerst and Moos use the term "house" in their definitions as synonymous with residence hall, dormitory, or living unit. The categories and subscales are described in the paragraphs which follow.

Category 1. Interpersonal Relationships: The emphasis is on interpersonal relationships in the house.

Subscale 1. Involvement (ten items): Degree of commitment to the house and residents; amount of social interaction and feeling of friendship in the house.

Subscale 2. Emotional Support (ten items): Extent of manifest concern for others in the house; efforts to aid one another with academic and personal problems; emphasis on open and honest communication.

Category 2. Personal Growth: Social pressure dimensions related to the psycho-social development of residents.

Subscale 3. Independence (ten items): Diversity of residents' behaviors allowed without social sanctions, versus socially proper and conformist behavior.

Subscale 4. Traditional Social Orientation (nine items): Stress on dating, going to parties, and other "traditional" heterosexual interactions.

Subscale 5. Competition (nine items. This subscale is a bridge between the Personal Growth and Intellectual Growth areas.): The degree to which a wide variety of activities such as dating, grades, etc., are cast into a competitive framework.

Category 3. Intellectual Growth: The emphasis placed on academic and intellectual activities related to cognitive development of residents.

Subscale 5. Competition (Same nine items and definition as Subscale 5, Category 2.)

Subscale 6. Academic Achievement (nine items): Extent to which strictly classroom accomplishments and concerns are

prominent in the house.

Subscale 7. Intellectuality (nine items): Emphasis on cultural, artistic and other scholarly intellectual activities in the house, as distinguished from strictly classroom achievement.

Category 4. System Change and Maintenance: The degree of stability versus the possibility for change of the house environment from a system perspective.

Subscale 8. Order and Organization (ten items): Amount of formal structure of organization (e.g., rules, schedules, following established procedures, etc.) in the house; neatness.

Subscale 9. Innovation (ten items): Organization and individual spontaneity of behaviors and ideas; number and variety of activities; new activities.

Subscale 10. Student Influence (ten items): Extent to which student residents (not staff or administration) perceive they control the running of the house; formulate and enforce the rules, control use of the money, selection of staff, food, roommates, policies, etc. (Gerst & Moos, 1972, pp. 516-517).

Norming of URES. The initial norm group was comprised of 505 students chosen from students living in 74 student residences. These students were selected proportionate to the sex and class standing represented on each floor of each residence.

Gerst and Moos were, at the time of this investigation, collecting a national norm sample for URES. The subjects in this investigation will be included in the national norm group for URES.

Reliability of URES. Three types of reliability were assessed by Gerst and Moos (1972) after collecting responses from 466 subjects

in 13 dormitories. When the data were applied to the Kuder-Richardson formula 20, correlations ranged between .76 and .87. Table 11 presents the reliability estimates for each subscale. Considering that the subscales are comprised of only 9 to 10 items each, a high degree of internal consistency is evident.

TABLE 11
URES Internal Consistency*

Subscale	KR-20
Involvement	.879
Emotional Support	.816
Independence	.772
Traditional Social Orientation	.868
Competition	.766
Academic Achievement	.835
Intellectuality	.836
Order & Organization	.860
Innovation	.766
Student Influence	.805

* Gerst & Moos (1972, p. 517)

Note: N = 466

Gerst and Moos examined the temporal stability of individual subject responses by administering URES to the same subjects on three separate occasions. Product-moment correlations indicate that temporal stability of individual subject responses to URES remains high at the

tested intervals of one week and one month. This data is presented in Table 12.

TABLE 12
URES Test-Retest Reliabilities Across Individuals
In One Male Dorm and One Female Dorm*

Subscale	Time Interval	
	1 week	4 weeks
Involvement	.740	.698
Emotional Support	.733	.710
Independence	.713	.592
Traditional Social Orientation	.731	.742
Competition	.709	.673
Academic Achievement	.755	.737
Intellectuality	.672	.656
Order & Organization	.705	.676
Innovation	.699	.692
Student Influence	.660	.652

* Gerst and Moos (1972, p. 517)

Note: N = 83

The third type of reliability assessed was that of the stability of subscale scores when the living unit was measured as a whole. A temporal stability index for all 10 subscales was determined by computing intra-class correlations derived from the analysis of variance. The results of this analysis are presented in Table 13. The stability of environmental perceptions remained high after

periods of one week and one month when the living unit was considered as a whole.

TABLE 13
URES Test-Retest Reliabilities for
Entire Living Unit*

Living Unit	Time Interval	
	1 week	4 weeks
Men's Dorm	.96	.86
Women's Dorm	.96	.98

* Gerst and Moos (1972, p. 518)

Validity of URES. Table 14 contains data concerned with the subscale correlations.

The mean of all the correlations is .184. The small correlations suggest that the subscales are measuring different aspects of the living-unit's environment (Gerst & Moos, 1972).

Gerst and Moos (1972) reported that the subscale correlations lend support to the internal validity of URES. High correlations were found between Emotional Support and Involvement, and these two subscales were significantly related to both Intellectuality and Innovation. In addition, Emotional Support is negatively correlated with Competition. This evidence suggests that students who perceive their living units to be Interpersonal also perceive their living units

to be Supportive, Innovative, and Intellectual. Also, living units which are perceived as possessing high Independence are also perceived as possessing little Order and Organization and Traditional Social Orientation.

TABLE 14

URES Subscale Correlations*

Subscale	1	2	3	4	5	6	7	8	9
1. Involvement									
2. Emotional Support	.62								
3. Independence	-.12	.18							
4. Traditional Social Orientation	-.05	-.01	-.38						
5. Competition	-.11	-.33	-.05	.19					
6. Academic Achievement	-.01	.08	-.20	-.06	-.07				
7. Intellectuality	.41	.43	-.03	-.14	-.06	.26			
8. Order & Organization	.19	.24	-.40	.27	-.06	.23	.13		
9. Innovation	.57	.45	.16	-.15	-.12	-.18	.43	.09	
10. Student Influence	.20	.17	.08	-.13	-.16	.09	.16	.10	.06

* Gerst and Moos (1972, p. 518)

Note: N = 505

The data presented by Gerst and Moos tends to support the validity of URES, however, the validity remains to be established. In this study, no attempt was made to assess the validity of student

responses to URES. An assumption was made by this investigator that each student response to each URES statement was accurate and truthful.

CARS

The review of selected literature indicated that a multitude of environmental factors may operate within a campus which may influence the scholastic achievement of students. This study was concerned with measuring the influences of psycho-social and architectural factors on the scholastic achievement of students in four dormitories. Two instruments, CUES II and URES, were used in this study to measure the psycho-social climate that Montana State University residence hall students perceived to exist on their campus. A third instrument, CARS, was developed to differentiate between architectural factors within dormitories which might influence student scholastic achievement.

CARS consists of a list of 29 factors which differentiated the four dormitories examined in this study. This list was prepared prior to the assessment of the influence of architectural differences on student scholastic achievement. According to Dr. Albert Suvak, Director of the Testing and Counseling Office at Montana State University, such a list may be prepared in one of two ways. The first way is to ask the participant-observer for opinions about his dormitory's architectural features. Titus (1972) followed this procedure. He developed a list of important dormitory conditions by asking students to list, in rank order, their housing needs and

preferences. Dr. Suvak stated that this procedure, in his opinion, was not valid for use at a rural campus such as Montana State University. Most of the students at Montana State University had lived in only one dormitory, according to Dr. Suvak, and were not familiar with the wide variety of conditions that existed on other campuses. Therefore, Dr. Suvak believed that the students at Montana State University did not have the background to prepare a list of dormitory conditions which may influence student scholastic achievement.

The second way to prepare a list of differences in dormitory architecture is to ask student personnel professionals for their opinions. These professionals are required to be familiar with the variety of dormitory architectural styles available on other campuses. In addition, these professionals are expected to have discussed a wide variety of dormitory conditions with students living in the dormitories. The procedure used in this study was to ask student personnel professionals at Montana State University to prepare a list of differences in architectural style between four dormitories. A conference with the Dean of Students, the Dean of Women, the University Architect, and the Director of Housing resulted in the identification of 29 factors which differed among the dormitories studied. Of the 29 CARS factors, 27 factors involved architectural differences. The other 2 factors, Staff-student Ratio and Quality of Dormitory Supervision, concerned interpersonal differences. These 29 factors

and their descriptions follow.

Factor 1. Architectural Style. This item distinguished the basic design of the four dormitories. There were three different architectural designs.

Factor 2. Accessibility to Library and Student Union Building. On Montana State University's campus, the library and the student union building are adjacent buildings. Item two refers to the distance between the dormitories and the library and/or student union building.

Factor 3. Staff-student Ratio. This item refers to the ratio in each dormitory of staff members to student residents.

Factor 4. Disturbance by Traffic in Halls. Disturbance refers to the amount of noise from the halls a student can hear in his room. Taken into consideration were (1) the insulation of the walls, (2) whether the halls were carpeted, and (3) the number of individuals that used the halls while entering and exiting the dormitory (i.e., some dormitories had many exits for the students to use while others had only a few).

Factor 5. Space to Spread Out Materials. Item five refers to the amount of space each dormitory resident had for spreading out materials while studying. Taken into consideration were the size of the room, the floor plan of the room, and whether the furniture could be rearranged for the purpose of spreading out materials.

Factor 6. Furniture. This item refers to whether the rooms

had comfortable furniture (i.e., padded desk chairs) for the students.

Factor 7. Music Practice Rooms. Practice rooms were available in some dormitories for students to practice their musical instruments.

Factor 8. Staggered Doors. Staggered doors refers to whether the individual room doors were staggered or placed opposite one another.

Factor 9. Storage in Basement. Some dormitories had storage areas in the basement and other dormitories did not; thus, some students had to store their belongings in their rooms while other students did not.

Factor 10. Proximity to Food Facilities. Proximity to food facilities refers to the distance the students had to travel to their assigned cafeteria.

Factor 11. Size of Rooms. Size of rooms refers to the number of square feet of space in each room.

Factor 12. Study Rooms. Item twelve refers to whether the dormitories had study rooms available for student use.

Factor 13. Mattress Quality. This item refers to the overall quality of the mattresses available to students living in each dormitory. Older mattresses that were soft were differentiated from newer mattresses that were firm.

Factor 14. Closet Space. This refers to the number of square feet of usable closet space available to each resident.

Factor 15. Lamp Lighting in Rooms. The quality of lamp

lighting for study purposes was assessed in each dormitory. Lamps that were bolted to the tables were judged to be different from lamps that were not bolted to the tables.

Factor 16. Library in Dormitory. This item discriminated between those dormitories that contained libraries for the residents to use and those dormitories that contained no libraries for residents to use.

Factor 17. Quality of Dormitory Supervision. This non-architectural item was included to distinguish between those dormitories that were considered to have above average quality of supervision and those dormitories that were considered to have below average quality of supervision. These ratings were based on the personal observations of the Director of Housing.

Factor 18. Carpet in Halls. The dormitories may or may not have carpeted halls.

Factor 19. Hall Noise. This item is distinguished from CARS item four in that this item is concerned with the amount of noise heard in the rooms. Considered in this judgment were the amount of traffic in the halls, whether the halls were carpeted, and whether the halls had acoustical tile on the walls and/or ceiling.

Factor 20. Hall Colors. Wall colors refers to whether the halls were painted with bright colors (e.g., bright yellow, white, or green) or whether the halls were painted with drab "institutional" colors.

Factor 21. Privacy of Baths. This item refers to the number of residents in each hall that were assigned to each shower, toilet, and sink facility.

Factor 22. Personalization Allowed in Rooms. Item 22 refers to whether the residents were allowed to decorate their rooms (e.g., hang pictures and rearrange the furniture).

Factor 23. Moveable Furniture. This refers to whether the furniture was secured to a fixed location or whether the furniture could be arranged within the room.

Factor 24. Size of Window. The focus of this item was the number of square inches of window in each dormitory room.

Factor 25. View from the Window. The view from the window was considered scenic when the majority of the residents in the dormitory could look out and have an unobstructed view of the mountain ranges in the surrounding area. A view was considered poor when the majority of the residents in the dormitory could look out of their window and see mostly other dormitories and city streets.

Factor 26. Room Colors. This item distinguished between the dormitories which had bright colors in the rooms and the dormitories which had drab colors characteristic of institutions.

Factor 27. Recreation Area Inside Building. Item 27 distinguished between those dormitories which had recreation rooms for the residents and dormitories that had no recreation room for the

residents.

Factor 28. Main Floor Lounge. This item differentiated between those dormitories that had lounge areas on the main floor and those dormitories which had no lounge areas.

Factor 29. Number of People/Washing Machine. This refers to the number of residents per washing machine on each floor.

Scoring procedures. CARS is a nominal rating scale. The dormitories were rated on each item on a scale ranging from one to four. A rating was intended to indicate that a difference did exist between the dormitories. The ratings were not intended to suggest a qualitative difference between the dormitories. An example is item one. Item one required the rater to make a decision regarding whether a difference existed between the architectural styles of the four dormitories. Hedges North and Hedges South are basically identical; these two dormitories differ from the architectural style of Langford Hall which, in turn, differs from the architectural style of Roskie Hall (See Appendix F for diagrams of the floor plans of the four dormitories). The rater assigned the following ratings to the four dormitories on item one, Architectural Style.

<u>Dormitory</u>	<u>Rating</u>
Hedges North	1
Hedges South	1
Roskie Hall	2

The rater assigned arbitrary numerical designations to the architectural styles of the four dormitories. The ratings did not imply that the architectural style of the Hedges dormitories was better than the architectural styles of Roskie Hall and Langford Hall. The rater simply indicated that a difference existed between the architectural styles of the four dormitories.

Although the rating scale had a possible range from a score of one to a score of four, the entire range was not always used. For example, a rating range of only two points was used on item six, Furniture. A dormitory with comfortable furniture was defined as a dormitory in which the individual rooms contained padded desk chairs in which the students could study. The three dormitories which had padded chairs were each given a score of one. The fourth dormitory had wooden chairs and was given a score of two on item six.

