CAMPUS ECOLOGY:
A PERSPECTIVE FOR STUDENT AFFAIRS

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James Banning
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PREFACE

Campus Ecology:
A Perspective for Student Affairs

Ecology is the general concept used to represent the study of organism-environmental interactions. The study of human population groups in relation to their environment has become known as human ecology. The ecologic trend in student affairs work is gaining momentum and perhaps the concept of "campus ecology" denoting interest in college students and their interactions with their campus environment can be used to describe this movement.

The essence of the ecological perspective within student affairs is the study of the relationship between the student and the campus environment. Campus ecology incorporates the influence of environments on students and students on environments. The focus of concern is not solely on student characteristics or environmental characteristics but on the transactional relationship between students and their environment. Campus ecology represents a perspective for student affairs that shares the profession's longstanding concern for individual students, but incorporates in a more systematic manner the importance of environments and student-environment transactions.

The concept of campus ecology is not without a theoretical foundation or accompanying research. Walsh, in his Chapter Person/Environment Interaction, reviews six theories of person-environment interaction; Barker's theory of behavior settings, the subculture approach, Holland's theory of personality types and model environments, Stern's need express culture theory, Moo's social ecological approach, and Pervin's transactional approach. Important research focusing on college students and their environment have been stimulated by these theoretical approaches and is reviewed by Walsh. The implications of these theoretical approaches and associate research is exciting and thought provoking. A few of the most meaningful applied implications for college environments are suggested by Walsh.

Blocher's contribution tightens the focus of the person-environment interaction to bring into clear perspective campus learning environments and the ecology of student development. Beginning from a cognitive development framework, Blocher suggests seven elements within a learning environment as important in nurturing growth and development: Involvement, Challenge, Support, Structure, Feedback, Application, and Integration. Blocher goes on to suggest college learning environments contain three subsystems (1) the opportunity subsystem, (2) the support subsystem, and (3) the reward subsystem. These subsystems can be viewed in terms of their capacity to provide optimal levels of the seven elements important in nurturing the growth and development of students in the campus environment. Important in Blocher's contribution is the increasing evidence that developmental processes are not automatic, but must be purposefully triggered and carefully nurtured by the environment if full potential for growth and development is to be reached.

Kaiser, in his chapter speaks to this purposefulness by suggesting a philosophy and preliminary methodology for the intentional design of campus environments. This design approach to improving the quality of student life is termed ecosystem approach and has an
associated model called the ecosystem model. Assumptions behind the design approach are given along with a stage by stage implementation process. Kaiser also suggests the concept of a design center on campus which would be responsible for the creation of new environments and the renewal of old environments.

The campus design center becomes the central concept in Fawcett, Huebner and Banning's discussion of implementing the design process. The design center is presented in terms of who would be involved in the center, under what conceptual framework, the organization of the center and finally how it would function. From an ecological perspective the intent of the center is to design optimal fits between students and their environment for ensuring maximum growth and development of students.

Within the design process the strategy for assessment is critical. Aulepp and Delworth's contribution addresses the question of assessment in a very specific and detailed manner. They suggest the development of team approach and then go on to spell out the procedures for devising the assessment technique.

Finally, after moving from the review of general theory to the specifics of assessment techniques, a rather comprehensive review of the literature relative to the designing campus environments is presented by Kaiser and Sherretz. Their literature references have been categorized by chapters: Overview of Educational Environments, Campus Environment-Student Transactions; Student Characteristics, Housing and Residence Halls, Measurement of College Environments, and Student-Campus Environment Dysfunctions, and Intentional Campus Designs.

The concept of campus ecology and its implications are exciting and a challenge to the work of student affairs. To assume the role of participating in the provision of an optimal relationship between student and the campus environment to ensure maximum educational growth is not an easy task. Even though student affairs professionals have long talked about the importance of campus environments the task of adopting an ecological perspective will be difficult due to our traditional training as individual specialists. It is the hope of this author that this monograph Campus Ecology: A Perspective for Student Affairs will be a stimulus for the people in our profession to gain more knowledge and skills about environments and students and the process of campus design for student growth and development. Our campus environments are too rich and our students are too important, therefore, we must not bypass the simple notion of viewing them in a transactional relationship. The ecology of our campus learning environments today in a very real way holds the key to our future quality of life. Students hold the design of our society.

James H. Banning
Person/Environment Interaction

W. Bruce Walsh

To understand the behavior of a person, one must understand the environmental context or situation within which the behavior occurs. As Brunswick (1949, 1952) has stated the same behavioral episode within different environmental settings has different meanings. To explore a behavior independent of its context is meaningless. Similarly, Lewin (1936) has indicated that the setting, environment, or situation is as important as the person and both must be analyzed in order to understand behavior. These two men share a belief that meaning is inherent in the environment.

In recent years research into person/environment interaction has increased substantially. Some of this published research has been explicitly related to stated theoretical approaches. This paper is concerned with reviewing selected theories of person/environment interaction which have stimulated some meaningful research. The approaches included in this review were selected because they were able to make possible some sensible predictions concerning the individual using the person/environment relationship. Based on this notion, six theoretical viewpoints were reviewed: (1) Barker's (1968) theory of behavior settings; (2) the subculture approach (Clark and Trow, 1966); (3) Holland's (1973) theory of personality types and model environments; (4) Stern's (1970) need x press = culture theory; (5) Moos' (1973, 1974) social climate dimensions; and (6) Pervin's (1968) transactional approach. The theories are ordered and presented on a continuum from least phenomenologically oriented (Barker) to most phenomenologically oriented (Pervin). The least phenomenologically oriented theories have attempted to define the environment more "objectively." The more phenomenologically oriented theories have attempted to define the environment as it is perceived. Considerable research related to the six different approaches has been conducted using college student populations.

The paper is divided into two parts: the theories and the implications for the college student. The theory section contains a description of each theory in terms of the implicit as well as the explicit assumptions. In addition, this section discusses the concept of the person, the environment, and the person/environment relationship elaborated by each theory. The second section discusses a few of the applied implications for college students.

BARKER'S BEHAVIOR SETTING THEORY

The basic rationale for Barker's theory is that behavior settings (a cluster of related behavior-milieu parts) select and shape the behavior of people who inhabit them. The concept of behavior settings structures the rules for the enactment of behavior and the associated environmental parts necessary to effect the enactment. It is maintained in this view that people tend to behave in highly similar ways in specific environments, regardless of their individual differences as persons. Thus, human environments seem to have a coercive influence upon human behavior.

Briefly, Barker (1968), in developing his theory made three assumptions. First, the assumption is made that people comply with the forces or rules of a behavior setting.
(This manuscript is based on and is an extension of paper entitled "Some theories of person/environment interaction" that appeared in the Journal of College Student Personnel, 1975, 16,107-114.)

If people obtain satisfaction from a setting they attempt to maintain that setting. A second assumption is that a behavior setting imposes its pattern upon the people interacting in the setting. The behavior setting is the operator and is causal. A third assumption is that it may be possible to account for some of the consequences which occur across person/environment boundaries by measuring the behavior of the people and the forces of the behavior setting.

Barker in his theory reports no theoretical concept of the person or operational definition of the person. Although Barker maintains that both the individual and the environment must be taken into account in predicting behavior, his work emphasizes only the environmental component. Barker conceptualizes the environment in terms of behavior settings. He operationally defines and describes behavior settings using the Behavior Setting Survey (Barker, 1968). However, he makes no attempt to measure the environment as it is perceived by its members.

According to the theory, there is an association between the number of people in a behavior setting and the frequency, intensity, origin, and termination of forces that impinge upon these people. Thus, the theory proposes that there are differences between undermanned settings and optimally manned settings. Undermanned settings have fewer people but the same standing patterns of behavior. Setting functions are threatened, and the people sense the possibility of losing the satisfactions the setting provides. Therefore, the inhabitants are involved in more actions, stronger actions, and more varied actions in order to maintain the behavior setting. The people tend to be busier, more vigorous, more versatile, and more involved in the setting. The research (Baker, 1968; Walsh, 1973) tends to support this notion.

In summary, in Barker's (1968) theory both the individual and the environment are to be taken into account in predicting behavior. However, his work clearly emphasizes the environmental component and the effect of the environment upon behavior. Evidence indicates that behavior settings do influence the behavior of their inhabitants. Just as persons structure psychological plans which regulate their behavior, their everyday environments also have plans for them (Willems, 1965). In essence, the face of the research suggests that people in undermanned (small) behavior settings tend to be personally more productive, more involved, and satisfied than people in optimally manned (large) settings.

THE SUBCULTURE APPROACH

The subculture approach is theoretically similar to behavior setting theory. Both approaches suggest that environments select and shape the behavior of people who inhabit them. From one point of view the various subcultures seem to be large behavior settings. The underlying theoretical assumption is that subcultures and behavior settings both have a coercive influence upon the behavior of their members. However, for the subculture approaches this assumption is more implicit than explicit.
The subculture approach, as it has been used by those analyzing college environment, has been primarily concerned with identifying attitudinal or behavioral dimensions along which students tend to vary. Frequently, these dimensions are cross categorized or the variables are dichotomized and used to approximate student subcultures. In some respects the models imply that a subculture is simply a collection of people with similar attitudes or behaviors. However, the term subculture further implies that these people interact with one another, that they are mutually attracted to one another, and that they are aware of their common orientation.

A number of different student typologies or subculture models (Bolton and Kammeyer, 1967; Coleman, 1966; Keniston, 1966; Mauss, 1967; Newcomb et al, 1967; Pemberton, 1963; Schumer and Stanfield, 1966; Warren, 1968) have been developed, but only the Clark and Trow (1966) model is discussed here. The Clark-Trow approach is probably the most representative of the existing models for the reason that many of the other models have some categories that parallel the Clark-Trow categories.

In the Clark and Trow (1966) model, four student subcultures (Academic, Non-conformist, Collegiate, and Vocational) are identified based on the combinations of two dimensions: students' identification with ideas and students' identification with their college. The thought was that although students might participate in more than one subculture on a campus, only one subculture would probably identify a student's major orientation.

Similar to Barker's behavior setting theory, the subculture approach has no explicit concept or operational definition of the person. The emphasis is upon describing the environment and the impact of the environment upon its members. The environment in the Clark-Trow model is explicitly conceptualized in terms of subcultures, the basic theoretical assumption being that individuals associated with a subculture interact and evidence common characteristics and behavior. The environments (subcultures) have usually been identified by means of the College Student Questionnaires (Peterson, 1968). The environments are then described in terms of the characteristics of their members. Again, no direct attempt is made to measure the environment as it is perceived by its members.

Existing research (Feldman and Newcomb, 1969, Walsh, 1973) indicates that students describing themselves according to the four orientations tend to report differences on attitudinal and biographical variables. However, no research using the Clark-Trow model shows that students endorsing a common orientation actually interact with one another. In general, research data tend to be descriptive of student types rather than of subcultures. Only one study using the Newcomb (1967) model has explored the validity of the concept of an interactional student subculture. Newcomb (1967) found that members of his social group mainly interested in an active social life and being popular evidenced mutual attraction and awareness of common orientation along with similar attitudes.

The subculture model tends to describe the environment in terms of the attitudes, values, behaviors, and roles of its members. Thus, similar to behavior-setting theory, this approach emphasizes the environmental component and its effect upon behavior. An implicit assumption about the person-environment relationship seems to be that people tend to enter and participate in environments consistent with their personal characteristics. However, more evidence is needed
within the subculture framework that people with similar characteristics are aware of their common orientation and actually form a subculture by interacting with one another.

HOLLAND'S THEORY

The underlying rationale of Holland's theory is that human behavior is a function of personality and environment. Holland (1973), in developing his theory made the following assumptions. First, that people may be characterized by their resemblance to one or more personality types. A type is defined as a cluster or personal attributes which may be used to measure the person. Six basic personality types are described: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. People generally possess characteristics of all six types, but Holland suggests that each individual behaves in a manner which reflects one or two of these types more strongly than the others. Therefore, the closer an individual resembles a particular type, the more likely it is that person will exhibit personal characteristics consistent with that type. The types are operationally defined by the person's responses to the Vocational Preference Inventory (Holland, 1965), the Self Directed Search (Holland, 1971), and scales derived from items on the Strong Vocational Interest Blank (Campbell and Holland, 1972). A second assumption is that the environments in which people live may be characterized by their resemblance to one or more model environments. Six model environments are suggested, corresponding to the personality types. For each personality type there is a related environment. The theory hypothesizes that Artistic types search for Artistic environments and that Investigative types search for Investigative environments, etc. To operationally define the environmental models, the Environmental Assessment Technique (Astin and Holland, 1961) was developed. Although this measurement technique entails a census of self-reported preferences of the members of a population; reactive data are not collected. The final assumption is that congruent person/environment interactions (an Artistic type in an Artistic environment) lead to outcomes that are predictable and understandable from the knowledge of the personality types and the model environments. These outcomes include vocational choice, vocational stability, personal stability, and satisfaction.