Scores on CARS were identical for students living in the same dormitory. That is, all students living in Roskie Hall received the same score; all students living in Langford Hall received the same score; all students living in Hedges North received the same score; and all students living in Hedges South received the same score. Although Hedges North and Hedges South had basically identical architectural designs, the scores on some other items were different for the two dormitories. For example, Hedges South contained a library

while Hedges North did not contain a library.

Mr. Andrew Blank, Director of Housing at Montana State University, rated the four dormitories on the 29 factors. In making the ratings, Mr. Blank relied upon his personal knowledge of the dormitories. This knowledge was gained through several years of observation, research, and his interactions with the staff and residents of the dormitories.

Norming. CARS was not designed to be used to compare dormitory scores on one campus with the average score earned by dormitories throughout the nation. CARS was intended only to differentiate between four dormitories on Montana State University's campus. Therefore, norming the instrument was not necessary.

Reliability. Harriman defined reliability as "the extent to which a test or a series of observations is dependable, self-consistent, and stable (1965, p. 168)." CARS was designed to be a reliable measure of differences that existed in the architectural features of four dormitories. Each of the 29 CARS items was defined in such a way as to leave little chance for subjective rater bias to enter into the ratings. An example is item 28 of CARS. Item 28 required the rater to distinguish between dormitories that had a main floor lounge and dormitories that had no main floor lounge. The CARS items were defined in such a manner as to allow the rater to make dependable, self-

consistent, and stable ratings. No statistical analysis of CARS reliability was done.

Validity. Harriman defined validity as "the degree to which a psychological test or measure accurately predicts the criterion or whatever it is intended to measure. Validation is the process of improving the predictive value of a test or measure (1965, p. 211)."

Each CARS item was carefully defined in such a manner as to insure that each item actually measured what it was intended to measure. An example is item 12. Item 12 distinguished between dormitories that had study rooms available to the students and dormitories that had no study rooms available to the students.

CARS was designed to measure whether a difference existed. This was validly accomplished. Had CARS attempted to rate the degree of difference that existed among the dormitories, validity would have had to have been statistically determined.

Research Hypotheses

The primary purpose of this investigation was to determine the relationship between selected environmental factors within student residence halls and the scholastic achievement of students. Furthermore, this study was concerned with the collection of data to contribute to the literature dealing with two research instruments, CUES II and URES. The following questions were formulated to accomplish the

stated purposes:

1. What relationship exists between student scholastic achievement and each of the 10 scales on URES?
2. What relationship exists between student scholastic achievement and each of the 29 CARS factors?
3. What relationship exists between each of the 10 scales on URES and each of the 7 scales on CUES II?
4. What proportion of the variance in student scholastic achievement can be accounted for by combining (1) expected grade point average, (2) psycho-social factors, and (3) architectural factors?

In order to answer the four questions listed above, null hypotheses were formulated. The null hypotheses were tested at the .01 level of significance ($r = \pm .155$ at .01 level; $R = .155$ at .01 level). The following hypotheses were tested for significance:

- I. There is no significant relationship between scholastic achievement and each of the 10 URES scales.
 - 1.1 There is no significant relationship between scholastic achievement and the URES scale Involvement.
 - 1.2 There is no significant relationship between scholastic achievement and the URES scale Emotional Support.
 - 1.3 There is no significant relationship between scholastic achievement and the URES scale Independence.
 - 1.4 There is no significant relationship between scholastic

achievement and the URES scale Traditional Social Orientation.

- 1.5 There is no significant relationship between scholastic achievement and the URES scale Competition.
- 1.6 There is no significant relationship between scholastic achievement and the URES scale Academic Achievement.
- 1.7 There is no significant relationship between scholastic achievement and the URES scale Intellectuality.
- 1.8 There is no significant relationship between scholastic achievement and the URES scale Order and Organization.
- 1.9 There is no significant relationship between scholastic achievement and the URES scale Innovation.
- 1.10 There is no significant relationship between scholastic achievement and the URES scale Student Influence.

II. There is no significant relationship between scholastic achievement and each of the 29 CARS factors.

- 2.1 There is no significant relationship between scholastic achievement and the CARS factor Architectural Style.
- 2.2 There is no significant relationship between scholastic achievement and the CARS factor Accessibility to Library and Student Union Building.
- 2.3 There is no significant relationship between scholastic achievement and the CARS factor Staff-student Ratio.

- 2.4 There is no significant relationship between scholastic achievement and the CARS factor Disturbance by Traffic in Halls.
- 2.5 There is no significant relationship between scholastic achievement and the CARS factor Space to Spread Out Materials.
- 2.6 There is no significant relationship between scholastic achievement and the CARS factor Furniture.
- 2.7 There is no significant relationship between scholastic achievement and the CARS factor Music Practice Rooms.
- 2.8 There is no significant relationship between scholastic achievement and the CARS factor Staggered Doors.
- 2.9 There is no significant relationship between scholastic achievement and the CARS factor Storage in Basement.
- 2.10 There is no significant relationship between scholastic achievement and the CARS factor Proximity to Food Facilities.
- 2.11 There is no significant relationship between scholastic achievement and the CARS factor Size of Rooms.
- 2.12 There is no significant relationship between scholastic achievement and the CARS factor Study Rooms.
- 2.13 There is no significant relationship between scholastic achievement and the CARS factor Mattress Quality.
- 2.14 There is no significant relationship between scholastic

- achievement and the CARS factor Closet Space.
- 2.15 There is no significant relationship between scholastic achievement and the CARS factor Lamp Lighting in Rooms.
- 2.16 There is no significant relationship between scholastic achievement and the CARS factor Library in Dormitory.
- 2.17 There is no significant relationship between scholastic achievement and the CARS factor Quality of Dormitory Supervision.
- 2.18 There is no significant relationship between scholastic achievement and the CARS factor Carpet in Halls.
- 2.19 There is no significant relationship between scholastic achievement and the CARS factor Hall Noise.
- 2.20 There is no significant relationship between scholastic achievement and the CARS factor Hall Colors.
- 2.21 There is no significant relationship between scholastic achievement and the CARS factor Privacy of Bath.
- 2.22 There is no significant relationship between scholastic achievement and the CARS factor Personalization Allowed in Rooms.
- 2.23 There is no significant relationship between scholastic achievement and the CARS factor Moveable Furniture.
- 2.24 There is no significant relationship between scholastic achievement and the CARS factor Size of Windows.

- 2.25 There is no significant relationship between scholastic achievement and the CARS factor View from Window.
- 2.26 There is no significant relationship between scholastic achievement and the CARS factor Room Colors.
- 2.27 There is no significant relationship between scholastic achievement and the CARS factor Recreation Area Inside Building.
- 2.28 There is no significant relationship between scholastic achievement and the CARS factor Main Floor Lounge.
- 2.29 There is no significant relationship between scholastic achievement and the CARS factor Number of People/Washing Machine.
- III. There is no significant relationship between each of the 10 URES scales and each of the 7 CUES II scales.
- 3.1 There is no significant relationship between the URES scale Involvement and the CUES II scale Practicality.
- 3.2 There is no significant relationship between the URES scale Involvement and the CUES II scale Community.
- 3.3 There is no significant relationship between the URES scale Involvement and the CUES II scale Awareness.
- 3.4 There is no significant relationship between the URES scale Involvement and the CUES II scale Propriety.
- 3.5 There is no significant relationship between the URES

- scale Involvement and the CUES II scale Scholarship.
- 3.6 There is no significant relationship between the URES scale Involvement and the CUES II scale Campus Morale.
- 3.7 There is no significant relationship between the URES scale Involvement and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.8 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Practicality.
- 3.9 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Community.
- 3.10 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Awareness.
- 3.11 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Propriety.
- 3.12 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Scholarship.
- 3.13 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Campus Morale.
- 3.14 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.15 There is no significant relationship between the URES scale Independence and the CUES II scale Practicality.

- 3.16 There is no significant relationship between the URES scale Independence and the CUES II scale Community.
- 3.17 There is no significant relationship between the URES scale Independence and the CUES II scale Awareness.
- 3.18 There is no significant relationship between the URES scale Independence and the CUES II scale Propriety.
- 3.19 There is no significant relationship between the URES scale Independence and the CUES II scale Scholarship.
- 3.20 There is no significant relationship between the URES scale Independence and the CUES II scale Campus Morale.
- 3.21 There is no significant relationship between the URES scale Independence and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.22 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Practicality.
- 3.23 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Community.
- 3.24 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Awareness.
- 3.25 There is no significant relationship between the URES

- scale Traditional Social Orientation and the CUES II scale Propriety.
- 3.26 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Scholarship.
- 3.27 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Campus Morale.
- 3.28 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.29 There is no significant relationship between the URES scale Competition and the CUES II scale Practicality.
- 3.30 There is no significant relationship between the URES scale Competition and the CUES II scale Community.
- 3.31 There is no significant relationship between the URES scale Competition and the CUES II scale Awareness.
- 3.32 There is no significant relationship between the URES scale Competition and the CUES II scale Propriety.
- 3.33 There is no significant relationship between the URES scale Competition and the CUES II scale Scholarship.
- 3.34 There is no significant relationship between the URES scale Competition and the CUES II scale Campus Morale.

- 3.35 There is no significant relationship between the URES scale Competition and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.36 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Practicality.
- 3.37 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Community.
- 3.38 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Awareness.
- 3.39 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Propriety.
- 3.40 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Scholarship.
- 3.41 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Campus Morale.
- 3.42 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.43 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Practicality.
- 3.44 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Community.

- 3.45 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Awareness.
- 3.46 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Propriety.
- 3.47 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Scholarship.
- 3.48 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Campus Morale.
- 3.49 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.50 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Practicality.
- 3.51 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Community.
- 3.52 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Awareness.
- 3.53 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Propriety.
- 3.54 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Scholarship.
- 3.55 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Campus Morale.

- 3.56 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.57 There is no significant relationship between the URES scale Innovation and the CUES II scale Practicality.
- 3.58 There is no significant relationship between the URES scale Innovation and the CUES II scale Community.
- 3.59 There is no significant relationship between the URES scale Innovation and the CUES II scale Awareness.
- 3.60 There is no significant relationship between the URES scale Innovation and the CUES II scale Propriety.
- 3.61 There is no significant relationship between the URES scale Innovation and the CUES II scale Scholarship.
- 3.62 There is no significant relationship between the URES scale Innovation and the CUES II scale Campus Morale.
- 3.63 There is no significant relationship between the URES scale Innovation and the CUES II scale Quality of Teaching and Faculty-student Relationships.
- 3.64 There is no significant relationship between the URES scale Student Influence and the CUES II scale Practicality.
- 3.65 There is no significant relationship between the URES scale Student Influence and the CUES II scale Community.
- 3.66 There is no significant relationship between the URES scale

Student Influence and the CUES II scale Awareness.

- 3.67 There is no significant relationship between the URES scale Student Influence and the CUES II scale Propriety.
- 3.68 There is no significant relationship between the URES scale Student Influence and the CUES II scale Scholarship.
- 3.69 There is no significant relationship between the URES scale Student Influence and the CUES II scale Campus Morale.
- 3.70 There is no significant relationship between the URES scale Student Influence and the CUES II scale Quality of Teaching and Faculty-student Relationships.

- IV. There is no significant relationship between scholastic achievement and a combination of (1) expected grade point average, (2) CUES II scales, (3) URES scales, and (4) CARS factors.

Statistical Procedures

Two statistical techniques, simple correlation and multiple correlation, were used to analyze the data. A description of these statistical techniques and their use in this study follows.

Simple Correlation Equation

Correlation may be defined as the degree of agreement between two sets of data. The degree of agreement is represented by the correlation coefficient. The simple correlation coefficient is signified by the symbol r .

A correlation coefficient is an abstract number that has a value ranging from -1.0 to $+1.0$. An r of 1.0 indicates perfect agreement in the rank order of scores on one variable and the scores on a second variable. An r of 1.0 is seldom found in research studies. An r of 0 indicates either (1) no agreement or (2) random association between the rank order of scores on one variable and the scores on a second variable. An r preceded by a plus sign (+) or without a sign indicates a positive correlation. A positive correlation is one where the high score on one variable is associated with high scores on the second variable while the low scores on the two variables are often associated with each other. An r preceded by a minus sign (-) indicates a negative correlation in which the high scores on one variable are associated with the low scores on the other variable. Negative correlation coefficients are not as common as are positive correlation coefficients (Guilford, 1956).

The simple correlation coefficient was used in this study to determine the relationship that existed between scholastic achievement and (1) each of the 10 URES scales and (2) each of the 29 CARS factors. In addition, the simple correlation coefficient was used to determine the relationship that existed between each of the 10 URES scales and each of the 7 CUES II scales.

The multiple regression equation is described in the paragraphs which follow.

Multiple Regression Equation

The regression equation is used to predict a criterion measure from information provided by two or more predictors. With two or more predictors, the multiple regression equation is used to yield R.

Multiple correlation refers to the degree of agreement between one variable, the criterion, and the best-weighted combination of two or more variables. In this study, the stepwise multiple regression equation was used. The criterion was scholastic achievement. R was computed to determine whether the criterion could be predicted when two or more variables were combined. The variables that were combined were the individual student scores on URES, CUES II, and CARS; and the student's expected grade point average.

R may range from 0 to 1.0. The value of R can be seen when R is compared with each r. R shows the improvement in efficiency of prediction that was achieved by using several variables in combination to predict the criterion, scholastic achievement. R is always expressed without a plus (+) or minus (-) sign because R represents the strength of the relationship (Guilford, 1965).

The following paragraphs contain a description of the procedures used when testing the hypotheses of this study.

Testing of the Hypotheses

The .01 level of confidence was set for determining the

significance of r and R . A correlation coefficient of $\pm .155$ for r (or $.155$ for R) is needed for statistical significance at the $.01$ level when $n = 280$ (Guilford, 1956, p. 539).

Guilford (1956) recognized that a coefficient of $\pm .155$ was significant at the $.01$ level, but said that a coefficient less than $\pm .20$ was almost negligible. Guilford's interpretation of the correlation coefficient is presented below:

Less than	.20	Slight; almost negligible relationship
.20	--	.40Low correlation; definite but small relationship
.40	--	.70Moderate correlation; substantial relationship
.70	--	.90High correlation; marked relationship
.90	--	1.00Very high correlation; very dependable relationship (Guilford, 1956, p. 145).

Guilford also reported that most educational studies must obtain relatively high correlation coefficients before the relationships have any usefulness. Therefore, although the hypotheses will be tested at the $.01$ level, each description of the hypotheses will include a description of the significance of the relationship as expressed by Guilford (1956).

Organization of the Data

The data obtained from the returned questionnaires were organized in the following manner:

CUES II

The 301 CUES II answer sheets were mailed to Educational Testing Service, Princeton, New Jersey, for machine scoring. Educational Testing Service returned individual student data cards. These cards contained each student's (1) identification number and (2) response to each of the CUES II statements. In addition, a computerized printout was also received from Educational Testing Service. This printout summarized (1) the total response of the sample for each CUES II scale and (2) the total response, by dormitory, for each CUES II scale.

URES

The 301 URES answer sheets were key punched at the Montana State University Computer Center. Each student's data card contained the student's (1) identification number and (2) response to each of the URES statements.

CARS

CARS was scored for each student according to the place of the student's residence. Students living in the same dormitory were given the same rating.

Scholastic Achievement

Scholastic achievement was defined as a student's grade point average for the 1971-1972 school term. The scholastic achievement of

each student was obtained from the registrar. Each student's cumulative grade point average for the 1971-1972 school year was key punched on data cards along with each student's identification number.

Expected Grade Point Average

Expected grade point average was defined as a prediction of the scholastic achievement of each student. The Testing and Counseling Office at Montana State University computes the expected grade point averages from students' scores on the entrance (freshmen) test battery and the students' high school grades. Each student's expected grade point average was key punched on data cards along with each student's identification number.

After obtaining individual student CUES II scores, URES scores, CARS scores, achieved grade point averages, and expected grade point averages, the data were transferred to magnetic tape for future analysis.

The list which follows summarizes the information which was collected for the subjects:

General Information

1. Student identification number (social security number)
2. Dormitory residence
3. Cumulative grade point average for the 1971-1972 school term
4. Expected grade point average

CUES II (Each student had a score on each scale.)

5. Practicality
6. Community
7. Awareness
8. Propriety
9. Scholarship
10. Campus Morale
11. Quality of Teaching and Faculty-student Relationships

URES (Each student had a score on each scale.)

12. Involvement
13. Emotional Support
14. Independence
15. Traditional Social Orientation
16. Competition
17. Academic Achievement
18. Intellectuality
19. Order and Organization
20. Innovation
21. Student Influence

CARS (For each factor, each student had a score based on dormitory residence.)

22. Architectural Style
23. Accessibility to Library and Student Union Building

24. Staff-student Ratio
25. Disturbance by Traffic in Halls
26. Space to Spread out Materials
27. Furniture
28. Music Practice Rooms
29. Staggered Doors
30. Storage in Basement
31. Proximity to Food Facilities
32. Size of Rooms
33. Study Rooms
34. Mattress Quality
35. Closet Space
36. Lamp Lighting in Rooms
37. Library in Dormitory
38. Quality of Dormitory Supervision
39. Carpet in Halls
40. Hall Noise
41. Hall Colors
42. Privacy of Baths
43. Personalization Allowed in Rooms
44. Moveable Furniture
45. Size of Window
46. View from the Window

47. Room Colors
48. Recreation Area Inside Building
49. Main Floor Lounge
50. Number of People/Washing Machine

Summary

This study was an investigation to determine whether student scholastic achievement was influenced by the psycho-social and architectural environment of the students' dormitories.

This chapter, Chapter III, contained a description of the subjects of the study, an explanation of the research procedures, a description of the research instruments, a list of the hypotheses, and an explanation of the statistical procedures.

Chapter IV contains a presentation of the findings for each of the hypotheses.

Chapter V contains a summary of the study and recommendations for further research.

Chapter IV

Findings

The primary purpose of this study was to determine the relationship between selected environmental factors within student residence halls and the scholastic achievement of students. Furthermore, this study was concerned with the collection of data to contribute to the literature dealing with three research instruments, the CUES II, the URES, and the CARS. The purpose of this chapter is to present and analyze the data relative to this study.

Tests of the Hypotheses

A random sample of 301 students participated in this study. (See Table 6 for a distribution of subjects by dormitory.) After the data collection, some information was found to be missing on 21 of the students' answer sheets. Some of the students, for example, failed to enter an accurate social security number while others failed to fill in every relevant blank on the answer sheets. Therefore, the total n in this study was 280 students.

Guilford (1956, p. 539) stated that an r equal to or greater than $\pm .155$ is needed for statistical significance at the .01 level when based on an n of 280. All hypotheses were tested for significance.

It is important to recognize that a correlation coefficient may be significant while not representing a meaningful relationship. The

larger the n , the smaller the correlation coefficient that is needed for significance. In this study, a correlation coefficient of $\pm .155$ was needed for significance. While significant at the .01 level, Guilford (1956, p. 147) stated that such a negligible relationship is not useful for most educational decision making. Therefore, while all hypotheses were tested at the .01 level of significance, the description of the findings includes an interpretation of the degree of relationship that was found to exist. (See Chapter III, page 123, of this paper for Guilford's [1956, p. 145] interpretation of the correlation coefficient.)

Hypothesis One was stated as follows:

- I. There is no significant relationship between scholastic achievement and each of the 10 URES scales.

Table 15 contains the individual correlation coefficients computed between scholastic achievement and each of the 10 URES scales. In order to answer Hypothesis One, 10 sub-hypotheses were stated. The description of each correlation coefficient will be considered separately with respect to each of the 10 hypotheses.

- 1.1 There is no significant relationship between scholastic achievement and the URES scale Involvement.

An r of $-.15082$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.15082$ is not significant at the .01 level. Hypothesis 1.1 was

not rejected at the stated level.

TABLE 15

Computed r^* Between Scholastic Achievement
and Each of the 10 URES Scales

URES Scale	Scholastic Achievement
Involvement	-.15082
Emotional Support	-.03129
Independence	.11696
Traditional Social Orientation	-.01517
Competition	-.08424
Academic Achievement	.00210
Intellectuality	-.12333
Order and Organization	.05861
Innovation	.18261
Student Influence	.00360

*Critical value of r at .01 level is $\pm .155$ (Guilford, 1956, p. 539)

1.2 There is no significant relationship between scholastic achievement and the URES scale Emotional Support.

An r of $-.03129$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.03129$ is not significant at the .01 level. Hypothesis 1.2 was not rejected at the stated level.

1.3 There is no significant relationship between scholastic achievement and the URES scale Independence.

An r of .11696 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .11696 is not significant at the .01 level. Hypothesis 1.3 was not rejected at the stated level.

- 1.4 There is no significant relationship between scholastic achievement and the URES scale Traditional Social Orientation.

An r of $-.01517$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.01517$ is not significant at the .01 level. Hypothesis 1.4 was not rejected at the stated level.

- 1.5 There is no significant relationship between scholastic achievement and the URES scale Competition.

An r of $-.08424$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.08424$ is not significant at the .01 level. Hypothesis 1.5 was not rejected at the stated level.

- 1.6 There is no significant relationship between scholastic achievement and the URES scale Academic Achievement.

An r of .00210 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .00210 is not significant at the .01 level. Hypothesis 1.6 was not rejected at the stated level.

1.7 There is no significant relationship between scholastic achievement and the URES scale Intellectuality.

An r of $-.12333$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.12333$ is not significant at the .01 level. Hypothesis 1.7 was not rejected at the stated level.

1.8 There is no significant relationship between scholastic achievement and the URES scale Order and Organization.

An r of $.05861$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.05861$ is not significant at the .01 level. Hypothesis 1.8 was not rejected at the stated level.

1.9 There is no significant relationship between scholastic achievement and the URES scale Innovation.

An r of $.18261$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.18261$ is significant at the .01 level. Hypothesis 1.9 was rejected at the stated level.

1.10 There is no significant relationship between scholastic achievement and the URES scale Student Influence.

An r of $.00360$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.00360$ is not significant at the .01 level. Hypothesis 1.10 was not

rejected at the stated level.

Hypothesis One stated, "There is no significant relationship between scholastic achievement and each of the 10 URES scales." In order to test Hypothesis One, 10 sub-hypotheses (1.1 through 1.10) were stated. Correlation coefficients were computed to test each of these hypotheses. One significant relationship was found: the URES scale Innovation was found to have a slightly significant relationship to scholastic achievement. The findings indicate that URES is not useful in predicting scholastic achievement.

Hypothesis Two was stated as follows:

II. There is no significant relationship between scholastic achievement and each of the 29 CARS factors.

Table 16 contains the individual correlation coefficients computed between scholastic achievement and each of the 29 CARS factors. In order to answer Hypothesis Two, 29 sub-hypotheses were stated. The description of each correlation coefficient will be considered separately with respect to each of the 29 sub-hypotheses.

2.1 There is no significant relationship between scholastic achievement and the CARS factor Architectural Style.

An r of $-.09305$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09305$ is not significant at the .01 level. Hypothesis 2.1 was not rejected at the stated level.

TABLE 16

Computed r^* Between Scholastic Achievement and
Each of the 29 CARS Factors

CARS factors	Scholastic achievement
1. Architectural Style	-.09305
2. Accessibility to Library and Student Union	-.09305
3. Staff-student Ratio	.13686
4. Disturbance by Traffic in Halls	.08846
5. Space to Spread Out Materials	.08846
6. Furniture	-.05920
7. Music Practice Rooms	-.09744
8. Staggered Doors	.06475
9. Storage in Basement	-.09744
10. Proximity to Food Facilities	-.09744
11. Size of Rooms	-.01212
12. Study Rooms	-.08844
13. Mattress Quality	-.05920
14. Closet Space	.05920
15. Lamp Lighting in Rooms	.09747
16. Library in Dormitory	.11646
17. Quality of Dormitory Supervision	.11646
18. Carpet in Halls	.06475
19. Hall Noise	.08846
20. Hall Colors	.06475
21. Privacy of Bath	-.06473
22. Personalization Allowed in Rooms	.09307
23. Moveable Furniture	.05920
24. Size of Windows	-.01212
25. View from Window	-.05920
26. Room Colors	.01214
27. Recreation Area Inside Building	-.08844
28. Main Floor Lounge	-.09744
29. Number of People/Washing Machine	.01214

*Critical value of r at .01 level is $\pm .155$ (Guilford, 1956, p. 539)

2.2 There is no significant relationship between scholastic achievement and the CARS factor Accessibility to Library and Student Union Building.

An r of $-.09305$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09305$ is not significant at the .01 level. Hypothesis 2.2 was not rejected at the stated level.

2.3 There is no significant relationship between scholastic achievement and the CARS factor Staff-student Ratio.

An r of $.13686$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.13686$ is not significant at the .01 level. Hypothesis 2.3 was not rejected at the stated level.

2.4 There is no significant relationship between scholastic achievement and the CARS factor Disturbance by Traffic in Halls.

An r of $.08846$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.08846$ is not significant at the .01 level. Hypothesis 2.4 was not rejected at the stated level.

2.5 There is no significant relationship between scholastic achievement and the CARS factor Space to Spread Out Materials.

An r of .08846 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .08846 is not significant at the .01 level. Hypothesis 2.5 was not rejected at the stated level.

2.6 There is no significant relationship between scholastic achievement and the CARS factor Furniture.

An r of $-.05920$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.05920$ is not significant at the .01 level. Hypothesis 2.6 was not rejected at the stated level.

2.7 There is no significant relationship between scholastic achievement and the CARS factor Music Practice Rooms.

An r of $-.09744$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09744$ is not significant at the .01 level. Hypothesis 2.7 was not rejected at the stated level.

2.8 There is no significant relationship between scholastic achievement and the CARS factor Staggered Doors.

An r of .06475 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .06475 is not significant at the .01 level. Hypothesis 2.8 was not rejected at the stated level.

2.9 There is no significant relationship between scholastic

achievement and the CARS factor Storage in Basement.

An r of $-.09744$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09744$ is not significant at the .01 level. Hypothesis 2.9 was not rejected at the stated level.

2.10 There is no significant relationship between scholastic achievement and the CARS factor Proximity to Food Facilities.

An r of $-.09744$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09744$ is not significant at the .01 level. Hypothesis 2.10 was not rejected at the stated level.

2.11 There is no significant relationship between scholastic achievement and the CARS factor Size of Room.

An r of $-.01212$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.01212$ is not significant at the .01 level. Hypothesis 2.11 was not rejected at the stated level.

2.12 There is no significant relationship between scholastic achievement and the CARS factor Study Rooms.

An r of $-.08844$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.08844$ is not significant at the .01 level. Hypothesis

2.12 was not rejected at the stated level.

2.13 There is no significant relationship between scholastic achievement and the CARS factor Mattress Quality.

An r of $-.05920$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.05920$ is not significant at the .01 level. Hypothesis 2.13 was not rejected at the stated level.

2.14 There is no significant relationship between scholastic achievement and the CARS factor Closet Space.

An r of $.05920$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.05920$ is not significant at the .01 level. Hypothesis 2.14 was not rejected at the stated level.

2.15 There is no significant relationship between scholastic achievement and the CARS factor Lamp Lighting in Rooms.

An r of $.09747$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.09747$ is not significant at the .01 level. Hypothesis 2.15 was not rejected at the stated level.

2.16 There is no significant relationship between scholastic achievement and the CARS factor Library in Dormitory.

An r of $.11646$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of

.11646 is not significant at the .01 level. Hypothesis 2.16 was not rejected at the stated level.

2.17 There is no significant relationship between scholastic achievement and the CARS factor Quality of Dormitory Supervision.

An r of .11646 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .11646 is not significant at the .01 level. Hypothesis 2.17 was not rejected at the stated level.

2.18 There is no significant relationship between scholastic achievement and the CARS factor Carpet in Halls.

An r of .06475 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .06475 is not significant at the .01 level. Hypothesis 2.18 was not rejected at the stated level.

2.19 There is no significant relationship between scholastic achievement and the CARS factor Hall Noise.

An r of .08846 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .08846 is not significant at the stated level. Hypothesis 2.19 was not rejected at the stated level.