Holland and others have conducted more than 150 studies related to the theory and its constructs (Holland, 1973; Walsh, 1973). In general, research based on the theory supports the existence of the personality types and the environmental models. Evidence indicates that individuals tend to choose college major environments and occupational environments consistent with their personality types. For example, Realistic people tend to choose major fields and/or careers in a Realistic environment. Other evidence indicates that congruent person/environment interactions are conducive to personal and vocational stability and satisfaction.

In sum, Holland views behavior as a function of the person and the environment, although he primarily seems to emphasize the person and not the environment in his formulation. Holland believes that congruent person/environment relationships lead to predictable and understandable individual outcomes. Research findings indicate that not only do individuals tend to choose environments consistent with their personality types, but that congruent person-environment interactions are associated with reported personal and vocational stability and satisfaction.
STERN'S NEED X PRESS = CULTURE THEORY

The foundation of Stern's theoretical approach is based upon the work of Lewin (1936) who contended that scientific psychology must take into account the whole situation, defined as the state of both person and environment. Within the Lewinian frame of reference, Murray (1938) developed a need-press model based on the assumption that behavior is an outcome of the relationship between the person (needs) and the environment (presses). Stern (1970) in his work operationally defined the important concepts of Murray's need-press model.

Three assumptions underlie the need-press = culture theory. The first and basic assumption drawn from Lewin, is that behavior is a function of the relationship between the individual and the environment. The second assumption is that the psychological significance of the person may be inferred from behavior. In Murray's need-press model the person is represented in terms of needs, as indicated by his self-reported behavior. A need state is characterized by the tendency to perform actions of a certain kind. Thirty needs are described and operationalized by Stern (1970) using the Activities Index. The third assumption is that the psychological significance of the environment may be inferred from behavioral perceptions. In the need-press model the environment is defined in terms of presses inferred from self-reported perceptions of the environment. Stern defined press as the characteristic demands or features of the environment as perceived by those who live in the particular environment. Thus, the environment is defined as it is collectively perceived and reported by its participants. To operationally define the environment four indexes were developed (College Characteristics Index, High School Characteristics Index, Evening College Characteristics Index, and the Organizational Climate Index). The concept of press provides an external parallel to the internalized personality needs. For each personality need there is a related press.

In general, the limited research testing the need-press congruency hypothesis across students tends not to support the theory (Stern, 1970; Walsh, 1973). The findings do not suggest that satisfaction and achievement behavior are functionally related to the person and the environment. For example, individuals reporting a high need for achievement are not necessarily more satisfied and productive in an environment exhibiting a high press for achievement. However, recent research using need and press scale or factor means across colleges rather than persons suggests some congruency between the average level of student needs and environmental presses. A factor analysis (Cohen, 1966) of need and press variables across 55 colleges and universities produced five college cultures: Expressive, Intellectual, Protective, Vocational, and Collegiate. A college culture is defined as a composite of the environmental press and the needs of its inhabitants. These findings indicate that students characterized by a certain need pattern tend to be found at institutions with appropriate press. Thus, the results suggest the behavior to some extent may be functionally related to needs and perceived environmental pressures.

Thus, the basic assumption of Stern's theory is that behavior is a function of the relationship between the individual (needs) and the environment (press). Stern, like Holland, stresses the significance of the individual. The most recent research across colleges suggests a certain degree of congruency between student needs and environmental presses. Moreover, the need-press combinations seem to constitute different college cultures. However, no research has
explored need-press congruency within a culture and the consequent outcomes for the individual.

**MOOS' SOCIAL ECOLOGICAL APPROACH**

Moos (1974) in his approach suggests that environments, like people, have unique personalities. Just as it is possible to describe an individual's personality, so is it possible to describe an characterize and environment.

Two assumptions seem to be basic to Moos' approach. The first assumption (similar to Murray and Stern) is that the psychosocial qualities of environment (perceived climate) may be inferred from behavioral perceptions. Thus, Moos seems to be primarily concerned with describing environments as perceived by the people in them. A second assumption is that the way one perceives his/her surroundings influences the way one behaves in that environment. Environments tend to shape potentials as well as facilitate or inhibit initiative and coping behavior (Moos, 1973, 1974). Therefore, to some extent Moos and social ecology are concerned with promoting maximally effective human functioning (Moos, 1974).

In order to characterize psychosocial qualities of environments Moos and his colleagues have developed a number of perceived climate scales that seem to measure four types of environments. Perceived climate scales used to measure treatment environments are the Ward Atmosphere Scale (Moos, 1974d) and the Community Oriented Programs Environment Scale (Moos, 1976a). Climate scales used to measure institutional environments are the Correctional Institutions Environment Scale (Moos, 1976b). Scales used to measure educational environments are the University Residence Environment Scale (Moos & Gerst, 1976) and the Classroom Environment Scale (Moos & Trickett, 1976). Finally, scales used to measure community environments are the Work Environment Scale (Moos & Insel, 1976), the Group Environment Scale (Moos & Humphrey, 1976) and the Family Environment Scale (Moos, 1976c).

The research suggests that certain common dimensions tend to exist across the different kinds of environments explored. The three dimensions that seem to be most common to social environments are the nature and intensity of personal relationships, personal growth and self-enhancement influences, and system maintenance and change (Insel & Moos, 1974). The relationship dimensions measure the extent to which people are involved in the environment and the extent to which they support each other. The basic relationship sub-dimensions are involvement, affiliation, staff support, peer cohesion, and spontaneity. The personal development dimensions measure the potential in the environment for personal growth and the development of self-esteem. The personal development sub-dimensions are autonomy, practical orientation, competition, and intellectuality. The system maintenance and change dimensions measure the extent to which the environment is orderly, clear in its expectations, and responsive to change. The system maintenance sub-dimensions are order and organization, clarity, control, and innovation. Research findings indicate that these perceived climate dimensions are common to a number of different social environments. However, divergent settings are perceived differently thus creating considerable variability within the general dimensions (Moos, 1973; Insel and Moos, 1974).

In sum, Moos' approach is based on the theoretical contributions of Murray (1938), his conceptualization of environmental press, and Stern's operational definition of environmental
press (Pace & Stern, 1958). The rationale of the approach is that the consensus of individuals characterizing their environmental climate exerts a directional influence on behavior (Smail, DeYoung & Moss, 1974).

**PERVIN'S TRANSACTION APPROACH**

The basic rationale of Pervin's (1967) phenomenologically oriented theory is that behavior can best be understood in terms of the interactions of transactions between the individual and the environment. To Pervin (1968), for each individual there are interpersonal and non-interpersonal environments that tend to match or to fit the individual's perception of himself. Thus, he hypothesizes that individuals will tend to evidence higher performance, more satisfaction, and reduced dissonance in environments that tend to be congruent with their personality characteristics (environments that tend to move the individual from his perceived self toward his perceived ideal-self).

Three basic assumptions seem to underlie Pervin's (1968) approach. First, that people find painful and unpleasant large discrepancies between their perceived selves and their ideal-selves. The second assumption is that people are positively attracted toward objects in the perceived environment which held potential for moving them toward their ideal-selves; conversely, individuals are negatively disposed toward stimuli that held potential for moving them away from their ideal-selves. The third assumption is that similarity in regard to objects of importance to the individual is desirable where the individual has a low self/ideal-self discrepancy and undesirable where the individual has a high self/ideal-self discrepancy. The essence of this assumption seems to be that people with low self/ideal-self discrepancy seem to be healthier and more open to personal growth.

Pervin's concept of the person is mere phenomenological in nature than are the ethers. He views the person in terms of the individual's picture of himself that is, his/her self concept. The individual is defined in terms of self-reported perceptions using the Transactional Analysis of Personality and Environment (TAPE) (Pervin, 1967). Pervin also conceptualizes the environment in terms of perceptions again using the TAPE. He suggests that an interpersonal environment should be defined in terms of the perceptions of its members. The noninterpersonal environment, to which he alludes, is not discussed conceptually or operationally. Theoretically, however, he does think it important to conceptualize environment independent of behavior.

The limited research conducted suggests only partial support for the theoretical frame of reference of the transactional approach. Most of the research that has been conducted has focused on the congruency-satisfaction hypothesis. Three of the four studies (Pervin, 1967a, 1967b; Pervin and Rubin, 1967; Pervin and Smith, 1968) in this area suggest that self-environment congruency tends to be associated with self-reported satisfaction. However, the most significant study (Pervin, 1967a), which explored the hypothesis that individuals report mere satisfaction in environments that function to reduce the discrepancy between the perceived self and the ideal self was not supportive. The congruency-achievement hypothesis has not been empirically explored using the transactional concepts. Additional research needs to be completed in order to verify and to generalize the transactional approach.
The basic rationale of Peryin's phenomenologically oriented theory is that behavior can best be understood in terms of the perceived interactions between the individual and the environment by the individual's self-reported perceptions and his reactions to these perceptions. Pervin maintains that for each individual there are environments that tend to match the individual's perceptions of himself/herself. Some of the limited research suggests that self-environment similarity tends to be associated with self-reported satisfaction.

IMPLICATIONS FOR THE COLLEGE STUDENT

The theoretical, research, and applied implications of the theories are numerous and varied. Only a few of the most meaningful applied implications for college students are discussed here.

Behavior-setting theory suggests that college achievement may be related to college size. Baird (1969) in fact found that students in a sample of small colleges did evidence higher academic achievement than students attending larger colleges. Baird further suggests that talent or ability will not be developed unless it is used.

Small colleges (undermanned environments) tend to afford students more opportunities to have varied experiences and explore their interests and abilities. In fact in small colleges there is pressure on students marginal to the environment to participate to help maintain the stability of the environment. Thus, in small colleges marginal students tend not to be experientially and behaviorally marginal. In contrast, in large environments marginal students report little sense of obligation and are perceived as a group of outsiders. To reiterate, environments have plans for their participants. In general, the above findings and implications suggest that college size may have an impact on the effectiveness of the educational process for some students. Other research suggests (Astin, 1968; Pace, 1967) that students attending small colleges tend to perceive the campus environment as being more friendly, cohesive, group oriented, and less competitive when compared to students attending large institutions. In addition, small college students report more frequent contacts with faculty, more time spent in the library, and a higher quality of teaching (Astin, 1963). In general, the above findings and implications suggest that college size may have an impact on the effectiveness of the educational process for some students.

An applied implication of the subculture approach is that a subculture may provide support for individual stability by means of attitude, value, and behavioral reinforcement. The attitudes, values, and behaviors which motivate an individual to enter and interact in an environment may tend to be reinforced and even accentuated by the experiences in the environment. One study (Newcomb, 1967) has shown that members of a social type do tend to enter environments consistent with their personal orientation. Moreover, the findings suggested that the group members chose to live together and interact with one another. These limited results support the tentative notion that consistent person-environment relationships may tend to stimulate interpersonal satisfaction as well as the maintenance, extension, and reinforcement of certain attitudes and behaviors.

Some of the research on Holland's theory tentatively suggests that students who have selected and are functioning in a college major environment consistent with their personal
characteristics seem to be psychologically healthier than students who are interacting in a college major environment inconsistent with their personal style or students who remain undecided. This work tentatively implies that a realistic decision about college major choice may contribute to psychological health and well-being for a number of college students.

Stern's need-press theory (because of the culture analysis) is in some ways similar to the subculture approach and Barker's behavior-setting theory. The subcultures identified either by the subculture approach or the need-press approach seems to be like large behavior settings. Barker and the subculture approach stress the significance of the environment. Environments tend to select and to shape the behavior of people who inhabit them. Stern's suggestion, however, is different. He thinks that in some cultures, press variables may be stronger than need variables; but in other cultures, need variables may be more potent than press variables. Restated, in some behavior settings the environment tends to shape behavior, but in other settings the individual may tend to shape the environment.

Moos in operationalizing his social ecological approach developed a series of social climate scales designed to enable people in a particular environment to better understand their environment, its effects, and how responsive it might be to change. According to Moos and similar to Stern the perceived environmental climate exerts a directional influence on behavior. For example, an environment favorable for the development of autonomy and tolerance may differ considerably from one favorable for the development of social conformity and self-control. The climate of environments in which people live and function influences their satisfaction, self-esteem, and personal development (Insel & Moos, 1974). In fact some evidence suggests that the perceived social climate of an environment has important physiological and health related effects. People who are satisfied in their jobs have a much better chance of remaining healthy than those who are not. In sum, perceived environments seem to have some impact on coping behavior, physiological health, and psychological well-being.