2.20 There is no significant relationship between scholastic achievement and the CARS factor Hall Colors.

An r of .06475 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .06475 is not significant at the .01 level. Hypothesis 2.20 was not rejected at the stated level.

2.21 There is no significant relationship between scholastic achievement and the CARS factor Privacy of Bath.

An r of $-.06473$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.06473$ is not significant at the .01 level. Hypothesis 2.21 was not rejected at the stated level.

2.22 There is no significant relationship between scholastic achievement and the CARS factor Personalization Allowed in Rooms.

An r of .09307 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .09307 is not significant at the .01 level. Hypothesis 2.22 was not rejected at the stated level.

2.23 There is no significant relationship between scholastic achievement and the CARS factor Moveable Furniture.

An r of .05920 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .05920 is not significant at the .01 level. Hypothesis 2.23 was not rejected at the stated level.

2.24 There is no significant relationship between scholastic achievement and the CARS factor Size of Windows.

An r of $-.01212$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.01212$ is not significant at the .01 level. Hypothesis 2.24 was not rejected at the stated level.

2.25 There is no significant relationship between scholastic achievement and the CARS factor View from Window.

An r of $-.05920$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.05920$ is not significant at the .01 level. Hypothesis 2.25 was not rejected at the stated level.

2.26 There is no significant relationship between scholastic achievement and the CARS factor Room Colors.

An r of $.01214$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.01214$ is not significant at the .01 level. Hypothesis 2.26 was not rejected at the stated level.

2.27 There is no significant relationship between scholastic achievement and the CARS factor Recreation Area Inside Building.

An r of $-.08844$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p.

145). An r of $-.08844$ is not significant at the $.01$ level. Hypothesis 2.27 was not rejected at the stated level.

2.28 There is no significant relationship between scholastic achievement and the CARS factor Main Floor Lounge.

An r of $-.09744$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09744$ is not significant at the $.01$ level. Hypothesis 2.28 was not rejected at the stated level.

2.29 There is no significant relationship between scholastic achievement and the CARS factor Number of People/Washing Machine.

An r of $.01214$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.01214$ is not significant at the $.01$ level. Hypothesis 2.29 was not rejected at the stated level.

Hypothesis Two stated, "There is no significant relationship between scholastic achievement and each of the 29 CARS factors." In order to test Hypothesis Two, 29 sub-hypotheses (2.1 through 2.29) were stated. Correlation coefficients were computed to test each of these hypotheses. No significant relationship was found. These findings indicate that CARS is not useful in predicting scholastic achievement.

Hypothesis Three was stated as follows:

III. There is no significant relationship between each of the

10 URES scales and each of the 7 CUES II scales.

Tables 17 through 26 contain the individual correlation coefficients computed between each of the URES scales and each of the CUES II scales. In order to answer Hypothesis Three, 70 sub-hypotheses were stated. The description of each correlation coefficient will be considered separately with respect to each of the 70 sub-hypotheses.

TABLE 17

Computed r^* Between the URES Scale Involvement
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Involvement</u>
Practicality	.17257
Community	.38604
Awareness	.55796
Propriety	.43709
Scholarship	.17180
Campus Morale	.55562
Quality of Teaching and Faculty-student Relationships	.33720

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.1 There is no significant relationship between the URES scale Involvement and the CUES II scale Practicality.

An r of .17257 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .17257 is significant at the .01 level. Hypothesis 3.1 was rejected

at the stated level.

3.2 There is no significant relationship between the URES scale Involvement and the CUES II scale Community.

An r of .38604 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .38604 is significant at the .01 level. Hypothesis 3.2 was rejected at the stated level.

3.3 There is no significant relationship between the URES scale Involvement and the CUES II scale Awareness.

An r of .55796 was computed. An r of this magnitude represents a moderate, but substantial correlation (Guilford, 1956, p. 145). An r of .55796 is significant at the .01 level. Hypothesis 3.3 was rejected at the stated level.

3.4 There is no significant relationship between the URES scale Involvement and the CUES II scale Propriety.

An r of .43709 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .43709 is significant at the .01 level. Hypothesis 3.4 was rejected at the stated level.

3.5 There is no significant relationship between the URES scale Involvement and the CUES II scale Scholarship.

An r of .17180 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of

.17180 is significant at the .01 level. Hypothesis 3.5 was rejected at the stated level.

3.6 There is no significant relationship between the URES scale Involvement and the CUES II scale Campus Morale.

An r of .55562 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .55562 is significant at the .01 level. Hypothesis 3.6 was rejected at the stated level.

3.7 There is no significant relationship between the URES scale Involvement and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .33720 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .33720 is significant at the .01 level. Hypothesis 3.7 was rejected at the stated level.

Sub-hypotheses 3.1 through 3.7 were formulated to test the relationship between the URES scale Involvement and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. All seven CUES II scales were found to be significantly related to the URES scale Involvement. Awareness, Campus Morale, and Propriety were substantially related to Involvement. Community and Quality of Teaching and Faculty-student Relationships had a definite, but low, relationship with Involvement. The relationship of Scholarship and Practicality to Involvement was almost negligible.

The first URES scale is Involvement; the second scale is Emotional Support. Table 18 presents the correlation coefficients between Emotional Support and each of the seven CUES II scales.

TABLE 18

Computed r^* Between the URES scale Emotional Support
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Emotional Support</u>
Practicality	.19411
Community	.36573
Awareness	.51567
Propriety	.42201
Scholarship	.18952
Campus Morale	.54343
Quality of Teaching and Faculty-student Relationships	.36374

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.8 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Practicality.

An r of .19411 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .19411 is significant at the .01 level. Hypothesis 3.8 was rejected at the stated level.

3.9 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Community.

An r of .36573 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .36573 is significant at the .01 level. Hypothesis 3.2 was rejected at the stated level.

3.10 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Awareness.

An r of .51567 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .51567 is significant at the .01 level. Hypothesis 3.10 was rejected at the stated level.

3.11 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Propriety.

An r of .42201 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .42201 is significant at the .01 level. Hypothesis 3.11 was rejected at the stated level.

3.12 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Scholarship.

An r of .18952 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .18952 is significant at the .01 level. Hypothesis 3.12 was rejected at the stated level.

3.13 There is no significant relationship between the URES

scale Emotional Support and the CUES II scale Campus Morale.

An r of .54343 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .54343 is significant at the .01 level. Hypothesis 3.13 was rejected at the stated level.

3.14 There is no significant relationship between the URES scale Emotional Support and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .36374 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .36374 is significant at the .01 level. Hypothesis 3.14 was rejected at the stated level.

Sub-hypotheses 3.8 through 3.14 were formulated to test the relationship between the URES scale Emotional Support and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. All seven CUES II scales were found to be significantly related to the URES scale Emotional Support. Awareness, Campus Morale, and Propriety were substantially related to Emotional Support. Community and Quality of Teaching and Faculty-student Relationships had a definite, but low, relationship to Emotional Support. The relationship of Scholarship and Practicality to Emotional Support was almost negligible.

The second URES scale is Emotional Support; the third scale is Independence. Table 19 presents the correlation coefficients between Independence and each of the seven CUES II scales.

TABLE 19

Computed r^* Between the URES Scale Independence and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Independence</u>
Practicality	-.27964
Community	-.11835
Awareness	-.24183
Propriety	-.19006
Scholarship	-.18378
Campus Morale	-.24952
Quality of Teaching and Faculty-student Relationships	-.00036

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.15 There is no significant relationship between the URES scale Independence and the CUES II scale Practicality.

An r of $-.27964$ was computed. An r of this magnitude represents a definite, but low, inverse correlation (Guilford, 1956, p. 145). An r of $-.27964$ is significant at the .01 level. Hypothesis 3.15 was rejected at the stated level.

3.16 There is no significant relationship between the URES scale Independence and the CUES II scale Community.

An r of $-.11835$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.11835$ is not significant at the .01 level. Hypothesis 3.16 was not rejected at the stated level.

3.17 There is no significant relationship between the URES scale Independence and the CUES II scale Awareness.

An r of $-.24183$ was computed. An r of this magnitude represents a definite, but low, inverse correlation (Guilford, 1956, p. 145). An r of $-.24183$ is significant at the .01 level. Hypothesis 3.17 was rejected at the stated level.

3.18 There is no significant relationship between the URES scale Independence and the CUES II scale Propriety.

An r of $-.19006$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.19006$ is significant at the .01 level. Hypothesis 3.18 was rejected at the stated level.

3.19 There is no significant relationship between the URES scale Independence and the CUES II scale Scholarship.

An r of $-.18378$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.18378$ is significant at the .01 level. Hypothesis 3.18 was rejected at the stated level.

3.20 There is no significant relationship between the URES scale Independence and the CUES II scale Campus Morale.

An r of $-.24952$ was computed. An r of this magnitude represents a definite, but low, inverse correlation (Guilford, 1956, p. 145). An r of $-.24952$ is significant at the .01 level. Hypothesis 3.20 was rejected at the stated level.

3.21 There is no significant relationship between the URES scale Independence and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of $-.00036$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.00036$ is not significant at the .01 level. Hypothesis 3.21 was not rejected at the stated level.

Sub-hypotheses 3.15 through 3.21 were formulated to test the relationship between the URES scale Independence and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. Five of the seven CUES II scales were found to be significantly related to the URES scale Independence. All seven of the CUES II scales were inversely related to the URES scale Independence. Awareness, Campus Morale, and Practicality had a definite inverse, but low, relationship to Independence. The relationship of Scholarship and Propriety to Independence was inverse and almost negligible. Community and Quality of Teaching and Faculty-student Relationships were inversely,

but not significantly, related to Independence.

The third URES scale is Independence; the fourth scale is Traditional Social Orientation. Table 20 presents the correlation coefficients between Traditional Social Orientation and each of the seven CUES II scales.

TABLE 20

Computed r^* Between the URES Scale Traditional Social Orientation and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Traditional Social Orientation</u>
Practicality	.14370
Community	-.09542
Awareness	-.01114
Propriety	.03013
Scholarship	-.11461
Campus Morale	-.05888
Quality of Teaching and Faculty-student Relationships	-.12038

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.22 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Practicality.

An r of .14370 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .14370 is not significant at the .01 level. Hypothesis 3.22 was not

rejected at the stated level.

- 3.23 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Community.

An r of $-.09542$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.09542$ is not significant at the .01 level. Hypothesis 3.23 was not rejected at the stated level.

- 3.24 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Awareness.

An r of $-.01114$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.01114$ is not significant at the .01 level. Hypothesis 3.24 was not rejected at the stated level.

- 3.25 There is no significant relationship between the URES scale Traditional Social Orientation and the CUES II scale Propriety.

An r of $.03013$ was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of $.03013$ is not significant at the .01 level. Hypothesis 3.25 was not rejected at the stated level.

- 3.26 There is no significant relationship between the URES

scale Traditional Social Orientation and the CUES II
scale Scholarship.

An r of $-.11461$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.11461$ is not significant at the .01 level. Hypothesis 3.26 was not rejected at the stated level.

3.27 There is no significant relationship between the URES
scale Traditional Social Orientation and the CUES II
Campus Morale.

An r of $-.05888$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.05888$ is not significant at the .01 level. Hypothesis 3.27 was not rejected at the stated level.

3.28 There is no significant relationship between the URES
scale Traditional Social Orientation and the CUES II
scale Quality of Teaching and Faculty-student Relationships.

An r of $-.12038$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.12038$ is not significant at the .01 level. Hypothesis 3.28 was not rejected at the stated level.

Sub-hypotheses 3.22 through 3.28 were formulated to test the relationship between the URES scale Traditional Social Orientation and each of the CUES II scales. Correlation coefficients were computed to

test each hypothesis. None of the seven CUES II scales were found to be significantly related to the URES scale Traditional Social Orientation. Two of the scales (Practicality and Propriety) were positively, but not significantly, related to Traditional Social Orientation. The other five scales (Campus Morale, Scholarship, Awareness, Community, and Quality of Teaching and Faculty-student Relationships) were inversely, but not significantly, related to Traditional Social Orientation.

The fourth URES scale is Traditional Social Orientation; the fifth scale is Competition. Table 21 presents the correlation coefficients between Competition and each of the seven CUES II scales.

TABLE 21

Computed r^* Between the URES Scale Competition and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Competition</u>
Practicality	.26113
Community	.05880
Awareness	.04268
Propriety	.08102
Scholarship	-.29339
Campus Morale	-.00896
Quality of Teaching and Faculty-student Relationships	-.14649

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.29 There is no significant relationship between the URES scale Competition and the CUES II scale Practicality.

An r of .26113 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .26113 is significant at the .01 level. Hypothesis 3.29 was rejected at the stated level.

3.30 There is no significant relationship between the URES scale Competition and the CUES II scale Community.

An r of .05880 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .05880 is not significant at the .01 level. Hypothesis 3.30 was not rejected at the stated level.

3.31 There is no significant relationship between the URES scale Competition and the CUES II scale Awareness.

An r of .04268 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .04268 is not significant at the .01 level. Hypothesis 3.31 was not rejected at the stated level.

3.32 There is no significant relationship between the URES scale Competition and the CUES II scale Propriety.

An r of .08102 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .08102 is not significant at the .01 level. Hypothesis 3.32 was not

rejected at the stated level.

3.33 There is no significant relationship between the URES scale Competition and the CUES II scale Scholarship.

An r of $-.29339$ was computed. An r of this magnitude represents a definite, but low, inverse correlation (Guilford, 1956, p. 145). An r of $-.29339$ is significant at the .01 level. Hypothesis 3.33 was rejected at the stated level.

3.34 There is no significant relationship between the URES scale Competition and the CUES II scale Campus Morale.

An r of $-.00896$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.00896$ is not significant at the .01 level. Hypothesis 3.34 was not rejected at the stated level.

3.35 There is no significant relationship between the URES scale Competition and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of $-.14649$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.14649$ is not significant at the .01 level. Hypothesis 3.35 was not rejected at the stated level.

Sub-hypotheses 3.29 through 3.35 were formulated to test the relationship between the URES scale Competition and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis.

Two of the seven scales were found to be significantly related to the URES scale Competition. Three of the seven scales were inversely related to the URES scale Competition. Scholarship and Practicality had a definite, but low, relationship to Competition; Scholarship was inversely related while Practicality was positively related. Propriety, Awareness, and Community were positively, but not significantly, related to Competition. Campus Morale and Quality of Teaching and Faculty-student Relationships were inversely, but not significantly, related to Competition.

The fifth URES scale is Competition; the sixth scale is Academic Achievement. Table 22 presents the correlation coefficients between Academic Achievement and each of the seven CUES II scales.

TABLE 22

Computed r^* Between the URES Scale Academic Achievement
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Academic Achievement</u>
Practicality	.10934
Community	.47502
Awareness	.24628
Propriety	.28806
Scholarship	.35243
Campus Morale	.44045
Quality of Teaching and Faculty-student Relationships	.25643

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.36 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Practicality.

An r of .10934 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .10934 is not significant at the .01 level. Hypothesis 3.36 was not rejected at the stated level.

3.37 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Community.

An r of .47502 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .47502 is significant at the .01 level. Hypothesis 3.37 was rejected at the stated level.

3.38 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Awareness.

An r of .24628 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .24628 is significant at the .01 level. Hypothesis 3.38 was rejected at the stated level.

3.39 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Propriety.

An r of .28806 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of

.28806 is significant at the .01 level. Hypothesis 3.39 was rejected at the stated level.

3.40 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Scholarship.

An r of .35243 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .35243 is significant at the .01 level. Hypothesis 3.40 was rejected at the stated level.

3.41 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Campus Morale.

An r of .44045 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .44045 is significant at the .01 level. Hypothesis 3.41 was rejected at the stated level.

3.42 There is no significant relationship between the URES scale Academic Achievement and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .25643 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .25643 is significant at the .01 level. Hypothesis 3.42 was rejected at the stated level.

Sub-hypotheses 3.36 through 3.42 were formulated to test the relationship between the URES scale Academic Achievement and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. Six of the seven CUES II scales were found to be significantly related to Academic Achievement. Campus Morale and Community were substantially related to Academic Achievement. Scholarship, Propriety, Awareness, and Quality of Teaching and Faculty-student Relationships had a definite, but low, relationship to Academic Achievement. The relationship of Practicality to Academic Achievement was almost negligible and not significant.

The sixth URES scale is Academic Achievement; the seventh scale is Intellectuality. Table 23 presents the correlation coefficients between Intellectuality and each of the seven CUES II scales.

3.43 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Practicality.

An r of .27573 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .27573 is significant at the .01 level. Hypothesis 3.43 was rejected at the stated level.

3.44 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Community.

An r of .48746 was computed. An r of this magnitude represents a moderate, but substantial, correlation (Guilford, 1956, p. 145). An

r of .48746 is significant at the .01 level. Hypothesis 3.44 was rejected at the stated level.

TABLE 23

Computed r^* Between the URES Scale Intellectuality
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Intellectuality</u>
Practicality	.27573
Community	.48746
Awareness	.39088
Propriety	.57207
Scholarship	.18601
Campus Morale	.52902
Quality of Teaching and Faculty-student Relationships	.29301

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.45 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Awareness.

An r of .39088 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .39088 is significant at the .01 level. Hypothesis 3.45 was rejected at the stated level.

3.46 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Propriety.

An r of .57207 was computed. An r of this magnitude represents

a moderate, but substantial, correlation (Guilford, 1956, p. 145). An r of .57207 is significant at the .01 level. Hypothesis 3.46 was rejected at the stated level.

3.47 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Scholarship.

An r of .18601 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .18601 is significant at the .01 level. Hypothesis 3.47 was rejected at the stated level.

3.48 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Campus Morale.

An r of .52902 was computed. An r of this magnitude represents a moderate, but substantial correlation (Guilford, 1956, p. 145). An r of .52902 is significant at the .01 level. Hypothesis 3.48 was rejected at the stated level.

3.49 There is no significant relationship between the URES scale Intellectuality and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .29301 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .29301 is significant at the .01 level. Hypothesis 3.49 was rejected at the stated level.

Sub-hypotheses 3.43 through 3.49 were formulated to test the

relationship between the URES scale Intellectuality and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. All seven CUES II scales were found to be significantly related to the URES scale Intellectuality. Campus Morale, Propriety, and Community were substantially related to Intellectuality. Awareness, Practicality, and Quality of Teaching and Faculty-student Relationships had a definite, but low, relationship to Intellectuality. The relationship of Scholarship to Intellectuality was almost negligible.

The seventh URES scale is Intellectuality; the eighth scale is Order and Organization. Table 24 presents the correlation coefficients between Order and Organization and each of the seven CUES II scales.

TABLE 24

Computed r^* Between the URES Scale Order and Organization
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Order and Organization</u>
Practicality	.28535
Community	.20350
Awareness	.20654
Propriety	.20606
Scholarship	.11569
Campus Morale	.25772
Quality of Teaching and Faculty-student Relationships	.13026

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.50 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Practicality.

An r of .28535 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .28535 is significant at the .01 level. Hypothesis 3.50 was rejected at the stated level.

3.51 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Community.

An r of .20350 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .20350 is significant at the .01 level. Hypothesis 3.51 was not rejected at the stated level.

3.52 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Awareness.

An r of .20654 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .20654 is significant at the .01 level. Hypothesis 3.52 was rejected at the stated level.

3.53 There is no significant relationship between the URES scale Order and Organization and the CUES II scale

Propriety.

An r of .20606 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .20606 is significant at the .01 level. Hypothesis 3.53 was rejected at the stated level.

- 3.54 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Scholarship.

An r of .11569 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1965, p. 145). An r of .11569 is not significant at the .01 level. Hypothesis 3.54 was not rejected at the stated level.

- 3.55 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Campus Morale.

An r of .25772 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .25772 is significant at the .01 level. Hypothesis 3.55 was rejected at the stated level.

- 3.56 There is no significant relationship between the URES scale Order and Organization and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .13026 was computed. An r of this magnitude represents

an almost negligible relationship (Guilford, 1956, p. 145). An r of .13026 is not significant at the .01 level. Hypothesis 3.56 was not rejected at the stated level.

Sub-hypotheses 3.50 through 3.56 were formulated to test the relationship between the URES scale Order and Organization and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. Five of the seven CUES II scales were found to be significantly related to the URES scale Order and Organization. Awareness, Community, Practicality, Campus Morale, and Propriety had a definite, but low, relationship to Order and Organization. The relationship of Scholarship and Quality of Teaching and Faculty-student Relationships to Order and Organization was almost negligible and not significant.

The eighth URES scale is Order and Organization; the ninth scale is Innovation. Table 25 presents the correlation coefficients between Innovation and each of the seven CUES II scales.

3.57 There is no significant relationship between the URES scale Innovation and the CUES II scale Practicality.

An r of .19450 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .19450 is significant at the .01 level. Hypothesis 3.57 was rejected at the stated level.

3.58 There is no significant relationship between the URES

scale Innovation and the CUES II scale Community.

An r of .33412 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .33412 is significant at the .01 level. Hypothesis 3.58 was rejected at the stated level.

TABLE 25

Computed r^* Between the URES Scale Innovation and
Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Innovation</u>
Practicality	.19450
Community	.33412
Awareness	.31894
Propriety	.39429
Scholarship	-.06435
Campus Morale	.36137
Quality of Teaching and Faculty-student Relationships	.20944

*Critical value of r at .01 is $\pm .155$ (Guilford, 1956, p. 539)

3.59 There is no significant relationship between the URES
scale Innovation and the CUES II scale Awareness.

An r of .31894 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .31894 is significant at the .01 level. Hypothesis 3.59 was rejected at the stated level.

3.60 There is no significant relationship between the URES scale Innovation and the CUES II scale Propriety.

An r of .39429 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .39429 is significant at the .01 level. Hypothesis 3.60 was rejected at the stated level.

3.61 There is no significant relationship between the URES scale Innovation and the CUES II scale Scholarship.

An r of $-.06435$ was computed. An r of this magnitude represents an almost negligible inverse relationship (Guilford, 1956, p. 145). An r of $-.06435$ is not significant at the .01 level. Hypothesis 3.61 was not rejected at the stated level.

3.62 There is no significant relationship between the URES scale Innovation and the CUES II scale Campus Morale.

An r of .36137 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .36137 is significant at the .01 level. Hypothesis 3.62 was rejected at the stated level.

3.63 There is no significant relationship between the URES scale Innovation and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .20944 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of

.20944 is significant at the .01 level. Hypothesis 3.63 was rejected at the stated level.

Sub-hypotheses 3.57 through 3.63 were formulated to test the relationship between the URES scale Innovation and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. Six of the seven CUES II scales were found to be significantly related to the URES scale Innovation. Awareness, Campus Morale, Community, Propriety, and Quality of Teaching and Faculty-student Relationships had a definite, but low, relationship to Innovation. The relationship of Practicality to Innovation was almost negligible, yet significant. The relationship of Scholarship to Innovation was inverse, almost negligible, and not significant.

The ninth URES scale is Innovation; the tenth scale is Student Influence. Table 26 presents the correlation coefficients between Student Influence and each of the seven CUES II scales.

3.64 There is no significant relationship between the URES scale Student Influence and the CUES II scale Practicality.

An r of .08537 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .08537 is not significant at the .01 level. Hypothesis 3.64 was not rejected at the stated level.

3.65 There is no significant relationship between the URES scale Student Influence and the CUES II scale Community.

An r of .17774 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .17774 is significant at the .01 level. Hypothesis 3.65 was rejected at the stated level.

TABLE 26

Computed r^* Between the URES Scale Student Influence
and Each of the Seven CUES II Scales

CUES II Scales	URES Scale <u>Student Influence</u>
Practicality	.08537
Community	.17774
Awareness	.24814
Propriety	.16939
Scholarship	.13042
Campus Morale	.25153
Quality of Teaching and Faculty-student Relationships	.17677

*Critical value of r at .01 is $\pm .155$. (Guilford, 1956, p. 539)

3.66 There is no significant relationship between the URES
scale Student Influence and the CUES II scale Awareness.

An r of .24814 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .24814 is significant at the .01 level. Hypothesis 3.66 was rejected at the stated level.

3.67 There is no significant relationship between the URES scale Student Influence and the CUES II scale Propriety.

An r of .16939 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .16939 is significant at the .01 level. Hypothesis 3.67 was rejected at the stated level.

3.68 There is no significant relationship between the URES scale Student Influence and the CUES II scale Scholarship.

An r of .13042 was computed. An r of this magnitude represents an almost negligible relationship (Guilford, 1956, p. 145). An r of .13042 is not significant at the .01 level. Hypothesis 3.68 was not rejected at the stated level.

3.69 There is no significant relationship between the URES scale Student Influence and the CUES II scale Campus Morale.

An r of .25153 was computed. An r of this magnitude represents a definite, but low, correlation (Guilford, 1956, p. 145). An r of .25153 is significant at the .01 level. Hypothesis 3.69 was rejected at the stated level.

3.70 There is no significant relationship between the URES scale Student Influence and the CUES II scale Quality of Teaching and Faculty-student Relationships.

An r of .17677 was computed. An r of this magnitude represents

an almost negligible relationship (Guilford, 1956, p. 145). An r of .17677 is significant at the .01 level. Hypothesis 3.70 was rejected at the stated level.

Sub-hypotheses 3.64 through 3.70 were formulated to test the relationship between the URES scale Student Influence and each of the CUES II scales. Correlation coefficients were computed to test each hypothesis. Five of the seven CUES II scales were found to be significantly related to the URES scale Student Influence. Campus Morale and Awareness had a definite, but low, relationship to Student Influence. The relationship of Community, Propriety, and Quality of Teaching and Faculty-student Relationships to Student Influence was almost negligible, yet significant. The relationship of Scholarship and Practicality to Student Influence was almost negligible and not significant.

Hypothesis Four was stated as follows:

- IV. There is no significant relationship between scholastic achievement and a combination of (1) expected grade point average, (2) CUES II scales, (3) URES scales, and (4) CARS factors.

In order to test Hypothesis Four, the data were subjected to the stepwise multiple regression analysis. Table 27 contains the data from this analysis.

At the .01 level of confidence, the best prediction of

TABLE 27

Prediction of Scholastic Achievement

Variable entered	Multiple R	Multiple R squared	Increase in R squared	F Ratio	Degrees freedom
Expected Grade Point Average	.5343	.2855	.2855	69.1195*	1, 173
URES Scale <u>Independence</u>	.5557	.3088	.0233	5.8026*	2, 172
CUES II Scale <u>Propriety</u>	.5643	.3184	.0096	2.4138	3, 171
URES Scale <u>Academic Achievement</u>	.5716	.3267	.0083	2.0912	4, 170
URES Scale <u>Traditional Social Orientation</u>	.5766	.3325	.0058	1.4753	5, 169
CARS Factor <u>Staff-student Ratio</u>	.5837	.3407	.0082	2.0804	6, 168
CARS Factor <u>Architectural Style</u>	.5873	.3449	.0042	1.0656	7, 167
URES Scale <u>Competition</u>	.5900	.3481	.0033	.8348	8, 166
CUES II Scale <u>Quality of Teaching and Faculty-student Relationships</u>	.5935	.3522	.0040	1.0297	9, 165
CUES II Scale <u>Community</u>	.5958	.3549	.0027	.6938	10, 164
CUES II Scale <u>Scholarship</u>	.5982	.3579	.0030	.7535	11, 163

Table 27 (Continued)

Variable entered	Multiple R	Multiple R squared	Increase in R squared	F Ratio	Degrees freedom
CUES II Scale <u>Campus Morale</u>	.6003	.3604	.0025	.6397	12, 162
CUES II Scale <u>Practicality</u>	.6020	.3624	.0020	.4936	13, 161
URES Scale <u>Intellectuality</u>	.6031	.3637	.0013	.3343	14, 160
URES Scale <u>Emotional Support</u>	.6036	.3643	.0006	.1566	15, 159
URES Scale <u>Student Influence</u>	.6042	.3651	.0007	.1854	16, 158
CUES II Scale <u>Awareness</u>	.6045	.3654	.0004	.0922	17, 157
URES Scale <u>Innovation</u>	.6047	.3656	.0002	.0394	18, 156

*Significant at the .01 level

Note: N = 175

scholastic achievement was accomplished when 2 of the 47 variables were combined. An R of .5557 was computed. An R of this magnitude accounts for 30.88% of the variance in the actual grade point averages of the students. An F ratio equal to or greater than 4.75 is needed for significance at the .01 level when df is 2, 172 (Guilford, 1956, p. 542). The obtained F ratio of 5.8026 is significant at the .01 level. Hypothesis IV was rejected at the stated level when the URES scale Independence was combined with expected grade point average.