Some of the limited research using Pervin's theoretical viewpoint tentatively suggests that self-environment similarity tends to be associated with greater self-reported satisfaction in college environments. Thus, students interacting in perceived environments relatively consistent with their reported self-concepts seem to be happier and more satisfied. These limited and tentative findings tend to be consistent with some of the research on Holland's theory and with a study using the subculture approach.

In conclusion, the review of these theoretical orientations makes it evident that the area of person/environment interaction is a long way from having a theory that may be considered a full-fledged general theory. From the present vantage point the most glaring weakness of the theorizing is the lack of emphasis upon the physical environment. In spite of limitations, at least it seems that the above theories represent a cluster of attitudes, implicit if not explicit, concerning the relationship between the individual and the environment and the outcomes for the person. Each theory does have its assumptions, even though at times they are not clearly stated. Each approach has stimulated some meaningful research. Many of the investigations have procedural difficulties, but the fact remains that, to a varying degree, the effectiveness of each theory has been empirically examined. In any event, these theories may be the beginning from which greater theoretical and research sophistication will become possible.
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It has been said that education is what is left over after one forgets everything that he or she learned in school. While this definition may be somewhat flippant, it is perhaps not such an absurd notion when one examines it carefully.

Much of the tradition of American higher education has been based upon a rather dimly rational adoration of the medieval ideal of the liberal arts as the cornerstones of education. Recently, I completed a three-year stint on a "Council for Liberal Education" in a very large American University. This Committee was comprised of a group of distinguished university professors and administrators who were specifically charged with preserving the rather dubious virtue of the undergraduate programs in terms of their commitment to liberal education.

The most striking feature of the deliberations of this august body was its almost complete inability to agree on what was meant by the term liberal education. The notions advanced by members literally ranged from a naive enumeration of virtues that was highly reminiscent of the Boy Scout Oath and Law, to an exposition of the ancient "mental muscles" theory of transfer of training that largely equated the worth of a learning experience with its strength as an aversive stimulus.

COGNITIVE DEVELOPMENT AND LIBERAL EDUCATION

Interestingly, the concept of liberal education as liberating the individual seemed almost totally lost in this group of twentieth century scholars. The image of the medieval university as a fragile but potent community of scholars dedicated to freeing its members from the oppression of a thousand years of ignorance and superstition seemed largely lost on this group. Apparently, that concept has had little impact on contemporary university professors and administrators.

Ironically, at the same time that this cherished ideal seems to be so badly misunderstood in the practical world of contemporary higher education, we seem to be on the threshold of a real breakthrough in psychology that may help us appreciate and explicate the ideals of liberal education in a way never possible before. That breakthrough has been called the "cognitive revolution" (December, 1974). Basically, the cognitive revolution, if we choose to use such an immodest term, has resulted in a much greater appreciation of the mediating effects of cognition in many aspects of behavior and motivation. As Bandura (1974) has pointed out, even from the standpoint of modern behavioral psychology, men and women are very much viewed as thinking, feeling creatures with positive needs for stimulation and competence.

From the standpoint of education, the greatest legacy from the cognitive revolution has undoubtedly been in the work on cognitive development. The genesis of much of this research, of course, was the pioneering work of Piaget (1970). Basically, the primary thrust of Piagetan research has been to view human cognitive development as an orderly, sequential process that works to produce qualitatively, different patterns of cognitive functioning. When cognitive development is appropriately nurtured by learning environments, the growing individual becomes capable of processing information from sensory inputs in fundamentally different ways.
from those that were characteristic of earlier stages of development. The great watershed of
cognitive development is, of course, the use of "formal operations," or principled thinking that
allows the individual to enter cognitively into whole new realms of complexity, ambiguity and
abstraction.

Literally, it is the development of principled, operational, cognitive processes that has the
power to make men and women free. In the medieval university the great liberal arts or
disciplines were the cognitive frameworks that allowed the educated man to process information
in ways that freed him from the superstition localisms and biases that chained others to the
immediate, concrete and trivial pillars of cognitive-perceptual prison.

For the modern, cognitive psychologist the frameworks represented by the liberal arts are
examples of cognitive structures that are still the basis of real education (Pribram, 1972). These
structures are the things that remain after we have forgotten most of the inputs from what Glasser
has called "fact and memory" education (1969).

From this view, then, the central problem of higher education, particularly, is how to
nurture this precious and delicate "structural change" process that represents the essence of
liberal education.

We know from research (Kohlberg, 1972; Bayley and Oden, 1955) that this kind of
development does not unfold automatically. Rather it is clear that cognitive development ceases
for many people in our society before formal operations are well established aspects of their
cognitive functioning. For others, however, development seems to continue virtually throughout
the life span.

The central question then emerges as this: What are the characteristics of those learning
environments that trigger and sustain structural change in students? Considerable research on the
nature of college learning environments has been accumulated in the past thirty years. Pace and
Stern (1958) inaugurated an extensive line of research aimed at measuring the psychological
characteristics of college environments. Their approach utilized the Murray construct system of
psychological needs as a conceptual base, and developed the concept of "press" as a psychological
characteristic of a given environment. Essentially, their research indicate that
college environments differ in terms of the "press," or implicit impact of the environment on
students. There seems little doubt at this point that college learning environments do exert unique
psychological influences that are recognizable and measurable in terms of student perceptions.

Astin and Holland (1961) in a somewhat similar line of research developed the
Environmental Assessment Technique to describe the essential characteristics of college
environments in terms of eight demographic variables and six "persona orientations" of students.
Their research indicated the presence of interaction effects between the environmental
characteristics of a campus and the personal orientations of its students. In other words given
types of college environment apparently attract, hold and are influenced by given types of
students.

Still further research of this type centering on learning environments represented by
residence halls and professional schools has been done by Brown (1968), Sheehan (1970), and Gerst and Moos (1972). Essentially, these studies have affirmed earlier findings that specific learning environments do vary in psychologically significant ways, that they do have different impacts upon students and that important interactions exist between environments and personality or developmental characteristics of students.

The primary question posed earlier about the potency of college learning environments to produce structural changes in students has not really been addressed by the descriptive research cited above.

The question of how learning environments or what is sometimes called "climate" actually impacts student learning goes back at least to John Dewey (1916). Four contemporary lines of research stemming partially at least from the work of Piaget seem to offer the most promise in helping us to understand the essential ingredients in learning environments that can nurture cognitive development.

The research of Kohlberg and his associates on moral development (1972) has focused upon conditions necessary for stage changes within his six stage schema. The work on ego development by Loevenger (1976) and her associates has looked at cognitive growth in its most general sense, really as total personality development. The work of Harvey, Hunt and Schroder (1961) and their associates has centered around the effects of learning environments on conceptual levels and belief systems. The work of Perry at Harvard on cognitive growth in college years has also added to our knowledge in this area (1968).

Research now underway at Boston University by Ralph Mosher and his students (1975), and at the University of Minnesota by Norman Sprinthall and Lois Erickson (1974) has combined many of the constructs and approaches of earlier researchers into what is called "deliberate psychological education (Sprinthall (ed.), 1975).

It is not possible to describe all of these lines of research in detail in this paper. It suffices to say that it now seems possible to outline, at least tentatively, the basic parameters of a potent learning environment from the combined results of these studies.

A TENTATIVE MODEL FOR GROWTH-PRODUCING Environments. At this stage of our knowledge, we can state the following proposition. At least seven important elements within a learning environment can be identified as important in nurturing human growth and development. That is, these elements contribute to the acquisition and maintenance of new patterns of thinking and, consequently, of feeling and acting, that are qualitively different from the preceding patterns. This is our definition of "structural change" and if we are willing to accept Loevenger's position, we can define structural change as a central ingredient in overall personality development.

Our tentative paradigm then becomes this: Structural change tends to occur when:

1. The learner actively engages the learning environment in a way that puts at risk
significant psychological values such as self-esteem, approval of significant others, or important aspects of an existing self-concept. This is the condition of **involvement**.

2. The learner is in a condition of mild disequilibrium or tension. A moderate degree of discrepancy exists between the learner's present coping behaviors or cognitive structures and those demanded by the tasks of stimulation present in the learning environment. Generally the levels of stimulation in a learning environment are measurable in terms of variables such as novelty, complexity, abstractness, ambiguity and intensity. At any rate an optimal mismatch should exist between the learner and the requirements for mastery of those aspects of the learning environment that lead to intrinsic reward such as feelings of competence and control. This is the condition of **challenge**.

3. The learner experiences a degree of empathy, caring and honesty from other human beings in the learning environment. That is, the learner is touched by a network of positive human relationships. This is the condition of **support**.

4. The learner has available examples of functioning of performance slightly more advanced than his or her own and is able to observe these performances, see that they can resolve the task demands in the learning environment and witness them be rewarded. In the moral development research literature this is sometimes called "plus one modeling." It is termed here the condition of **structure**.

5. The learner has opportunities to practice the use of new cognitive structures and their related skills, and to receive clear, accurate and immediate information about his or her performance relative to the demands of the environment. This is termed the condition of **feedback**.

6. The learner is able to test actively new concepts, attitudes and skills in a variety of natural settings and situations in which opportunities for improved relationships, problem-solving, decision-making or appreciation can be directly experienced. This is the condition of **application**.

7. Finally, the learner is able to review, critically examine and evaluate new learnings in a safe, reflective and unhurried atmosphere in which the new learning can be reconciled and assimilated with past experiences. This is the condition of **integration**.

The tentative model described above thus generates seven crucial conditions for growth that can be considered as key elements in any learning environ men designed to facilitate cognitive and personal development. These are again: **Involvement, Challenge, Support, Structure, Feedback, Application and Integration**. There are obviously not new in terms of the literature of either psychology or education. Recent research and conceptualization relevant to one or more of these conditions is summarized in books such as Joyce and Weil (1972), Hunt and Sulliv (1975), Aspey (1972) and Sprinthall and Sprinthall (1975).

What is important is that we now seem to have the knowledge with which to begin to
specify the conditions required within a learning environment represented by a college campus to render that environment potent in terms of the ability I produce personal and cognitive growth. We can think of them like the "con conditions" within a counseling relationship. We can utilize them as construct on which outcome measures in teacher education and process measures in studies of educational treatments and programs can be based.

THE ORGANIZATION OF LEARNING ENVIRONMENTS

In an earlier paper (Blocher, 1974) an attempt was made to examine the basic organization of a learning environment. Three major subsystems of a learning environment were conceptualized. These were: (1) the opportunity subsystem, (2) the support subsystem, and (3) the reward subsystem. It is now possible to 1001 at these three components of a learning environment in terms of their capacity to provide optimal levels of the central conditions described above.

The Opportunity Subsystem. The opportunity subsystem essentially provides the task structure within the learning environment. It involves formal learning tasks or enabling experiences built into the environment in terms of such things as readings, reports, tests, experiments or projects, etc. Also, however, the opportunity structure is concerned with the social psychological elements of role and status within the learning environment. Learners are afforded the chance to fulfill self-enhancing roles of leader, helper, tutor, critic and evaluator. It is largely through the learners' engagement with these role opportunities as well as with intellectual tasks that adequate levels of involvement and challenge are maintained in the environment.

The opportunity subsystem thus allows each learner to engage in intellectually demanding tasks within social roles that can result in enhancement of self-esteem and status.

One of the key functions of the opportunity subsystem is to insure that the role of learner is not seen as a degrading "one down" stance devoid of possibilities for self-enhancement. Finally, the opportunity structure must also provide for reflective, introspective learning situations in which integration can occur. Privacy and intimacy can only be provided through a flexible opportunity system.

The Support Subsystem. The support subsystem is concerned primarily with providing the essential conditions of structure and support. Structure is made available in terms of cognitive frameworks that offer the learner a way to reduce the threat caused by relatively high levels of stimulation in the form of ambiguity, complexity, abstractness or novelty. In counseling, for example, structure may be provided by giving the learner a problem-solving or decision-making framework within which to work through a disturbing situation. In the classroom the framework might be in the form, for example, of personality theory in psychology, an economic determinist view of history, or of probability theory in mathematics, or impressionism in art. Essentially structure provides a new and higher level way of processing and organizing information about some phenomenon. It provides a system that can handle increasing levels of complexity, abstractness, or ambiguity.
Support, on the other hand, deals with the reality that the learner is a person at risk. The fact that the learner is ego-involved and is challenged means that he or she is also vulnerable. The support subsystem must provide a relationship network that communicates empathy, caring and honesty so that the vulnerable learner can feel understanding of his or her doubts and fears, and real caring and concern by others for his or her growth and well-being. In some situations the support subsystem may have to provide training in interpersonal skills to natural groups in residences or help establish temporary systems such as counseling relationships to help enrich needed relationship networks in the learning environment.