Summary

The purpose of this chapter was to present and analyze the data relative to this study. Each of the 110 hypotheses written for this study was described with regard to the degree of correlation which existed. Each of the hypotheses was either rejected or not rejected depending on the significance of the correlations.

Chapter V contains a summary of the study along with conclusions and recommendations.

Chapter V

Summary, Conclusions, and Recommendations

Chapter V contains a summary of the first four chapters of this paper, conclusions drawn from the data analysis, and recommendations for heuristic research.

Summary

The present decade is an era of increased public concern for the environment. Public pressure has resulted in government officials appropriating large sums of money for environmental research in the physical and behavioral sciences. Physical scientists have tended to use the money to examine man's influence on the environment. Behavioral scientists have tended to use the money to examine the environment's influence on man.

The college campus is one segment of the environment which has been extensively examined. Investigators such as Feller (1968), Sommer (1968), and Titus (1972) conducted research to determine how architectural variations within college residence halls influence students. The purpose of these architectural investigations was to isolate and identify differences in dormitories (e.g., size of rooms, color of halls, intensity of lighting) which were related to student satisfaction and scholastic achievement.

Investigators such as Kauffman (1964), Pace (1966), Astin

(1968), and Evans (1970) conducted research to determine how psycho-social environments of different college campuses influence students. The general consensus of these investigators was that each college has a unique campus environment and that the environment remains fairly consistent over a period of several years. The nature of the campus environment is believed to influence student behaviors. For example, a campus which is socially conservative tends to have a majority of students who are somewhat conservative in their dress, habits, and behaviors. The value of psycho-social investigations lies in the use made of the findings. If college administrators are able to identify their campuses' environmental characteristics, they may be in a better position to evaluate the type of students that should be recruited. For example, administrators on some campuses may want to recruit students with personality characteristics which would diversify the student population. Conversely, if a student knew the environmental characteristics of several college campuses, he would be in a better position to make a selection of which college to attend.

As a result of architectural and psycho-social environmental investigations, college administrators have instituted changes in such environmental characteristics as extracurricular activities, teaching objectives, academic standards, faculty-student relationships, housing regulations, and the architectural construction of residence halls. Brown (1968) and Sprague (1969) expressed the opinion that more

information is needed concerning the influence of environmental characteristics on students. Continued investigations into the influence of environments on man may allow behavioral scientists to build a scientific theory of environmental influences on man. Such a theory would allow behavioral scientists to identify why man's behaviors are satisfactory or unsatisfactory within certain environments.

Student housing, as a segment of the total campus environment, has just recently begun to receive the attention of environmental investigators. This study was an attempt to measure the relationship between (1) two instruments designed to measure student perceptions of a campus's psycho-social environment and (2) student scholastic achievement and selected architectural and psycho-social characteristics of student residences.

Literature was reviewed relating to (1) the influence of demographic differences upon student attitudes and achievement, (2) recent trends in student housing, (3) two instruments designed to measure universities' psycho-social climate, and (4) prediction of scholastic achievement. Selected findings from each of these four categories are described in the following paragraphs.

The Influence of Demographic
Differences Upon Student
Attitudes and Achievement

The literature reviewed in this area of research indicated that no single type of housing is best for all students. Students

need to have housing while at college which meets their individual needs and differences. Certain demographic differences (e.g., closing hour policy and the proprietorship of automobiles) were found to have little influence on student scholastic achievement. Other demographic differences (e.g., roommates' ability and similarity of academic major among roommates) were found to be significantly related to the scholastic achievement of college students.

Recent Trends in Student Housing

Between the years 1950 and 1970, colleges and universities were pressed to provide enough student housing to meet the demand. Faced with such pressures, dormitories were quickly planned and constructed throughout the country.

In recent years (a) college and university enrollments have leveled off, (b) students have begun to express dissatisfaction with existing dormitory facilities, (c) students have begun to express a preference for off-campus living, (d) the legal age for adult status has been lowered in many states, and (e) two-year community colleges have grown in popularity. These influences have resulted in increased vacancy rates in dormitories throughout the country.

Statistical projections indicate that the number of students who attend college may increase by as much as 50% by 1980. College administrators must decide whether the projected increase in college

enrollments will increase demand for on-campus housing or whether the occupancy rate in the present facilities will continue to decline. Three alternatives face college administrators: (a) quit the student housing business altogether; (b) build new dormitories that are attractive to students; or (c) remodel the existing dormitories.

Two Instruments Which Measure Universities' Psycho-social Climate

In 1958 the first instrument, the CCI, was developed to assess the psycho-social characteristics of a university environment. Since the advent of the CCI, several similar research instruments have been developed. Two of these newer instruments, the CUES II and the URES, were used in this investigation. Literature related to the development and use of both of these instruments was described in Chapter Two. The CUES II was described as the most widely used psycho-social instrument; several examples of studies which used the CUES II were cited. URES was described as a relatively new psycho-social instrument. While CUES II was designed to assess the psycho-social environment of the total university campus, URES was designed to measure the psycho-social environment of a particular segment of the total university campus, student housing.

Prediction of Scholastic Achievement

This investigation involved an attempt to predict scholastic

achievement by the use of psycho-social and architectural instruments. Therefore, literature was reviewed concerning the prediction of scholastic achievement.

Four basic correlates of scholastic achievement were found (i.e., sex, SES, ability, and academic record in high school). Each of these basic correlates was described individually in relationship to the prediction of scholastic achievement. The literature reviewed indicated that too many investigations failed to control for the basic correlates. Failure to control for the basic correlates was found to result in many misinterpretations of data.

Evidence was cited which indicated that the best predictions of scholastic achievement were obtained by using a multiple regression equation which controlled for the basic correlates. Even with proper statistical controls, the results of prediction studies of this type have been relatively weak and not too helpful in making decisions regarding the success of individual students.

A new area of prediction research, using psycho-social instruments was described. The literature indicated that psycho-social investigations may be helpful in conceptualizing some of the factors that influence student scholastic achievement. Few investigations were found which used psycho-social instruments to predict scholastic achievement, possibly because the instruments are so new.

The procedures used in the collection of data and analysis of

data are descriptively summarized in the following manner.

A table of random numbers was used to obtain a random sample of 301 students who represented 50% of the eligible students residing in four residence halls on the Montana State University campus. The number of eligible students in the four residence halls ($n = 602$) was 85.8% of the total number of eligible students at Montana State University. The subjects were drawn proportionate to the total population of eligible students in the four residence halls and proportionate to the male-female population in the four residence halls. The students were enrolled in full-time courses of study and had attended Montana State University for at least two consecutive quarters. After the data collection, some information was found to be missing on 21 of the students' answer sheets. Therefore, the total n in this study was 280 students.

Both URES and CUES II were administered to the sample. In addition, each student in the sample was given a rating on the CARS depending on the student's place of residence.

The stepwise multiple regression statistic was used to analyze the data. The analysis was made to determine which combination of URES scales, CUES II scales, CARS factors, and expected grade point averages best predicted scholastic achievement.

Correlation coefficients were computed to determine the relationship (1) between the URES and the CUES II, (2) between

scholastic achievement and each of the URES scales, and (3) between scholastic achievement and each of the CARS factors. The degree of relationship found is described according to Guilford's (1965) interpretation of the correlation coefficient. (See Chapter 3, page 123, of this paper for Guilford's [1965] interpretation.)

The following paragraphs summarize the findings of this investigation grouped by the four general questions they were intended to answer.

Question One

Question One asked, "What relationship exists between student scholastic achievement and each of the 10 scales on URES?"

The 10 hypotheses written relative to this question predicted that there would be no significant relationship between scholastic achievement and each of the 10 URES scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Correlation coefficients were computed for scholastic achievement and each of the 10 URES scales.

Only one scale, Innovation, was significantly related to scholastic achievement. The URES scale Innovation, while significant at the .01 level, had an almost negligible relationship with scholastic achievement. The URES was not a useful predictor of scholastic achievement of the students participating in this study.

Question Two

Question Two asked, "What relationship exists between student scholastic achievement and each of the 29 CARS factors?"

The 29 hypotheses written relative to this question predicted that there would be no significant relationship between scholastic achievement and each of the 29 CARS factors. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Correlation coefficients were computed for scholastic achievement and each of the 29 CARS factors.

No CARS factor was significantly related to the scholastic achievement of the students participating in this study. CARS was not a useful predictor of scholastic achievement of the students participating in this study.

Question Three

Question Three asked, "What relationship exists between each of the 10 scales on URES and each of the 7 scales on CUES II?"

The 70 hypotheses written relative to this question predicted that there would be no significant relationship between each of the URES scales and each of the CUES II scales. The relationships found are described in the following paragraphs with respect to each of the 10 URES scales.

Correlations were computed between the URES scale Involvement

and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. All seven CUES II scales were significantly related to the URES scale Involvement. Awareness, Propriety, and Campus Morale had moderate correlations. Community and Quality of Teaching and Faculty-student Relationships had low correlations. Practicality and Scholarship were slightly correlated with Involvement.

Correlations were computed between the URES scale Emotional Support and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. All seven CUES II scales were significantly related to the URES scale Emotional Support. Three moderate correlations existed: Awareness, Propriety, and Campus Morale. Quality of Teaching and Faculty-student Relationships had a low correlation. Practicality and Scholarship were slightly correlated with Emotional Support.

Correlations were computed between the URES scale Independence and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Five of the seven CUES II scales were significantly related to the URES scale Independence. Practicality, Awareness, and Campus Morale had low, inverse correlations.

Propriety and Scholarship had significant, but slight, inverse correlations.

Correlations were computed between the URES scale Traditional Social Orientation and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. None of the seven CUES II scales were significantly related to the URES scale Traditional Social Orientation.

Correlations were computed between the URES scale Competition and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Two of the CUES II scales were significantly related to the URES scale Competition. Practicality had a low correlation while Scholarship had a low inverse correlation.

Correlations were computed between the URES scale Academic Achievement and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Six of the seven CUES II scales were significantly related to the URES scale Academic Achievement. Community and Campus Morale had moderate correlations. Four low correlations existed: Awareness, Propriety, Scholarship, and Quality of Teaching and Faculty-student Relationships.

Correlations were computed between the URES scale Intellectuality

and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. All seven of the CUES II scales were significantly related to the URES scale Intellectuality. Three moderate correlations existed: Community, Propriety, and Campus Morale. Practicality, Awareness, and Quality of Teaching and Faculty-student Relationships had low correlations. Scholarship was slightly correlated with Intellectuality.

Correlations were computed between the URES scale Order and Organization and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Five of the seven CUES II scales were significantly related to the URES scale Order and Organization. Practicality, Community, Awareness, Propriety, and Campus Morale all had low correlations with Order and Organization.

Correlation coefficients were computed between the URES scale Innovation and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Six of the seven CUES II scales were significantly related to the URES scale Innovation. Community, Awareness, Propriety, Campus Morale, and Quality of Teaching and Faculty-student Relationships all had low

correlations with Innovation. Practicality was slightly correlated with Innovation.

Correlations were computed between the URES scale Student Influence and each of the seven CUES II scales. A correlation coefficient equal to or greater than $\pm .155$ was needed before any relationship could be considered significant at the .01 level. Five of the seven CUES II scales were significantly related to the URES scale Student Influence. Awareness and Campus Morale had low correlations. Community, Propriety, and Quality of Teaching and Faculty-student Relationships were slightly correlated with Student Influence.

Question Four

Question Four asked, "What proportion of the variance in student scholastic achievement can be accounted for by combining (1) expected grade point average, (2) psycho-social factors, and (3) architectural factors?"

The hypothesis written relative to this question stated that there would be no significant relationship between scholastic achievement and a combination of (1) expected grade point average, (2) CUES II scales, (3) URES scales, and (4) CARS factors. The stepwise multiple regression statistic was used to test the hypothesis.

The best prediction of scholastic achievement was obtained when 2 of the 47 variables were combined. An F equal to or greater

than 4.75 (df is 2, 172) is needed before the relationship between scholastic achievement and the 2 variables, expected grade point average and the URES scale Independence, can be considered significant at the .01 level. The obtained F ratio of 5.8626 is significant at the .01 level; therefore, Hypothesis Four was rejected.

An R of .5557 was computed from the combination of the 2 variables. An R of this magnitude accounts for 30.88% of the variance in the actual scholastic achievement of the students. The most important variable in the prediction equation was expected grade point average. Expected grade point average accounted for 28.55% of the variance in scholastic achievement. The combination of expected grade point average and the URES scale Independence increased to 30.88% the total proportion of the variance in actual grade point average that could be explained.

Conclusions

Based upon the review of selected literature and the findings of this investigation, the following conclusions are stated.

1. Many investigators believe it is important to know how the environment influences man.

2. In recent years, many investigations have been conducted to learn how the environment influences man. More information regarding environmental influences is needed if man is to manipulate his

environment for his own benefit.

3. The impact of student housing on student attitudes and scholastic achievement is just beginning to be examined in the literature.

4. Many demographic factors (e.g., similarity of academic major of roommates) have been found to influence the scholastic achievement of college students.

5. Dormitories have been constructed throughout the country which are not attractive to students. As a result, many of these relatively new dormitories are presently empty or have high vacancy rates.

6. College administrators are presently faced with an important decision regarding dormitories. The administrators must decide whether to (a) quit the student housing business altogether, (b) build new dormitories that are attractive to students, or (c) remodel the existing dormitories.