The Reward Subsystem. The conditions of feedback and application are provided through the reward structure. In higher education the reward system must provide for intrinsic as well as extrinsic rewards. Recent research by DeCharms and his associates (1968) has pointed up the significant role of intrinsic rewards achieved through increased feelings of mastery, control and competence. Notz (1975) and Levine and Fasnact (1974) have cautioned about the dangers of reliance on trivial and extrinsic rewards that may actually decrease performance. Feedback is a condition that gives the learner continuous, accurate and unambiguous information about his or her performance in relation to a learning objective. The reward or incentive value of this information is directly related to the level of ego-involvement. When involvement is high, information about improved performance will almost certainly have intrinsic reward properties.

Application as a condition allows the learner to obtain intrinsic rewards in natural social situations. This condition facilitates the maintenance and transfer of new learning by allowing it to be rewarded under natural circumstances and schedules. Perhaps the greatest shortcoming of most American campuses is in their inability to provide for intrinsic rewards through immediate evidence of the value of learning. A few programs that provide for work in alternate years or semesters have made attempts in this area. Most campuses however offer the stark paradox of sterile debate over cosmic issues combined with a Disneyland atmosphere of fun and games.

Generally speaking a reward system that provides only extrinsic reinforcement within relatively artificial and temporary environments will be limited in its ability to effect long-term changes and changes that transfer across a wide range of situations. (Atthowe, 1974; Newcomb, 1963)

What has been described above is an all too sketchy and tentative model which to examine the nature of campus learning environments. As further knowledge clothes the bare bones of this skeletal framework it may be possible for a genuine ecology of student development to emerge as a primary knowledge base for the practice of student personnel work. Already it is possible to see the role of the University Counseling Center as reaching out far beyond its beginnings as ancillary service of doubtful necessity to a base for consultation and training aimed at improving the quality of the total campus environment.

The kind of conceptualization offered here affords an opportunity to redefine the role of college student personnel work. As student personnel workers we have significant contributions to make to all three of the environmental subsystem discussed above. We can work closely with academic departments, participating in the design of curriculum and helping students to select programs that will be involving and challenging. Through consultation and training in group
leadership skills we can help build opportunities for reflection and integration of new learning experiences into both the curriculum and the extra-classroom environment.

Perhaps the greatest possible contribution of student personnel work lies in the area of the support system. Indeed, perhaps, the support system should be organized and coordinated primarily by student personnel workers. Life in residence halls, unions, clubs and fraternities all offer significant opportunities for supporting relationships. Similarly, these settings provide possibilities for modeling of a wide range of cognitive structures. The cosmopolitan nature of many campuses, particularly can be utilized to introduce students to new concepts and frameworks.

Finally, student personnel workers through their efforts in vocational and personal counseling have a unique opportunity to help provide for the application of new learning in ways that can be intrinsically rewarding. Part-time or summer jobs, new social relationships and responsibilities, new roles in marriage and family can all be opportunities for application.

As greater understanding and appreciation of the kinds of core conditions for intellectual and personal growth that are sketched out in this paper emerge, human services not unlike those that we have called counseling, laboratory learning, human relations training and so forth may someday be seen as essential components of all potent learning environments. Perhaps then, too, we will see the restoration of respect in higher education for its heritage as a community If learners united in dedication to the liberation through learning of all its members.

REFERENCES


Ecosystem design is first and foremost a design science. It asks - "How you build spaces for people?" The spaces may be organizational spaces, fan spaces, job spaces, campus spaces, community spaces, or the inner spaces consciousness.

The concern with campus spaces currently takes the form of campus ecology and campus design. Campus ecology is the study of campus-student transactions - how do students affect campus spaces and how are they affected by them. The unit of interest is the transaction since both students and campuses mutually define one another. Campus design is the engineering arm of campus ecology. It is concerned with the intentional design of campus environments that facilitates student development.

MODEL OF STUDENTS AND SPACES

In campus ecology the two primary dimensions of analysis are the student’s consciousness or basic awareness and the spaces or environments he inhabits. Consciousness refers to the student as a totality at all levels of awareness. Consciousness has three important properties: (1) it seeks out experience, (2) interprets experience, and (3) it is the net result of past experience. Experience is gained in spaces. A space is defined as the set of stimuli occupying consciousness at any given moment. The stimuli may be physical, mental, social, chemical, biological, etc. Physical stimuli create a physical space. Social stimuli create social space, etc. Stimuli originating outside a person are referred to as outer spaces. Stimuli originating inside a person constitute inner spaces. Consciousness with equal facility can navigate inner and outer space. Consciousness expands with greater experience through incorporation of that experience. Since all experience is gained in spaces, a design for spaces is a design for consciousness.

Space is active and evocative. It calls forth a response from consciousness. Space triggers expansion of consciousness. It both stimulates and provides for the expression of consciousness. Potentials of consciousness are realized through it opportunities and demands of spaces. A campus may be viewed as a growth space. It can be designed to evoke nominal potentials in students and translate them into phenomenal realities (growth).

Every learning space has a demand load. It calls for certain responses from the student entering the space. A student and a campus space may be matched or mismatched. A mismatched space is one that fails to provide what the student needs or demands a response the student cannot give. Too great a mismatch is stressful for the student and may generate a negative reaction.

Learning spaces have three primary design dimensions. They may be designed to compensate for student disability, to facilitate existing student ability, or to potentiate new student abilities. The resulting campus spaces are referred to a compensatory spaces, facilitative spaces, and potentiating spaces. For any given student, it is desirable to design in all three dimensions. This design effort requires a knowledge of existing student abilities and a technology of learning space design.
Consciousness and space react in the following ways:
1. Consciousness seeks out spaces that affirm it.
2. Consciousness is most often shaped by the spaces it encounters.
3. Consciousness may become potent enough to shape the space it encounters.
4. Consciousness may be trained to transcend any space it encounters.

Translated into the terms of campus ecology, this means that students should be taught to:
1. Seek out existing campus and community spaces that promote growth.
2. Map existing campus spaces with a resulting awareness of their shaping properties.
   Counter control measures can then be instigated by the students against negative campus environments.
3. Collaborate in the design of campus environments that will have a favorable effect upon students.
4. Transcend negative campus environments through inner space navigation.

Since spaces are viewed as vehicles for the expression of consciousness, a student may be trained to select spaces that provide opportunities, inducements, and positive reinforcements in the desired direction of development. Control of destiny becomes a problem of selecting spaces for consciousness to occupy and as a result becomes appropriately modified, i.e., expanded, as a result of the experience gained in them. Every student as an infant is shaped by the early family space. As a maturing adult, every student has the potential of enlightened space selection, and eventually space shaping and/or transcendence. Life becomes a problem of design, i.e., designing spaces for enhancement of consciousness. At some point, the actualizing potential of outer space is exhausted. Inner space knows no such limits and becomes the next logical field of student endeavor. Outer space is composed of high inertia matter and is altered by thought alone. An appropriate balance between inner space meditation and outer space action permits a full realization of consciousness. A campus should be designed to foster both of these excursions in consciousness.

THE NURTURING PROPERTY OF SPACE

In a somewhat different context, Dubos (1965) discusses the man-environment transaction:

The components of the body machine react with the environment, in the same way as do similar components in any other living or inanimate system. But living man responds to his environment. I have intentionally differentiated between reaction and response to emphasize that human adaptation can seldom be regarded as merely the result of man's body reacting with environmental forces. In fact, man's responses are not even necessarily aimed at coping with the environment. They often correspond rather to an expressive behavior and involve the use of the environment for self-actualization.

The use of the environment for self-actualization is the key element expressed by Dubos in this quotation.

The self-environment interface is similar in many respects to the gene-environment
Genes determine not "character" or traits" but reactions or responses - health and disease are manifested in the phenotype of the organism and the phenotype is, in principle at least, modifiable, and perhaps controllable, by the genotype as well as by the environment.

The environment may be viewed as the program for revealing the inner gene As Dobzhansky (1963) states: "The environment plays the role of a programming device and natural selection that of a regulatory mechanism,"

In ecosystem design, the student is viewed as existing at various levels of consciousness ranging from the conscious mind to the realm of seed potential. The realm of seed potential contains the "genes" or energy patterns that represent all that a student can become if stimulated by the appropriate environment or space. The ecosystem designer is a bridge to becoming for students, since he/she creates nurturing campus spaces that make possible the emergence of hidden properties of being. The ecosystem designer is a kind of gardener designing an environment for the seed. It matters little whether the realm of seed potential is viewed as archetype, soul, or a hypothetical construct. The problem of development remains the same - how to move from the unmanifest to the manifest, from noumenon to phenomenon, from potentiality to actuality. If the nurturing environment is not created, the seed potential fails to be realized. Campus design cannot create the "gene," but it can create the conditions for its emergence which in many ways is equally important.

**ECOSYSTEM DESIGN ASSUMPTIONS**

The following assumptions are basic to campus design (WICHE, 1973):

1. The campus environment consists of all the stimuli that impinge upon the students' sensory modalities and includes physical, chemical, biological, and social stimuli.
2. A transactional relationship exists between college students and their campus environment, i.e., the students shape the environment and are shaped by it.
3. For purposes of environmental design, the shaping properties of the campus environment are focused upon; however, the students are still viewed as active, choice-making agents who may resist, transform, or nullify environmental influences.
4. Every student possesses capacity for a wide spectrum of possible behaviors. A given campus environment may facilitate or inhibit anyone or more of these behaviors. The campus should be intentionally designed to offer opportunities, incentives, and reinforcements for growth and development.
5. Students will attempt to cope with any educational environment in which they are placed. If the environment is not compatible with the students, the student! may react negatively or fail to develop desirable qualities.
6. Because of the wide range of individual differences among students, fitting the campus environment to the students requires the creation of a variety of campus subenvironments. There must be an attempt to design for the wide range of individual characteristics found among students.
7. Every campus has a design, even if the administration, faculty, and students have not
planned it or are not consciously aware of it. A design technology for campus environments, therefore, is useful both for the analysis of existing campus environments and the design of new ones.

8. Successful campus design is dependent upon participation of all campus members including students, faculty, staff, administration, and trustees or regents.

ECOSYSTEM DESIGN PROCESS

As indicated in Figure 1, the ecosystem design process consists of seven stages (Kaiser, 1975a):

Stage 1 - The design team (student, faculty, staff, and regents) generate numerous environmental values they consider desirable for the college environment. These environmental values are humanistic qualities built into the habitat which have high probability of evoking corresponding behaviors in the residents of the college environment. For example, an environmental value might be, "to provide an opportunity for self-expression." A list of general humanistic values, i.e., what constitutes the good life, is thus created. The selection of environmental values is necessarily a subjective process but must result in enough consensus on core values to proceed with the design effort. To achieve such consensus exercises in value clarification may be necessary.

Stage 2 - From the list of environmental values, a few are selected for design implementation. Stage 2 thus represents a prioritization of general values enumerated as Stage 1 and also a level of commitment by members of the design team. The selected values are rephrased into measurable goal statements. High level, abstract, philosophic statements produced in Stage 1 are converted into programmatic goals in Stage 2.

Stage 3 - The goal statements are translated into tangible programs and activities in Stage 3. Each goal in a planned space can be traced to visible events that are its expression. Each visible event in turn can be traced to a goal statement. Stage 3 moves beyond paper planning to the planning of observable student activities.

Stage 4 - The environmental programs are fitted to the residents (students, faculty, staff, etc.). A good program is only good in the sense that it fits the consciousness of its users. Programs cannot be transplanted willy nilly from campus to campus. During this implementation stage feedback loops are built in to assist in customizing the program-fit and making necessary adjustments.

Stage 5 - In Stage 5 the student's perception of the designed campus spaces is measured and compared with the goals in Stage 2. Is the space doing what it was designed to do? A number of psychometric tests have been developed for measuring campus climate. Depending upon the circumstances, anyone of them might be appropriate. The consensual environment perceived by the student is then related to the referents of these perceptions, i.e., stimuli in the college environment that evokes the perceptions. A consensual referent environment constitutes the data for the redesign effort. The tagged stimuli can be redesigned. The referents might include people, policies, procedures, curricula, building, and other campus stimuli.
Stage 6 - Student behavior is observed and if possible related to student perceptions measured in Stage 5. The assumption is that student behavior is related to student perception of the campus environment.

Stage 7 - All of the design data collected in the preceding six stages is gathered and analyzed. The design process is then repeated. Through successive design approximations the values and goals in Stages 1 and 2 are ever more nearly approached.

FIGURE 1: THE DESIGN PROCESS

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<th>Stage 1</th>
<th>Generate Environmental Values</th>
<th>Valuing</th>
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<td>Stage 2</td>
<td>Translate Values into Goals</td>
<td>Goal Setting</td>
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<td>Stage 3</td>
<td>Translate Goals into Programs</td>
<td>Programming</td>
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<td>Stage 4</td>
<td>Fit Programs and Residents</td>
<td>Fitting</td>
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<td>Stage 5</td>
<td>Measure Resident Perception of the Institutional Environment</td>
<td>Mapping</td>
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<td>Stage 6</td>
<td>Monitor Resident Behavior in the Institutional Environment</td>
<td>Observing</td>
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<tr>
<td>Stage 7</td>
<td>Feed Back Design Data to Stage 1 of the Design Process</td>
<td>Recycling</td>
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If the design team is designing a new college, it may proceed from Stage 1 through Stage
7 in a step-wise progression. If, however, the design team is working with an existing college, it may begin at Stage 5, the mapping stage, and work backward to Stage 1 and then forward to Stage 7.

ECOSYSTEM DESIGN APPLICATION

Campus ecology and campus design constitute a unified conceptual-operational model. A literature review is available (Kaiser and Sherretz, 1976). A training manual has been prepared to help campus personnel begin the process of campus design (Aulepp and Delworth 1976 and Banning Kaiser 1974). Several college campuses have experimented actively with the model and a growing body of experience is accumulating. The ecosystem design process has also been applied to the emotional problems of college students (Kaiser, 1973) and the design of diverse organizational environments (Kaiser, 1975 b). The design process is a method of assuring high quality campus environments for students. It is basic to campus renewal and represents a logical extension of the student activism of the 60's. After criticizing the quality of existing campus environments, constructive action is called for. Campus design is this positive effort made possible by the ferment of the past decade.

THE DESIGN ETHIC

The goal of the ecosystem design is human fulfillment. Human fulfillment is viewed as the developmental movement of consciousness through the vehicles of inner and outer space. The design ethic is to provide for students an array of campus spaces that permit free and enlightened choices of "being in the world." Design is committed to radical freedom of choice by students, through provision of carefully engineered and monitored 'spaces. The design ethic is a blend of existentialism and Skinnerian behaviorism. For want of a better term, it might be called Skinnerian Existentialism. If development spaces are not available or are mislabeled, the student is not free. If the spaces are available but unknown to the student, the student is not free. The ecosystem designer is committed to bringing students to a free and enlightened choice regarding their consciousness in the world, but is not responsible for particular choices the student makes. Manipulation and force are beyond the pale of ecosystem design and a violation of the design ethic. A second part of the ethic declares that it is immoral to design for people. It is moral to design with people. Students affected by any campus space have a moral right to participate in its design or redesign.

THE EVOLUTION OF DESIGNED SPACES

Campus spaces have a social structure and implicit in the spaces are covert demands and expectations of students. These demands built into the spaces shape the transactions with students. It is possible but difficult for students to rise above the spaces. By subjecting the student to a series of graded spaces, opportunity is provided for higher level transactions and the resulting growth and freedom of the student. The transactions may be organized in a simple hierarchy as follows:

1. Exploitive - The campus space exploits its students, taking much and giving little in return. (example: slavery)
2. **Subsistive** - The campus space maintains its self-interest by maintaining students at a subsistence level. (example: company town)

3. **Contractual** - The campus space and the student are viewed in terms of an implicit or explicit contract. Each tries to maximize its bargain without damaging the other unduly. (example: collective bargaining)

4. **Paternalistic** - The campus becomes paternalistic and "looks after its children." The identities of the students are submerged in the system. A dependency relationship is fostered. (example: monasteries)

5. **Interactive** - All members of the campus space work together to fulfill the needs of the college and the needs of the students. (example: human relations approach in industry)

6. **Self-Actualizing** - The campus space is viewed primarily as a vehicle for student actualization. A good deal of energy is vested in developing the campus spaces as unique places. (example: Alcoholics Anonymous)

7. **Exclusive** - The campus space reaches its ideal form and sets in marked contrast to the rest of the environment. A spirit of competition exists. Students identify with the particular brand of campus identity and ignore other spaces in the surrounding environment. Egoism is at its height both on campus and in the students. (example: a restrictive social club)

8. **Inclusive** - Students become concerned with other spaces. The campus is viewed as only one cog in an important wheel of social and human progress. Exclusivity breaks down and students develop a more inclusive awareness. (example: pie: not too many of these around)

9. **Synthetic** - The dualism of student-campus is transcended. The student is the campus, the campus is the student. The campus environments are third dimensional radiations of student consciousness. Consciousness is so potent it now creates the spaces automatically that before had to be so laboriously designed. (example: yet to come)

**THE CREATION OF CAMPUS SPACES**

A design center, on campus, has the responsibility for creation of new spaces and the renewal of old spaces. Space creation goes through the following steps:

1. **Envisioning** - perceiving the design idea
2. **Enforming** - creating an appropriate form or space that embodies the design idea
3. **Infusing** - pouring energy into the space, fitting students to the space
4. **Monitoring** - observing space-student transactions
5. **Evolving** - improving on the design of the space as indicated in the monitoring step
6. **Envisioning** - at this point, the design sequence repeats itself

The design center should be staffed with people having diverse talents. Designing spaces for students requires visionaries, but it also requires experts in implementation strategy, administration, and evaluation. The design center is a microcosm of the world as a macrocosm. The campus is a design laboratory, and its product can be exported to many other human environments. The most humane of all effort is building spaces for people.

**SUMMARY**
Campus ecology and campus design represent a new dimension in education. Fitting campuses to students is a new perspective. The state of the art is developing. It depends upon a developing awareness of the shaping properties of consciousness and the consensual nature of campus reality.

REFERENCES


Within the ecological perspective, student affairs organizations on campuses are concerned with the designing of campus environments which provide an optimal fit between students and the educational community. While the optimal fit varies from setting to setting demonstrating a rather elusive nature, the goal of the design process is to potentiate students as physical, mental, and social beings. In moving from the arena of conceptualization and theory to the pragamatics of implementation, two important questions surface rather quickly. Who is going to design and/or redesign the campus? How is the design and/or redesign process going to be organized and implemented?

WHO DESIGNS?

Several authors have in their writings on campus ecology stated very clearly their response to the question. In the Western Interstate Commission for Higher Education document "The Ecosystem Model: Designing Campus Environments," it states: ". . . successful campus design is dependent upon participation of all campus members including students, faculty, staff, administration, and trustee or regents."

Banning and Kaiser (1974) restate this notion of consumer participation in formulating the first step in an ecosystem design process by indicating that "designers, in conjunction with community members select educational values. (page 372)

In a more recent article, Kaiser (1975) states the importance of community participation in the design process: "The ecosystem model offers a participatory design strategy. It is based upon the conviction that all people impacted by a space have the moral right to participate in its design. . . ."

Robert Sommer (1972) in his book Design Awareness suggests that it is the user of the spaces who must be involved in the design. Designs must suit the needs of the user. The consumer becomes designer.

A lesson can be learned from the Community Mental Health movement, which in its eagerness to intervene in communities in attempts to change things "for the better" ran headlong into this issue of consumer involvement. Well intentioned programs designed "for" consumers without their input, often without their sanction, frequently failed. Attendance was poor, program dropouts were common, and programs were often evaluated as ineffective. Such experiences have redirected the attention of consumer-oriented professionals toward the significance of including the consumer in the design process. In addition to the philosophical "right for involvement, if the consumer is not involved, the likelihood of successful program development is markedly reduced. Organizational and community consultants (Caplan, 1970) have also through their professional experiences recognized that a necessary condition for success is the inclusion of target groups in decision making and data collection activities.

As the necessity for including constituents of an environmental setting in assessing needs
and designing interventions is realized, associated issues emerge as significant. One such issue concerns whether constituents or their political advocates are (or can be) accurately cognizant of their "real" needs. Experience within the community mental health movement indicates that often what is expressed the loudest and quickest is perhaps best described as "salient demands" rather than more fundamental "needs."

For example, it may happen that when attention is first paid to the mental health concerns of a community the most visible or obnoxious problems (those at the tertiary level) get so publicized and create such a power base for their remediation that more fundamental, causative, problems or situations fail to receive the attention they deserve. The outcry may be to reduce the number of students committing suicide by providing greater therapy to the suicidal person, through the hiring of more psychiatrists for Student Health and more psychologists for the Counseling Center. These are without a doubt genuine needs on an individual basis presenting a difficult and salient problem to the community, but identifying these as the "real" (or most important) needs of the community may be stopping too short. It may be necessary to probe beyond the "bleeding casualties" to the perhaps more difficult, more embarrassing and more impact community problems those that under underly and in part produce or exacerbate the casualties. These may be fundamental needs of which the population is at first unaware, or needs they don't associate with "mental health" concerns, or factors that are such a part of their daily life as to fade into the background, but nevertheless factors which may contribute significantly to the incidences of suicide.

Consequently, needs assessment methods should be developed which distinguish between situations which represent the manifestation of fundamental needs and those which do not. A combined empirical and theoretical approach is suggested where for example, need theories are applied to developmental areas by professionals (i.e., Psychologists, educational experts, health professionals) in order to develop normative models from which empirical information reflecting individual (or group) desires, wants or demands may be interpreted by professional judgment to represent fundamental needs.

An additional issue centers upon which particular members should be included in assessment and intervention efforts. Frequently community leaders are not in touch with the needs or values of significant portions of the community. Student leaders, for example, may form a unique subgroup quite distinct from other subgroups on campus. Consequently, they may be unable to adequately represent the average student or the student(s) who may be atypical in some ways. Campus design efforts should locate and involve "representative" students in order to secure inclusion of the widest possible range of student views and experiences. The notion of identifying significant subgroups or subcultures within the environment and including persons representative of these in the design process (Huebner & Corazzini, 1975) offers one possible solution, though not a fully adequate nor very economical one.

Systematic methodology to identify and assure board representation of subgroups might begin with a canvas of the study body's characteristics, goals, aspirations, and educational levels. Empirical data so generated could be subjected to mathematical cluster analysis in an attempt to determine homogeneous clusters of students (a typology) from which individual student representatives might be selected. Another method to assure board representation might be to
select a stratified, (geographically, biographically, or academically, stratified) random sample of students each of which would represent a heterogeneous (potentially identifiable) circle of friends and acquaintances. Such a sample might be invited to serve as a campus "sensor" group through the Campus Design Center. These students would help identify and communicate incidents of environmental stress among their individual cohorts and subsequently participate (or invite members of their circle who are affected to participate) in the resolution of such situations. Depending upon the circumstances in each institution anyone, or some modified combination of the previous approaches, might be advantageous. At the very least, students could be involved in a "one shot" manner in which they communicate to some agency about a problem that is affecting some group of students and become involved in the creation and implementation of a solution (the "critical incidence" perspective).

Because faculty, staff and administrators are also consumers of (at least some of) the settings in the university environment, representatives from various levels of each of these groups need to be included in campus design efforts. The positions of power which many of these individuals occupy, their status as "managers" of the environment, makes their participation (and thus their sanction) crucial (Caplan, 1970) if the role of the Campus Design Center as an agent of change is to be effective. As Dustin (1974) states:

When the organization's administrators commit themselves, the chances of any change being implemented are greatly increased. The necessary behavior for change agents is to define a linkage role for themselves, with access to decision makers and to members of the system at lower levels. Using such a flexible position, change agents can bring members from different strata together. Not too closely identified with the administration, they can obtain commitment for change from the top and at the same time seek to implement a change through other members of the system.

To assure consumer representation, to assure professional expertise in accessing needs, and to assure direct involvement of those who occupy and manage the environment, the case has been made for including students, faculty, staff, and administrators as those who participate in the design effort. The concept of consumer-designer is not without challenges, however. For example, Sommer (1972) states:

A common argument against introducing consumer values into the design process is that most people are unaware of available options and tradeoffs. This point is well taken as far as it goes. There is no logic in asking people about geodesic domes or about inflatable structures unless they have had some experience with them. Rather than to exclude people from making design decisions because they are ignorant, the most feasible solution is to educate them.