7. In an effort to increase student satisfaction with dormitories, college administrators are making fewer and less stringent rules and regulations. The relaxation of rules seems to increase overall student satisfaction.

8. The advent of psycho-social instruments dates back 15 years.

9. CUES II is the most widely used psycho-social instrument

for measuring student perceptions of the total campus environment.

10. URES is the newest psycho-social instrument. URES is designed to assess students' perceptions of their living-units' environments.

11. The four basic correlates of scholastic achievement are sex, SES, ability, and high school academic record. These basic correlates are not controlled for in most prediction studies. The best prediction of scholastic achievement can be obtained by controlling for each of the four basic correlates. Controlling for the four basic correlates will also insure that more accurate interpretations of findings are made in prediction studies (Lavin, 1965).

12. In this study, students' expected grade point averages as computed by the Testing and Counseling Office at Montana State University controlled for two of the basic correlates, ability and high school academic record. Thus, this investigation controlled for these two basic correlates. Had sex and SES been controlled in this investigation, the data analysis probably would have explained a higher proportion of the variance in the obtained grade point average.

13. Women tend to earn higher grade point averages than do men.

14. Generally speaking, the higher an individual's SES, the higher his grade point average.

15. Generally speaking, the higher an individual's ability, the higher his grade point average.

16. The best single predictor of a student's college scholastic achievement is his high school academic record.

17. The best prediction of scholastic achievement is obtained by using a multiple regression equation which controls for the four basic correlates--sex, SES, ability, and high school academic record.

18. Investigators that control for the four basic correlates are able to explain about 35% of the variance in obtained grade point averages. This degree of prediction efficiency is not very useful when predicting a particular student's scholastic success.

19. There are two outstanding sources in the literature which deal with the prediction of scholastic achievement of college students. Lavin (1965) made an exhaustive review of the literature concerned with the prediction of scholastic achievement of college students. Astin (1971) used a multiple regression equation to predict the scholastic achievement of 36,581 college students.

20. Since psycho-social instruments are relatively new, few investigations were found which made predictions of scholastic achievement based on psycho-social instruments. Psycho-social instruments may be helpful in making better predictions of scholastic achievement; however, the studies that did use psycho-social instruments were unable to significantly increase the predictions made by using the four basic correlates. Further refinement of psycho-social instruments may result in better prediction efficiency.

21. URES was not found to be a useful predictor of the scholastic achievement of college students at Montana State University.

22. CARS was not found to be a useful predictor of the scholastic achievement of college students at Montana State University.

23. The literature indicated the CUES II was not a useful predictor of the scholastic achievement of college students.

24. CARS ratings were made on a nominal scale. Future architectural rating scales should rate student residence halls on an interval or ratio scale. By using an interval or ratio scale, architectural factors may be found to be significantly related to scholastic achievement.

25. Many of the CUES II scales were significantly related to the URES scales. At present, all that can be stated with assurance is that there was a relationship between the scales of the instruments. Whether or not the scales of the two psycho-social instruments are measuring the same factors remains to be discovered. If the two instruments are measuring the same factors, then little is gained by the use of both instruments.

26. The increase in grade point average prediction efficiency gained by using psycho-social factors was not sufficient to warrant the time and expense of obtaining the psycho-social data.

27. Instruments which measure psycho-social factors may be useful to the institution which desires to measure changes in student

perceptions which accompany changes in the campus environment.

28. This investigator administered CUES II and URES to the 301 subjects in this study. Generally speaking, the feedback obtained from the subjects indicated that the students (1) did not enjoy completing the questionnaires and (2) considered the questionnaires relatively worthless.

Recommendations

Based upon the findings and conclusions of this study, several recommendations emerge as appropriate for further investigation.

Recommendations for Replication of This Study

1. This investigation needs to be replicated on the Montana State University campus. It is important to know whether the findings in this investigation can be replicated again on this campus.

2. This investigation needs to be replicated on other college and university campuses. It is important to know whether the findings at Montana State University can be applied to a larger segment of the national student body.

3. This investigation needs to be replicated on a longitudinal basis. This type of analysis would determine the relationship between each quarter's grade point average and the psycho-social and architectural characteristics that are perceived to exist during each quarter.

4. This investigation needs to be replicated using samples of students from the same curriculum majors. This type of analysis would determine the relationship between a student's curriculum major and his perceptions of the campus' psycho-social environment.

5. This investigation needs to be replicated while controlling for each of the four basic correlates of scholastic achievement (sex, SES, ability, and high school academic record). Improved prediction of scholastic achievement is almost certain to occur when the four basic correlates of scholastic achievement are controlled.

Recommendations for Similar
Research Studies

6. Research concerned with learning how the environment influences man should be continued.

7. There needs to be greater use made of the findings from psycho-social investigations. Often the findings are only descriptive in nature and no beneficial changes are implemented.

8. URES needs further development. National norms need to be established so that dormitories may be compared throughout the nation.

9. All future investigations that predict scholastic achievement should control for each of the four basic correlates of academic achievement (sex, SES, ability, and high school academic record) and should be longitudinal in nature.

10. An investigator attempting to predict scholastic achievement should read Lavin (1965) and Astin (1971) before attempting his

investigation.

11. In their present state of development, psycho-social instruments cannot be successfully used to predict scholastic achievement.

12. Examination of the influence of the architectural environment on man needs to be continued through the development of more sophisticated instruments than presently exist.

13. A need exists to investigate all of the variables and their relative weights that contribute to students' decision to move out of on-campus housing.

14. There is a need to examine the reliability and validity of URES and CUES II.

15. There is a need to investigate the psycho-social and architectural environmental factors that exist within married-student housing.

16. There is a need to compare the scholastic achievement of students going to colleges that provide dormitory facilities and students going to colleges that do not provide dormitory facilities.

Recommendations Based on the
Review of the Literature

17. College administrators should give careful consideration to remodeling existing dormitories rather than (1) quit student housing altogether or (2) building new dormitories.

18. Out-dated rules and regulations that exist in many dormitories need to be reconsidered. Administrators need to seek out student opinion before any changes are made.

APPENDICES

200

form x-2

CUES

Second Edition

College & University

Environment Scales

By C. Robert Pace

University of California

Los Angeles

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Directions

Colleges and universities differ from one another in many ways. Some things that are generally true or characteristic of one school may not be characteristic of another. The purpose of the College & University Environment Scales (CUES) is to help describe the general atmosphere of different colleges. The atmosphere of a campus is a mixture of various features, facilities, rules and procedures, faculty characteristics, courses of study, classroom activities, students' interests, extracurricular programs, informal activities, and other conditions and events.

You are asked to be a reporter about your school. You have lived in its environment, seen its features, participated in its activities, and sensed its attitudes. What kind of a place is it?

There are 160 statements in this booklet. You are to answer them True or False, using the answer sheet given you for this purpose.

As you read the statements you will find that many cannot be answered True or False in a literal sense. The statements contain qualifying words or phrases, such as "almost always," "frequently," "generally," and "rarely," and are intended to draw out your impression of whether the situation described applies or does not apply to your campus as you know it.

As a reporter about your college you are to indicate whether you think each statement is generally characteristic, a condition that exists, an event that occurs or might occur, the way people generally act or feel--in short, whether the statement is more nearly True than False; or conversely, whether you think it is not generally characteristic, does not exist or occur, is more nearly False than True.

The CUES is not a test in which there are right or wrong answers; it is more like an opinion poll--a way to find out how much agreement or disagreement there is about the characteristics of a campus environment.

Instructions for Marking the Answer Sheet
for Cues, Second Edition

1. PENCILS. Use any type of soft lead pencil (preferably No. 2). Do not use an ink or ball-point pen.
2. MARK ONLY ON THE ANSWER SHEET. All answers are to be recorded on the separate answer sheet. Please make no marks in the questionnaire booklet since it may be used again by other students. Record your answer by blackening the small box marked T or F, as in this sample:

Sample Item:

(A) Students are generally quite friendly on this campus.

(A)

3. IDENTIFYING INFORMATION. Each of the following underlined items is to be entered on the answer sheet:

Name. In the top right-hand corner of the answer sheet is the heading, "Print last name" Starting at the arrow on the left, print as many letters of your last name as will fit in the 13 spaces provided. Print one letter in each space. Do not write beyond the heavy line that separates the last name and first name sections, even if you are unable to complete your last name. If your last name has fewer than 13 letters, use as many spaces as you need, leaving the rest blank. Then start at the right of the heavy blue line and follow the same procedure for your first name.

Beneath each letter of your name, blacken the corresponding small-lettered box.

Major Field of Study. In the area to the left of the name section, indicate your major field of study. If undecided, indicate major area of interest. Blacken only one box.

In the bottom right-hand corner of the answer sheet is a section requiring further information:

Year of birth. Write the last two digits of the year of your birth in the spaces provided, and beneath each number, blacken the corresponding box.

Sex. Blacken the appropriate box.

Educational Status. Blacken the box that corresponds to your present educational status. Note: "Entering Freshman" is defined as being in the first quarter or first semester.

Student Number. Write your student number in the spaces provided. If your number is less than nine digits long, write the number so that it ends in the last box on the right. Fill any spaces preceding it on the left with zeros, for example: 007654321. Blacken the corresponding small-numbered boxes, and include any zeros you may have used.

Institution and Date. Turn the answer sheet to a vertical position and fill in the name of your institution and today's date.

4. SPECIAL INSTRUCTIONS. Special instructions may be given for the completion of the sections labeled Subgroups and Local Option Questions.
5. MARKING THE ANSWER SHEET. Find Question 1 on the next page of this booklet. On the answer sheet blacken the appropriate box, that is, T, if the statement is generally characteristic of your college, or F, if the statement is not generally characteristic. Proceed to answer all 160 items.

(Questions begin on next page)

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Compiled in part from College Characteristics Index--
Form 1158

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1. Students almost always wait to be called on before speaking in class.
2. The big college events draw a lot of student enthusiasm and support.
3. There is a recognized group of student leaders on this campus.
4. Frequent tests are given in most courses.
5. Students take a great deal of pride in their personal appearance.
6. Education here tends to make students more practical and realistic.
7. The professors regularly check up on the students to make sure that assignments are being carried out properly and on time.
8. It's important socially here to be in the right club or group.
9. Student pep rallies, parades, dances, carnivals, or demonstrations occur very rarely.
10. Anyone who knows the right people in the faculty or administration can get a better break here.
11. The professors really push the students' capacities to the limit.
12. Most of the professors are dedicated scholars in their fields.
13. Most courses require intensive study and preparation out of class.
14. Students set high standards of achievement for themselves.
15. Class discussions are typically vigorous and intense.
16. A lecture by an outstanding scientist would be poorly attended.
17. Careful reasoning and clear logic are valued most highly in grading student papers, reports, or discussions.
18. It is fairly easy to pass most courses without working very hard.
19. The school is outstanding for the emphasis and support it gives to pure scholarship and basic research.

20. Standards set by the professors are not particularly hard to achieve.
21. It is easy to take clear notes in most courses.
22. The school helps everyone get acquainted.
23. Students often run errands or do other personal services for the faculty.
24. The history and traditions of the college are strongly emphasized.
25. The professors go out of their way to help you.
26. There is a great deal of borrowing and sharing among the students.
27. When students run a project or put on a show everybody knows about it.
28. Many upperclassmen play an active role in helping new students adjust to campus life.
29. Students exert considerable pressure on one another to live up to the expected codes of conduct.
30. Graduation is a pretty matter-of-fact, unemotional event.
31. Channels for expressing students' complaints are readily accessible.
32. Students are encouraged to take an active part in social reforms or political programs.
33. Students are actively concerned about national and international affairs.
34. There are a good many colorful and controversial figures on the faculty.
35. There is considerable interest in the analysis of value systems, and the relativity of societies and ethics.
36. Public debates are held frequently.
37. A controversial speaker always stirs up a lot of student discussion.

38. There are many facilities and opportunities for individual creative activity.
39. There is a lot of interest here in poetry, music, painting, sculpture, architecture, etc.
40. Concerts and art exhibits always draw big crowds of students.
41. Students ask permission before deviating from common policies or practices.
42. Most student rooms are pretty messy.
43. People here are always trying to win an argument.
44. Drinking and late parties are generally tolerated, despite regulations.
45. Students occasionally plot some sort of escapade or rebellion.
46. Many students drive sports cars.
47. Students frequently do things on the spur of the moment.
48. Student publications never lampoon dignified people or institutions.
49. The person who is always trying to "help out" is likely to be regarded as a nuisance.
50. Students are conscientious about taking good care of school property.
51. The important people at this school expect others to show proper respect for them.
52. Student elections generate a lot of intense campaigning and strong feeling.
53. Everyone has a lot of fun at this school.
54. In many classes students have an assigned seat.
55. Student organizations are closely supervised to guard against mistakes.

56. Many students try to pattern themselves after people they admire.
57. New fads and phrases are continually springing up among the students.
58. Students must have a written excuse for absence from class.
59. The college offers many really practical courses such as typing, report writing, etc.
60. Student rooms are more likely to be decorated with pennants and pin-ups than with paintings, carvings, mobiles, fabrics, etc.
61. Most of the professors are very thorough teachers and really probe into the fundamentals of their subjects.
62. Most courses are a real intellectual challenge.
63. Students put a lot of energy into everything they do in class and out.
64. Course offerings and faculty in the natural sciences are outstanding.
65. Courses, examinations, and readings are frequently revised.
66. Personality, pull, and bluff get students through many courses.
67. There is very little studying here over the weekends.
68. There is a lot of interest in the philosophy and methods of science.
69. People around here seem to thrive on difficulty--the tougher things get, the harder they work.
70. Students are very serious and purposeful about their work.
71. This school has a reputation for being very friendly.
72. All undergraduates must live in university approved housing.
73. Instructors clearly explain the goals and purposes of their courses.