In addition to "who" is to be involved, the Campus Design Center must play an educational function to assure adequate assessment and design of environmental problems.

If the designers of the campus environment are going to be all who are a part of that environment, then a rather major organizational task must be faced. If view of the issues and literature presented it appears that an effective campus design center must contain: 1) mechanism for participatory consumer and professional involvement, 2) an educational component focusing
upon instructing individuals in campus design strategy, tools and techniques, 3) an identity and sanction to act to facilitate campus change, and 4) a synthesis of empirical, heuristic, and theoretical approaches to identify and assure optimal person-environment fit. The question of how the design process is going to be organized is indeed a very complex one. The remainder of this paper will develop the concept, the structure, and the function of a Campus Design Center as a locus for campus design activity.

A CAMPUS DESIGN CENTER: THE CONCEPT

The concept of a Campus Design Center emerges as an organizing concept for consumer based design efforts. Establishing a design center is itself a case study in ecosystem design. The creation of such a locus of activity with the characteristics described earlier is not an isolated event, but rather, must be approached with a recognition of the unique aspects of the campus environment in order to capitalize upon positive elements (e.g., individual predispositions to support change) and to avoid or ameliorate negative elements (e.g., faculty distrust, administrative territoriality). In its embryonic stage the Campus Design Center might begin as a mode of thinking or "mind set" within a single individual or group of individuals on campus who share the common thought: "in a healthy community, it is not only the individual who must adjust to the environment, but also environments which must be adjusted to meet individual's needs."

The rudiments of a campus design center embodied initially in the mind set and activities of a single individual might be developed through ad hoc interactions with colleagues, or through periodic staff meetings (e.g., staff development seminars), where day to day problems are discussed from the "ecosystem perspective." A nucleus group concerned with campus design might evolve and elect either to carry out activities associated with campus design, or to approach a more elaborate structure by assessing the positive and negative elements in the environment which might contribute to or inhibit the development of an action-research center (e.g., Campus Design Center) complete with an organizational identity, modest staffing, and resources within a physical facility. Regardless of the level of development of a campus design center, from an individual, to a group, to an action research center, a common conceptual framework is useful for articulating the approach to campus assessment and environmental design.

Figure 1 illustrates one such framework depicting the conceptual dimensions integral to the activities of a campus design center. The dimensions in this framework include: 1) design levels, 2) student development targets, and 3) environmental settings. With this configuration, 27 cells emerge in the 3x3x3 metric. Each cell represents the transaction between a student (or aggregation of students) and a class of environmental settings in the context of mental, physical or social development.

The dimension characterizing the levels of design includes: 1) students as individuals, 2) students in groups, and 3) all students together. These levels correspond to the ecosystem model (Banning and Kaiser, 1974), where the concepts of macrodesign (campus community), microdesign (groups on campus) and life space design (individuals on campus) are suggested for differentiating the design process. These levels also correspond to Morrill, Oetting and Hurst's (1974) characterization of appropriate targets for counselor intervention: the individual, primary
and associational groups, and the institution or "society."

The dimension depicting targets for student development is broken into three developmental components: mental, physical, and social. Such a differentiation is for the purpose of highlighting the design target, and should not suggest that these are not interactive components of development. Furthermore, for many campus environments, perhaps for all, a component of spiritual or moral growth may be a significant target of personal developmental as well.

Within the model of the design center presented in Figure 1, the dimension describing the environment depicts three classes of environmental settings: student living, student activities and services, and academic programs. Other classes of environmental settings could be added to the conceptual framework, but for illustrative purposes, the inclusion of just these three implies a rather extensive number of individual settings.

**FIGURE 1 CONCEPTUAL FRAMEWORK FOR CAMPUS DESIGN CENTER**

Within this framework, the mission of the Campus Design Center is to provide a dynamic
linkage between students as consumers of developmental opportunities and environmental settings as providers of those developmental opportunities. Each cell represents a primary developmental opportunity (e.g., mental, physical, social) provided by an environmental setting(s) designed to benefit the student (individually or in groups). Adopting Blocher's (1974) terminology it is assumed that various settings provide greater opportunity, support or reward in certain development areas than others. Similarly, various students or groups of students require greater opportunities, support, or reward in certain development areas than others.

The linkage role to be played by the Campus Design Center is to identify, assess and facilitate the redesign or design of opportunity, support and reward structures within each (and across all) cells of the figure. Each cell would be examined to determine: 1) the opportunity structure provided by the environmental setting(s) for students to achieve their developmental needs, 2) the support system (e.g., affective, cognitive), and 3) the reward structure (e.g., grading, competition, personal fulfillment) provided by the setting(s) to realize those needs.

The data needed by the Design Center to carry out its linkage role might be collected from a variety of sources: questionnaires, student opinion polls, case studies, observation, systematic need analyses, theoretical publications, and so on. Once obtained, such data would be disseminated to the environmental settings, from which it was collected, providing descriptions of the development needs of students as well as students' past and current perceptions, utilization of, and satisfaction with the development structures provided by the environmental settings. This information might provide the catalyst for inadequate settings to reevaluate the opportunity, support or reward structures they provide, with an eye to instituting appropriate change. At the same time, information could also be disseminated to individual students (or to groups) as well as to other members of the community describing the nature of development structures available on campus in order to: 1) highlight outstanding programs as models to be emulated, and 2) enable students to select for themselves (refit themselves into) alternative opportunities of which they may be unaware.

Should the synthesis of student and environmental setting data reveal that there are insufficient opportunity (or support or reward) structures available to certain students or groups, or that the access to certain of these structures is blocked, resulting in detrimental "misfits" between students and the environment, the Center should function to facilitate reconciliation or redesign of those settings, or design new ones. Mechanisms to accomplish this function will depend upon the resources and sanction of the Design Center, but might include: workshops by design center staff in the setting affected an on-campus directory of professional expertise, self-evaluation materials, special committees, administrative sanction, informal advice, referral to or collaboration with other campus agencies, and direct intervention.

A CAMPUS DESIGN CENTER: THE STRUCTURE

If campus design is a joint function of providing both information and mechanisms for change, and if designers of the campus environment are going to be all who are a part of that environment with the identity and sanction to facilitate change, then the concept of a Campus Design Center suggests a very elaborate structure. Such a structure, designed into the campus in a timely fashion, rather than grafted onto it, should be capable of examining person-environment
fit within and across most of the cells in the conceptual framework. The optimal structure, exhibiting a great deal of autonomy, sufficient campus sanction, professional credibility and identity, well received by constituent groups, housed in a campus facility with adequate staff and equipment, however, is a goal to be reached in an evolutionary manner. Even given the happy occurrence of windfall resources, such a center should be developed deliberately and slowly within the environment which it serves to avoid sudden shocks to the system.

The rapidity with which that goal is reached (if it ever is) will depend upon the starting point, campus resources, and a host of political circumstances, personal, educational and administrative value orientations as well as the credibility and sensitivity with which the initial structure functions. As stated previously, such a beginning might be a single individual (or several such individuals scattered across campus) who carries out his or her responsibilities effectively from an ecosystem perspective and maintains credibility in doing so. Such individuals might be a housing officer, a counselor, a student lobby group, a key administrator, a faculty advisor, etc. Although not in a systematic way, many of the cells in the framework could be addressed through the activities of such individuals functioning independently within their own domains.

As these individuals gain recognition for their individual activities they may also begin to develop a reputation and an identity as a valuable "resource person in either design methodology or a particular content area (e.g., social, mental' spiritual development, or specific housing problems, the integration of the hand capped, etc.). Although this is a desirable outcome, reflecting increased visibility and credibility, it will also create an increased demand on the time and energy of the individual, sometimes beyond the ability of the person to respond.

These individuals then, in an effort to ease their workload, as well as to extend the benefits of a successful project, may begin to interest colleagues or other staff (subordinate or otherwise) in the concept of campus design. Over time locales of campus design efforts may emerge, each exhibiting unique expertise. As activities expand or as publicity about the efforts circulate, collaboration among these groups would enhance the professional and personal support provided. It would all expedite sharing of competencies and avoid duplication, unintended competition and possibly contradictions in design. In addition, there is an advantage to the consumer in a collective identity for campus design efforts. A single identity would make it easier to publicize services offered and would in turn facilitate the identification of consumer originated environmental deficiencies by providing one place where the affected consumer can turn to request assistance. In the evolution! sequence, such a place might be an office serving as liaison for a "campus design federation" composed of the various individual campus design efforts across campus. That office would provide a linkage role between locales for campus design as well as provide the student access to services of the federation.

This decentralized yet coordinated structure for design services might then evolve into a more centrally identified Campus Design Center with the advantages of greater efficiency through consolidation of resources, a more systematic linkage role greater visibility and increased sanction as a result of its established credibility in working through environmental settings. Such a Center would require a nucleus group of individuals from the campus design federation to either advise the Center or serve as staff for the Center. Some arrangement using
current university staff or faculty in an advisory or consultant capacity or attached to the Center fiscally for variable portions of their contracted university appointments, could offer the advantages of employing individuals already familiar with the system (and with various environmental settings) who represent unique areas of content and methodological expertise and a wide array of circles of acquaintances and colleagues.

Figure 2 describes one such structure for a Campus Design Center, highlighted in the context of the linkage role to be played by the Center. As illustrated, the Campus Design Center would be administratively situated under the Vice Chancellor for Student Affairs (or an analogous individual in the campus administration with responsibility for representing students' concerns to the campus). To assure ongoing participation by members of the educational community across various functions and at various levels of activity, some students, faculty, and staff would be invited to participate on an advisory committee to the Center, and others as full or part-time staff in carrying out activities within the Center. Such selection would be accomplished according to the considerations mentioned earlier in the section "Who Designs?"

The advisory committee, broadly representative of the total campus environment, would function to assist in the identification and prioritization of targets for assessment, redesign or design. Given their broad perspective, this committee would be expected to provide advice and guidance to Center staff in carrying out specific projects. The committee would articulate potential political consequences, assist in obtaining sanction at various administrative levels (depending upon the target), and generally monitor the progress and activities associated with a particular assessment and design project. This group would also engage in strategic planning to chart the future development of the Center as well as develop longer range plans for creating a campus environment consistent with the development needs of students.

The Center per se is depicted by modest staff and three blocks of activity: data development and dissemination, information and analysis, and design or redesign. Center staff composed of a Director, six student interns, two half time faculty members, a computer programmer, and clerical assistance would be supplemented with work-study undergraduates, and other undergraduate and graduate students interested in completing research assignments for course work, Master's theses, or doctoral dissertations, through Design Center activities. The primary responsibilities of the Center staff would be to develop and maintain an ongoing information base to identify student needs, and to support design efforts as they are initiated. (The functions of the Center will be discussed shortly.) To do so requires an extensive utilization of the computer.

Although Design Center staff would be involved integrally in identifying project targets, assessing needs, developing data, and initiating the design process, the structure outlined in Figure II suggests that additional professional expertise will be utilized in the design/redesign function. In many cases center staff will be capable of providing such expertise. Over time they will become even more skilled in doing so. To supplement their expertise, Center staff will serve a brokerage function by identifying various loci of campus expertise upon which to draw, depending upon the character of the project. These individuals would be identified and contacted with a specific design/redesign or programming need is identified as congruent with their particular expertise or skill. Potential locales of these resources include the counseling center,
environmental design or architecture faculty, health center, community mental health staff, behavioral science faculty, industrial engineering faculty and so on. Once a problem is identified, Center staff would develop pertinent data and information as well as auxiliary campus expertise to support redesign efforts. The redesign efforts would be facilitated through workshops with the setting affected and/or in collaboration with existing campus committees if particular sanction is necessary.

**FIGURE 2 DESCRIPTION OF THE CAMPUS DESIGN CENTER**

THE CAMPUS DESIGN CENTER: THE FUNCTION

The mission of the Campus Design Center is to provide a dynamic linkage between students as consumers and environmental settings as providers of student development opportunities. The goal of the Center is to identify, redesign or design opportunity, support and reward structures within the environment to assist students in their mental, social, and physical development. To achieve that goal the Center will function to: 1) provide multiple mechanisms for identifying potential instances of student-environment misfit (targets for assessment), and carrying through such assessments, 2) provide comparative information from assessment data to students and institutional programs (settings), and 3) provide a process for campus involvement in the restructuring of deficient environments or the establishment of new environments designed
to facilitate total student development. In addition to these primary functions, the Center will provide a learning experience in the processes of change for students, faculty and staff affiliated with the Center.

As illustrated in Figure 2, the Campus Design Center serves both the students and the environmental settings. Arrows in the diagram indicate the sequence of steps necessary in moving from identifying a student development assessment target to an intervention aimed at restructuring the setting to better accommodate student needs in that developmental area. The functions of the center contributing to that goal will be explained in greater detail as the sequence of steps is explained.

**Target identification.** The first step in initiating an assessment and design effort is to identify a combination of developmental areas and environmental settings in which there exists a significant potential for student-environment misfit. This step is tantamount to determining in which cell an assessment is to be made. The first function of the Center then, is to provide mechanisms to answer this question. The answer may come from the advisory committee, who through their experience on campus, collectively identify one developmental area, a design level, and a setting or class of settings most likely to be deficient in meeting students' needs. Alternatively, theoretical literature, accompanied by previously collected campus data may suggest an assessment target. The identification of student difficulties through such vehicles as the "campus sensor" cohort, student organizations, concerned faculty, and individual students voluntarily contacting the center are other possibilities. Attrition data, information from "exit interviews" with students dropping out of the institution, conclusions drawn from studies of special groups (minorities, adult students, handicapped) may also help determine an assessment target. In the absence of target identification from any of the routes mentioned, or from a distillation and categorization of reported episodes of students experiencing unnecessary or debilitating environmentally induced stress, a much more comprehensive empirical approach might be undertaken.

Such a comprehensive empirical approach might take the form of a series of questionnaires analogous to the "cycles surveys" used at Hampshire College (Kegan, 1975). These surveys are brief problem, issue, or activity oriented probes sent to a sample of students on a weekly basis in an effort to describe student's viewpoints on issues, attitudes, or day-to-day activities, of concern to the institution. A similar series of surveys focusing upon student development needs could be administered to a random or stratified sample of students periodically throughout the school year.

Each cycle might focus upon only a single or upon all three developmental areas, (e.g., social, physical, mental). The questionnaire for each cycle would measure students' perceived needs, aspirations, utilization of and satisfaction with various environmental settings in meeting particular developmental needs. The detail of measurement would depend upon the operational definition of the developmental area and the amount of information required for adequate target identification. For example, it might be useful to construct the cycles questionnaires with items or scales extracted from standardized instruments which measure subjective perception of need in the developmental areas and also include items measuring student satisfaction and student utilization of various campus programs and settings for meeting those needs. Statistical analyses
of data from any cycle should enable identification of broad incongruencies between student needs and opportunity structures available. In addition the data should reveal which specific students are affected, and from the student's perspective, which settings are not meeting needs in the given development area.

Once an appropriate assessment target has been identified it is possible to undertake the task of determining the extent of the misfit, the cause(s) of the misfit (what specifically happens or fails to happen to produce it), and the results or repercussions of the misfit. When an empirical approach has been used to identify the assessment target, some of these questions may have already been answered, and the remainder of the assessment phase may be somewhat shortened, aimed toward refining the assessor's understanding of the nature of the misfit. When a more theoretical or informed approach has been used to define the assessment target there may need to be a full scale assessment to validate with data that a misfit exists, to determine which students or groups are affected as well as to determine the "cause" or environmental referents of the misfit. Such a step wise procedure has the advantage of only burdening those individuals directly affected with detailed data collection.

Regardless of the mechanism employed to initially determine an assessment target, it would be advantageous for the Design Center staff to, early on, initial discussions with those students and representatives of those settings who have been identified as principals in a consumer-environment misfit in order to clarify the nature of the problem. The arrows in Figure II originating (on the left) from the students and (on the right) from the environmental setting, flowing into III "DATA" within the Campus Design Center, signify that the center is capable a accepting such quantative data or other subjective information through any of the mechanisms discussed. This information would aid in resolving: 1) the setting involved, 2) the particular needs to be addressed in a given developmental area and 3) the design level appropriate (e.g., individual, groups, or all students).

As indicated by these arrows this "data" will reflect types of student development needed, the opportunity, support and reward structures provided by the environmental settings, and student utilization of, and satisfaction with, those structure provided.

Information feedback. In addition to assisting in the identification of design targets, data described above would enable the center to playa rather passive linkage role. The Center would function to provide timely information feedback to students as well as institutional programs, describing the development needs of students and the nature and distribution of development structures available in the environment settings. Outstanding structures (programs) would be highlighted as models to be utilized by students, and to be emulated by other institutional units. Such comparative feedback should enable students to begin to "refit" themselves into more adequate existing development structures, while enabling environmental settings to reevaluate the opportunity, support or reward structures they provide. Figure III summarizes this function.

The primary goal of the information function at this stage of the design process is 1) to induce self-initiated assessments by institutional settings in terms of the development structures they provide, and 2) to induce self-initiated efforts by students to seek, examine, and if necessary utilize alternative opportunity structures. Ideally, such assessments would be followed by
appropriate self-initiated changes.

Referring to Figure II, arrows emanating from the information and analysis block of activity within the Campus Design Center are intended to represent this function. Within the information and analysis block of activity are techniques which would be used to map student utilization, and provide comparative diagnostics to settings to expedite their own self assessment efforts. For sake of efficiency and immediate feedback, many of these are computer based. For example, comparative profiles would enable settings to compare themselves to other campus settings (e.g., programs, offices, departments, etc.) in one or several student development areas. Computer generated profiles depicting students' needs and students' relative utilization of one setting rather than another for meeting those needs can be referred to as the "mapping" of student utilization.

A technique referred to as "variation analysis" currently used by the American Hospital Association to assist administrators to diagnose difficulties provides ranges of acceptable performance on each dimension of a data profile, supplemented by a list of checkpoints which have been previously found to be common contributors to poor performance. This technique could be adopted for use across these environmental settings. In the course of carrying out campus design projects, activities, physical characteristics, attitudes and other environmental features, which show a common propensity to precipitate student-environment dissatisfaction, could be compiled in such a checklist form to aid subsequent self-evaluation efforts within each setting.

A "uniqueness/similarity" analysis might also facilitate interesting communication concerning student development. Based upon profile data, an "index of uniqueness" would be developed highlighting unique student development opportunities, support and reward structures in each setting. A computer program would be available to compare the data profile of each setting to the data profiles of all other settings in order to determine similarities of opportunity, support and reward structures in each development area. These profiles and "uniqueness/similarity" indices would be disseminated to all campus settings. Such a technique would facilitate the exchange of information and ideas among similar settings and enable those administrators of a setting to communicate with administrators in other settings in the identification and resolution of design problems. Over time, well functioning opportunity, support, and reward structures would be highlighted as models for those settings exhibiting difficulties in responding to student needs, to emulate.

As described in Figure II, the information function would also provide feedback to the student leading to self-initiated efforts by students to "refit" themselves into alternative development structures. This could be accomplished in a variety of ways. First, information could be provided to students generally through campus publications, newspapers, or handbooks, describing opportunities available across campus. Such information could be structured from a problem-oriented perspective depicting the types of problems students might encounter and the opportunity, support or reward structures best suited to assisting students to resolve those problems. Structures to assist students might be counseling services, profiles of instructional styles used by various instructors and the corresponding types of "classroom environment," or other specific student services available to meet needs of special groups of students. Based upon
the data presented to the settings to initiate their self-assessments, a campus map of development structures provided in each developmental area, could be made available to students. Such a map would not be a geographic representation of the campus but rather an empirical description of the campus settings in terms of student needs, previous student satisfaction with programs and activities offered in these settings, and past utilization of these development structures by students, all cast in the contest of the conceptual framework presented in Figure 1.

**FIGURE 3 THE INFORMATION FEEDBACK FUNCTION**

<table>
<thead>
<tr>
<th>INFORMATION</th>
<th>For Students</th>
<th>For Institutional Programs (Environmental Settings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Immediate feedback profiling student-environment transaction in comparison with group names.</td>
<td>(1) Timely interprogram profiles focusing upon adequacy of opportunity, support and reward structures provided for student development.</td>
<td></td>
</tr>
<tr>
<td>(2) Identification map of alternative and “model” opportunity, support, reward structures for meeting total development needs of students.</td>
<td>(2) Information for independent program self-evaluation.</td>
<td></td>
</tr>
<tr>
<td>(3) Capacity to refit their development needs by utilizing existing opportunity alternatives.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Should resources by available, more personalized feedback collected through the comprehensive "cycles" type data collection could be provided to the individual student. For example, if data gathered through the series of comprehensive questionnaires requested each student to indicate his/her needs across various constructs within a developmental area, and also requested each student to indicate the extent to which those needs were being met by existing programs and services on campus, a comparative profile could be returned to each student depicting his/her needs and satisfaction in comparison to campus norms (as well as norms for clusters of students with similar characteristics). The form of such feedback could be computer generated profiles analogous to that provided by the Strong Vocational Interest Blank wherein the student's individual data on each need construct is displayed on a scale describing that student's unique needs and satisfaction relative to the typical range of student response. A student can then find where he/she is atypical either in their self-reported needs or atypical in their satisfaction with their use of existing structures to meet their needs.

In addition, using methods like those employed to generate similarity profiles for settings, a given student's "need profile" could be compared to other students' "satisfaction profiles" for
degree of similarity. As a result of finding another student's satisfaction profile congruent with a
given student's need profile, a "refit" could be precipitated. By putting the student whose needs
are not being met in contact with the other student who has a satisfaction profile which is
congruent to the first student's needs a communication link could be established. Through their
interaction the first student could find out precisely what programs and activities the satisfied
student engages in, and adopt as many of those activities as necessary to meet his/her needs.
Techniques such as these are implied by the arrow originating in the design center depicting the
 provision of information concerning alternative development structures available to students.

Setting design/redesign. Analyses of comprehensive data, or information available
through the other routes of problem identification, may indicate that available development
structures, in their existing states, are incapable of meeting student needs. Should the data reveal
blocked access to, or insufficient opportunity structures for individuals or groups of students
resulting in "misfits" between students and the environment, then another primary function of the
center will be to provide mechanisms for reconciliation or redesign of those settings.

As Figure 3 indicates, this design/redesign function essentially provide mechanisms for
change highlighting the utilization of on-campus professional expertise and the integration of
design efforts with regular campus committees and administrative officials in order to expedite
and sanction needed change. Mechanism to implement change will depend upon whether that
change is voluntary and self-initiated by the settings or change that is necessary but resisted by
the setting involved.

For those cases where problems have been identified in specific settings an self-initiated
redesign has not been fully implemented by those individuals responsible for the setting (i.e.,
faculty, administrators, students) yet there is a desire b those individuals to do so, the Campus
Design Center can assist. A team composed of Center staff, students directly affected by the
problem or representing those directly affected, and appropriate professional expertise from
various campus agencies (i.e., counseling center, health center, departments of Arts,
Architectural Industrial Engineering, Education, Recreations, etc.) could be assembled to
develop a workshop or act as consultants, teachers, or trainers to assist the setting representatives
in resolving their problems. Alternatively, teams of individual dispersed on campus composing a
loose federation of campus design expertise in special methodological or content areas might
serve the same function. Assistance in this fashion by the Campus Design Center would
capitalize upon the genuine good-will and initiative of those responsible for the development
area provided by the setting. The assistance by the Center in this instance would b primarily
facilitative in providing data, information, emulation models, advice, consultative expertise,
design teams, and workshop formats for involving all those affected in the redesign process.

In those cases where student needs cannot be met by existing structures, an there is a
reluctance to redesign existing structures, or construct new ones, the strategy of the Center is to
effect necessary but non-voluntary change. To do so, the Center would capitalize upon the
sanction given the advisory committee and that sanction residing in regular campus committees
and top level administrator Information provided to these groups clearly specifying the problem
with both the short and long run implications of procrastination in this developmental area,
would be provided to the setting affected and appropriate campus officials. This would be
followed by the design intervention steps outlined above or in other works (e.g. Aulepp and Delworth, 1976). In all cases, mechanisms for change must include both students and representatives of the environmental settings. Figure 4 summarizes many of these.

**Learning experience.** An integral function across all activities of the center the learning opportunity provided to students, faculty, and staff through their participation. The experience gained in conducting action research, developing, computer-based timely information systems, developing information feedback faculty-student interaction, designing workshop formats, teaching, training, consulting and developing consumer advocacy skills should provide a direct impact upon individuals enriching their development in many areas. Many of these experiences are summarized in Figure 5. These experiences would accrue not only to students and professional staff of the Center but also to the faculty, staff, and students who are affiliated with or interact with the Center in the various efforts to design or redesign the campus.

Conceivably this "instruction" function of the Center may, in the long run, provide the most profound effect on the campus of all the functions of the Design Center. Campus environments and constituent groups are dynamic and as they change, settings are often in need of redesign. The education of inhabitants of dynamic environments in both techniques of change and skills to cope with change, may enable them to evolve from graceful acquiescence with what exists, into a progressive posture of skillfully designing their own environment and planning its future.