74. Students have many opportunities to develop skill in organizing and directing the work of others.
75. Most of the faculty are not interested in students' personal problems.
76. Students quickly learn what is done and not done on this campus.
77. It's easy to get a group together for card games, singing, going to the movies, etc.
78. Students commonly share their problems..
79. Faculty members rarely or never call students by their first names.
80. There is a lot of group spirit.
81. Students are encouraged to criticize administrative policies and teaching practices.
82. The expression of strong personal belief or conviction is pretty rare around here.
83. Many students here develop a strong sense of responsibility about their role in contemporary social and political life.
84. There are a number of prominent faculty members who play a significant role in national or local politics.
85. There would be a capacity audience for a lecture by an outstanding philosopher or theologian.
86. Course offerings and faculty in the social sciences are outstanding.
87. Many famous people are brought to the campus for lectures, concerts, student discussions, etc.
88. The school offers many opportunities for students to understand and criticize important works of art, music, and drama.
89. Special museums or collections are important possessions of the college.
90. Modern art and music get little attention here.

91. Students are expected to report any violation of rules and regulations.
92. Student parties are colorful and lively.
93. There always seem to be a lot of little quarrels going on.
94. Students rarely get drunk and disorderly.
95. Most students show a good deal of caution and self-control in their behavior.
96. Bermuda shorts, pin-up pictures, etc., are common on this campus.
97. Students pay little attention to rules and regulations.
98. Dormitory raids, water fights, and other student pranks would be unthinkable.
99. Many students seem to expect other people to adapt to them rather than trying to adapt themselves to others.
100. Rough games and contact sports are an important part of intramural athletics.
101. The vocational value of many courses is emphasized.
102. Most people are aware of the financial status of students' families.
103. Student organizations are required to have a faculty adviser.
104. There are good facilities for learning vocationally useful skills and techniques.
105. Most faculty members really know the regulations and requirements that apply to student programs.
106. There is a well-organized and effective job placement office for the graduating students.
107. Many faculty members are involved in services or consulting activities for outside groups--business, adult education, etc.
108. Professors will sometimes increase a student's grade if they think he has worked especially hard and conscientiously.

109. Most students want to get a degree because of its economic value.
110. Vocational guidance is a main activity of the counseling office.
111. New ideas and theories are encouraged and vigorously debated.
112. Students who don't make passing grades are quickly dropped from school.
113. Students are allowed to help themselves to books in the library stacks.
114. Excellence in scholarship is the dominant feature of this institution.
115. There are lots of quiet and comfortable places for students to study.
116. Even in social groups students are more likely to talk about their studies than about other things.
117. There are many excellent facilities for research on this campus.
118. The main emphasis in most departmental clubs is to promote interest and scholarship in the field.
119. Most students are pretty dissatisfied if they make less than a B grade.
120. The library is one of the outstanding facilities on the campus.
121. The campus design, architecture, and landscaping suggest a friendly atmosphere.
122. Student groups often meet in faculty members' homes.
123. Counseling and guidance services are really personal, patient, and helpful.
124. There are courses which involve students in activities with groups or agencies in the local community.
125. Most of the students here are pretty happy.
126. There are courses or voluntary seminars that deal with problems of marriage and the family.

127. In most classes the atmosphere is very friendly.
128. Groups of students from the college often get together for parties or visits during holidays.
129. Most students seem to have a genuine affection for this school.
130. There are courses or voluntary seminars that deal with problems of social adjustment.
131. There is a regular place on the campus where students can make speeches about controversial issues.
132. Students are free to cut classes at their own discretion.
133. Many faculty members have worked overseas or frequently traveled to other countries.
134. There is a lot of variety and innovation in the way many courses are taught.
135. Many professors permit, and sometimes welcome, class discussion of materials that are outside their field of specialization.
136. Many students are interested in joining the Peace Corps or are planning, somehow, to spend time in another part of the world.
137. Many student groups invite faculty members to lead special discussions.
138. Groups of students sometimes spend all evening listening to classical records.
139. Student chorus, orchestra, and theatre groups are really excellent.
140. Students like to browse in book stores.
141. Many professors require students to submit an outline before writing a term paper or report.
142. The Dean of Students office is mainly concerned with disciplinary matters.
143. Faculty members always wear coats and ties on the campus.

144. A major aim of this institution is to produce cultivated men and women.
145. In literature, drama, and music the main emphasis is on the classics.
146. Nearby churches have an active interest in counseling and youth programs.
147. Proper standards and ideals are emphasized in many courses.
148. Most professors think of themselves as no different from other adults in the community.
149. Faculty members are always polite and proper in their relations with students.
150. In most exams the emphasis is on knowing the correct answers rather than on being able to defend a point of view.
151. There are students on many academic and administrative committees.
152. Students have real authority to determine some campus policies and procedures.
153. Some faculty members are active in experimenting with new methods of teaching, new courses, and other innovations.
154. There is much student interest and activity about social issues--such as civil rights, justice, peace.
155. The administration is receptive and active in responding to student proposals for change.
156. There is an "experimental" college or program where a variety of new courses are offered (whether for credit or not).
157. Massive disruption, force, or violence by students would be unthinkable on this campus.
158. The attitude of most college officials about drugs is generally patient, flexible, and tolerant.
159. The response of most college officials toward student sit-ins or other "confrontations" is (or would be) firm, forceful, and unsympathetic.

160. Due process considerations are expected by students who are accused of violating laws or college rules.

APPENDIX B

UNIVERSITY RESIDENCE ENVIRONMENT SCALE .

This questionnaire asks you how you see the psychological "atmosphere" or "climate" of your dormitory, sorority house, or fraternity house (hereinafter called house). Different university houses seem to have unique climates, and this questionnaire is an attempt to systematically understand how university students see their living units. We think that by comparing the views of students in various houses at different campuses, the creation of more satisfactory residential arrangements will be facilitated.

INSTRUCTIONS

Please write your name in the appropriate blank on the answer sheet. Your "identification number" is your Social Security number.

On the following pages there are a number of statements about university residences. Please answer every statement, do not leave any blank. Please use a pencil for your responses and erase completely any changed responses. Please decide for each item whether the statement is mostly True or mostly False for your own house. Mark on your answer sheet a "1" for a "True" response and a "2" for a "False" response. If you live in a large hall or complex which has 100 or more people, then your "house" is the whole building.

Some of the statements make the distinction between "staff" and "students." For these items, "staff" are faculty, administrative personnel, and graduate or undergraduate assistants who are living in the house. "Students" are all other student residents living in the house. Both staff and students should complete this questionnaire.

On the last page of the questionnaire, there is a space for comments, impressions, suggestions for areas not covered, and thoughts that came to mind about your house as you were filling out the questionnaire. (Copyright 1969, 1971, by Marvin S. Gerst and Rudolf H. Moos).

1. Most of the people in this house know each other very well.
2. People here are concerned with helping and supporting of one another.
3. Behaving properly in social situations is not considered important here.
4. Most people here know and use the commonly accepted rules of social conduct.
5. The staff here decide whether and when the residents can have visitors of the opposite sex in their rooms.
6. The people here are often critical of others in the house.
7. Around here people try to act in ways that will gain the approval of others in the house.
8. Nearly everyone here tries to have a date on weekends.
9. Rules about social conduct are sometimes enforced by the staff.
10. The people in this house generally read a good deal about intellectual material other than class assignments.
11. People around here are not very considerate of the feelings of others.
12. People in the house tend to fit in with the way other people do things here.
13. People around here tend to study long hours at a stretch.
14. In this house people don't try to be more "cool" than others.
15. New approaches to things are often tried here.
16. Around here the staff decide who gets the single rooms.
17. People around here talk a lot about political and social issues.
18. People here tell others about their feelings of self-doubt.
19. House finances are handled in a pretty loose fashion.

20. Students enforce house rules here.
21. Innovation is not considered important here.
22. Around here people tend not to value ideas for their own sake.
23. In this house people rarely show affection for one another.
24. There is a good deal of concern about intellectual awareness in this house.
25. Around here the staff usually sets an example of neatness and orderliness.
26. People here try to appear more intellectual than others in the house.
27. People don't try to impress each other here.
28. People around here hardly ever seem to be studying.
29. The people here seem to be doing routine things most of the time.
30. The house officers function in a somewhat haphazard manner.
31. There is a feeling of unity and cohesion here.
32. This is a rather apathetic house.
33. Around here there is a minimum of planning and a maximum of action.
34. The people here are generally pretty interested in cultural activities.
35. Around here people tend to hide their feelings from one another.
36. People in the house often do something together on weekends.
37. The jobs of house officers are not clearly defined.
38. In this house dating is not important.
39. Having exchanges and parties is a high priority activity in this house.
40. People who have lots of dates tend to let others in the house know.

41. Meetings and activities follow a pretty regular schedule in the house.
42. Trying to understand the feelings of others is considered important by most people in this house.
43. In this house people would rather go on a date than do something with others in the residence.
44. Intellectual one-up-manship is frowned upon here.
45. The staff here have the last say about student discipline.
46. Very few things around here arouse much excitement or interest.
47. Few people in this house go on dates.
48. People here tend to check on whether their behavior is acceptable to others in the house.
49. There are a lot of spontaneous social activities here.
50. Most people here tell one another their personal problems.
51. There is a sense of predictability about this house.
52. Most people plan activities other than studying for weekends.
53. Some people here spend a lot of time preparing for dates.
54. People here pretty much act and think freely without too much regard for social opinion.
55. Around here discussions frequently turn into verbal duels.
56. The students formulate almost all the rules here.
57. Around here people are not interested in up-holding social conventions.
58. Around here studies are secondary to most activities.
59. People here always seem to be competing for the highest grades.
60. House officers are regularly elected in the house.

61. Behaving correctly in public is pretty unimportant in this house.
62. People here consider other types of social activities to be more important than dating.
63. In this house there is a strong feeling of belongingness.
64. The students here determine who their roommates will be.
65. People here work hard to get top grades.
66. People here very rarely discuss intellectual matters.
67. The students here determine the times when meals will be served.
68. This is a pretty disorderly house.
69. Dating is a recurring topic of conversation around here.
70. Very few people here participate in house activities.
71. The students do not take part in staff selection.
72. Constantly developing new ways of approaching life is important here.
73. In the evening many people here begin to study right after dinner.
74. There is a great deal of confusion during dorm meetings.
75. House finances are handled exclusively by students here.
76. People around here don't worry much about how they dress.
77. Discussions around here are generally quite intellectual.
78. House procedures here are well established.
79. It is sometimes difficult to approach the house staff with problems.
80. Most people here have a strong sense of loyalty toward the house.
81. Being popular with the opposite sex is not very important here.
82. The people in this house do not have a great deal of intellectual curiosity.

83. In this house people tend not to compete with each other.
84. In this house people often do unusual things.
85. Things rarely "just happen" around here.
86. People around here are always trying to win an argument.
87. People here tend to rely on themselves when a problem comes up.
88. Most people here consider studies as very important in college.
89. People here try to make others feel secure.
90. Around here people who are "academic grinds" are looked on with amusement.
91. People around here don't often go out of their way to be with one another.
92. There is not much appreciation here for classical music, art, literature, etc.
93. Doing things in a different way is valued around here.
94. There is a methodical quality about this house.
95. House activities are pretty carefully planned here.
96. Around here people don't let studies interfere with the rest of their lives.

APPENDIX C

CARS

Variable	Dormitory Rating*			
	A	B	C	D
1. Architectural style.....	1	1	2	3
2. Accessibility to library and Student Union Building.....	1	1	2	3
3. Staff-student ratio.....	3	4	2	1
4. Disturbance by traffic in halls.....	3	3	1	2
5. Space to spread out materials.....	3	3	1	2
6. Furniture.....	1	1	1	2
7. Music practice rooms.....	1	1	2	2
8. Staggered doors.....	2	2	1	2
9. Storage in basement.....	1	1	2	2
10. Proximity to food facilities.....	1	1	2	2
11. Size of rooms.....	2	2	3	1
12. Study rooms.....	1	1	3	2
13. Mattress quality.....	1	1	3	2
14. Closet space.....	2	2	2	1
15. Lamp lighting in rooms.....	2	2	1	1
16. Library in dormitory.....	1	2	2	1
17. Quality of dormitory supervision.....	1	2	2	1
18. Carpet in halls.....	2	2	1	2
19. Hall noise.....	3	3	1	2
20. Hall colors.....	2	2	1	2
21. Privacy of baths.....	1	1	3	1
22. Personalization allowed in rooms.....	3	3	2	1
23. Moveable furniture.....	2	2	2	1
24. Size of windows.....	2	2	3	1
25. View from the window.....	1	1	1	2
26. Room colors.....	2	2	1	3
27. Recreation area inside building.....	1	1	3	2
28. Main floor lounge.....	1	1	2	2
29. Number of people/washing machine.....	2	2	1	3

- * A refers to Hedges South
 B refers to Hedges North
 C refers to Roskie Hall
 D refers to Langford Hall

Department of Educational Services

April 27, 1972

APPENDIX D

Dear Student:

I am conducting a research project which will attempt to understand how residence hall students see the psychological "atmosphere" or "climate" of the campus environment. The research results will suggest areas in which changes are needed within both the dormitories and the campus.

If this letter was addressed to you, then you are one of 300 residence hall students who have met the research criteria necessary for participation in this study. In order for this investigation to be valid, it is very important that each of the 300 students selected participate.

I will be happy to share with you the results in summary form. Confidentiality of each participant is insured. Grade point averages for the students participating will be used in the study.

Two questionnaires will be administered: the College and University Environment Scales and the University Residence Environment Scales. The time required to complete these true-false questionnaires is approximately one hour.

Participants may come any time between 4:15 p.m. and 8:00 p.m., Monday, May 1, through Thursday, May 4, to the private dining room in the Hedges dining area to complete the questionnaires.

I look forward to your participation and thank you in advance.

Sincerely,

Craig S. Brown
Doctoral Associate in
Student Personnel

APPENDIX E

— *Montana State University* —
Bozeman, Montana 59715 Tel. 406-587-3121

Department of Educational Services

April 28, 1972

NOTICE

If you are one of the 300 students who received a letter asking for your help in understanding how students at MSU view the psychological climate which exists within the dormitories and on the entire campus, PLEASE COME.

Remember, you can take part any time during the week of May 1 through May 4, 4:15 p.m. until 8:00 p.m. in the Hedges dining area.

Thank you in advance for your participation.

Sincerely,

Craig S. Brown
Doctoral Associate in
Student Personnel