**FIGURE 4 THE DESIGN/REDESIGN FUNCTION**

<table>
<thead>
<tr>
<th>MECHANISM FOR CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely input into campus design to effect a more adequate student development structure through:</td>
</tr>
<tr>
<td>(1) Student representation on committees.</td>
</tr>
<tr>
<td>(2) Direct data reflecting student needs input into environmental settings.</td>
</tr>
<tr>
<td>(3) Opportunity to participate in restructuring programs based on unique student needs utilizing workshops and information exchange.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Workshops in the setting to evaluate and redesign deficient opportunity, support, reward structures.</td>
</tr>
<tr>
<td>(2) Participation by faculty and students in Center programs.</td>
</tr>
</tbody>
</table>
(3) Enhanced faculty-student interaction for the improvement of students and the environment.

FIGURE 5 THE INSTRUCTION FUNCTION

<table>
<thead>
<tr>
<th>LEARNING EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through direct laboratory involvement students will acquire:</td>
</tr>
<tr>
<td>(1) Technical skills and experience in: measurement, data development, computer based information system, designing feedback loops, action research design, workshop design, consumer advocacy.</td>
</tr>
<tr>
<td>(2) Greater interpersonal skills in: faculty-student interaction, conflict resolution, consumer responsibility, social interaction.</td>
</tr>
</tbody>
</table>

For Students

(1) Identification of model environmental settings for potential emulation.

(2) Knowledge of student development needs and mechanism for achieving them.

(3) Skills in developing techniques for providing support and reward structures aided by on campus and outside professional expertise.

For Institutional Programs (Environmental Settings)

SUMMARY

The case for a Campus Design Center has been presented in terms of: 1) who would be involved in such a Center ("Who Designs"), 2) under what conceptual framework the Center would operate ("The Concept"), 3) how the Center would be organized ("The Structure"), and 4) what it would do ("The Function"). The Center would necessarily function in a linkage capacity and explicitly involve both representatives of the environmental settings and consumers of environmental programs and activities. From an ecological perspective the intent of the Center is to design optimal fits between students and their educational environment to ensure maximum growth and development of the student in mental, physical, and social areas as well as the traditional academic area. The Center could begin simply as a concept and day-to-day operating philosophy of a single individual on campus, and evolve to an elaborate Design Center facility.
complete with staff, identity, sanction, recognition, and resources.

The Campus Design Center would be student oriented and provide: 1) a design laboratory for identifying and/or redesigning environments which provide needed opportunity, support and reward structures for the development of the "total student," (2) direct laboratory experience for students, faculty, and staff in the processes of designing change mechanisms, and 3) greater systematic consumer input into the structure of the educational environment.

The absence of a Campus Design Center or an environmental redesign philosophy on campus could mean: lack of adequate educational opportunity for certain groups, ineffective engagement of students by their environment, and lack of fit between skills, knowledge and attitudes taught, with demands of the educational system. It could also mean a preponderance of structural inadequacies in the educational apparatus such as: lack of collaboration, information and resource sharing within the institution, growing rigidity within the institution, and lack of educational personnel learning new skills, new roles, and new approaches to adapt to changing circumstances. With no systematic and responsible voice in the process of designing educational change, there will be no mechanisms for identifying needs or deficient environmental structures, resulting in consequences such as: excess attrition, ineffective and inefficient student development, and inappropriate skills for dealing with future change.

In a period of austerity necessitating student fee increases coupled with decreased services, the lack of a direct student voice in the structure of their own development could trigger a new regime of visible student unrest. At the very least, decisions concerning their own well-being made for students rather than by student involvement is no less than a learning experience in frustration or impotency which could carryover to the student's career as a citizen. The latent consequences of that learning experience are very disturbing. The concept and implementation of a Campus Design Center is one step in avoiding such consequences.

REFERENCES

A Team Approach to Environmental Assessment  
LuAnne Au/epp and Ursula De/worth

The ecosystem model requires that a planning team be formed to conduct its processes. There are a number of important reasons for this. Obviously, environments are perceived in different ways by different people. Therefore, a team approach provides a sampling of these perspectives by virtue of its membership. Equally important to ecosystem design is the idea that it constitutes a collaborative effort to improve environmental conditions by those who are in the environment and those responsible for its maintenance. It is also important to note that research designed and implemented by one individual, often someone from outside the environment, usually lacks credibility with the members and decision makers in that environment. Even quite valid data may be ignored and appropriate redesigns never initiated. Thus, a team approach helps to establish a collaborative effort and credibility for the project. Another reason for using a team approach is that few environments exist alone. A team can afford representation from major, interrelating environments. And finally, ecosystem design is a complex procedure requiring a number of tasks. A team approach allows the workload to be distributed among team members.

Because a team approach is essential to ecosystem design, the first task is obtaining a high-level commitment for the project. Obtaining this commitment can be helpful in the recruitment of team members and is essential to the team's future functioning. The second task is selecting team members. Once a team has been assembled, its methods of operation become important. The final task focuses on team operation and presents methods a team might use to conduct its business smoothly and productively.

PROJECT COMMITMENT

Using an ecosystem approach to design optimum campus environments is relatively new. More often than not, the ecosystem concepts and how these would be applied to the proposed project must be carefully explained. Because the model is new and still in a developmental stage, the explanation is not always simple. There are not many examples or results yet. However, any school that undertakes an ecosystem design project may find reward in developing new processes for the model and thus become a leader for others. This has already happened to those colleges that have accepted the stimulating challenge of innovation.

Often, securing commitment for a project is compounded by ideas and notions that the model is designed to manipulate people through environmental means. The model's use of a team approach, however, ensures its intended goal as a tool people can use to better manage and improve their environments by determining which components in an environment are detrimental, which are facilitative, and what new components might be designed that would improve the environment.

*This article is excerpted from the WICHE Training Manual for An Ecosystem Model.

Even though explaining an ecosystem project is difficult and elusive, obtaining commitment for the process is vital. The model presumes environmental design will take place. Its assessment procedure is not just another surveyor questionnaire that produces data destined
for file cabinets or bookshelves. Instead, ecosystem data are intended to produce descriptive information for planning and implementing environmental change. This means those in a position to effect change on campus must sanction the undertaking in order for the model's results to be enacted.

Commitment for the project should be sought from the highest level possible. In some instances, commitment from the school's top-level administrators cannot be fully procured until after a team has been formulated and can bring its collective voice to bear upon these decision makers. It is necessary, however, to have the active commitment of the top administrator of the environment for which the mode is to be used. This is important because team members need sanction to include work on the model as part of their regular schedule, and because resources such as secretarial help and money for instruments and computer time will almost certainly need to be obtained from the administrators and the offices under their authority. An administrator's initial commitment in providing time and resource can also lead to more careful consideration of the data and subsequent support for design projects.

As the person who wants to launch an ecosystem design begins to develop interest in and commitment for the project, he/she will recognize important campus constituencies that should ultimately be represented on the team and spot potential candidates for team membership. Likewise, obtaining commitment for the project can facilitate the recruitment process.

SELECTING TEAM MEMBERS

Assembling a planning team for an ecosystem project takes thought and preparation. There are several important considerations that should govern team composition. First among these is team size. Teams with a membership of twelve or more can easily become unwieldy. It takes longer for the team to pull together and substantive deliberations are more time consuming. If, however, after other factors are given due consideration and it seems necessary to include a fairly large number of people on the team, this can be managed through administrative procedures. A steering committee might be used to facilitate teamwork, or subcommittees can be set up to handle specific tasks between periodic meetings of the team as whole.

Experience has shown the optimum team size to be eight members. The best goal to aim for is a team membership of between six and ten persons; this allows a very energetic and cohesive group to form while maintaining sufficient diversity and tasks can be conducted in pairs. When special knowledge or skill is needed the team can always call upon consultative assistance from colleagues.

Other critical factors to be considered in assembling a planning team are proper representation from those in the environment, those managing the environment, those with political influence over the environment, and those with technical skills required for implementing the model. During the lifetime of an ecosystem project, there will be need for communication between planning team members and the special constituents they represent. Therefore, another consideration in choosing prospective planning team members is their ability to be an articulate channel of communication to and from their constituency.
On campus, proper representation from those in the environment usually means students; however, this obviously depends on the environment to be studied. Therefore, representation could include staff members and/or people from the community. Regarding student representation, at least two students should be selected because they can reinforce each other on a team whose membership appears to comprise the authorities. It is also helpful to have at least two levels represented, i.e., an undergraduate and a graduate student or a freshman and a junior. One might represent students in general and another might be a known student leader.

Representation from the managers of an environment serves several purposes. There are fiscal and physical limits to designing environments. Any assessment must be honest and avoid issues upon which no action could be taken. The managers of an environment best know these limits. Also, they are in the most advantageous position to begin enacting the project's subsequent environmental designs. Thus their knowledge and support is necessary. Managers also deal with the policies and regulations that govern an environment. While there is usually a great deal of latitude in this area for subsequent adjustment, modification, or change, it will be necessary for the team to have informed discussion regarding these issues in order to assess properly the interactions that take place between an environment's regulations and the people it serves. This type of informed discussion can occur only when both the environment's managers and consumers are represented on the team.

Determining representation from among branches of the university that have important interfaces with the environment most often is dependent upon two factors: (1) provision of a major service or support to the environment; and (2) interest in the environment - this usually surfaces while commitment for the project is being sought and secured. Unless these factors are involved it is best to await results of the assessment before involving other constituencies in the project. The ecosystem data will indicate which units should be represented to effect environmental designs. For example, an assessment of a residence hall system might indicate need for more recreational activities, and representatives from the athletic department and the student or local community recreation center would be useful in designing this. Or the assessment might indicate residents studying a particular discipline would like a more learning-centered atmosphere. It would then be helpful to involve representation from the appropriate departmental faculty to design this type of environment.

Whenever possible, it is extremely useful to have, among the planning team's members, a person who represents the political forces that have influence over the environment. Often, high-level administrators can appoint a staff member to serve on the planning team. This translates high-level commitment into representation. As a practical matter, however, this cannot always be achieved. Usually, political influence for and over an environment relies most heavily upon the managers represented on the team, which is reinforced by close liaison and feedback to campus administrators.

Knowledge of assessment instruments and computer technology are highly desirable qualities to be represented on the planning team. Skill in developing instruments is equally valuable. These skills are needed for both the design of assessment procedures and the analysis of assessment data. If they are not represented among team members, then the team will undoubtedly have to seek consultative assistance. In those situations in which a university
research or computer center is present, it is strongly recommended that a member of its staff be recruited to serve on the planning team.

In thinking about members for a planning team, it is always helpful to give some consideration as to how service on the team can fit in with regular campus reward systems and/or with the professional goals of team members. Service could count toward promotion and tenure for faculty and could be written into the job description for a student services staff member in lieu of another responsibility. Students could earn credit or be paid from Work-Study or other funds. Some members of the team could use the model as the basis for their own graduate theses. Such individual motivations often facilitate both immediate and long-term commitment to the team work.

Even though there are many factors to be considered and many qualities desired in choosing a team, it is possible to select a limited number of people who satisfy the essential requirements. Obviously, this is accomplished by locating candidates for team membership who possess more than one needed characteristic, quality, or skill.

TEAM OPERATION

While the planning team concept is not new, it is more commonly applied within the confines of one organization, department, or service. Team members usually know each other, have some understanding of each other's jobs, hold many goals in common, and are quite familiar with the intended purpose of their planning effort. This situation seldom applies to ecosystem planning teams. A high ratio of members may know each other only by name, have little or no understanding of each other's work, come onto the team with separate goals for the project, and often feel vague about the intended purpose of their planning effort.

Therefore, it becomes very important during the team's initial meetings to review the project's general purposes, to allow members time to become better acquainted with each other, and to gain an appreciation of each other's role on campus, as well as what each hopes to accomplish by the project. As this occurs, members will find things in common, establish mutual support for each other, and begin to develop ideas in common about the intended purpose of their planning effort.

As the team pulls together, attention should turn to establishing some basic operating procedures. There are many tasks to be accomplished and setting up some routines will help the team work these through. The team should agree upon a regular meeting time and place. This helps members avoid scheduling conflicts and lends precedence to team meetings. Because each member is representing different constituencies, another important routine will be keeping these groups informed of the team's work. There may also be occasions when the team will want to poll these groups for further information, so keeping the lines of communication operating is important.

Maintaining a sense of direction and progress is always useful when undertaking a complex project such as an ecosystem design. The team should explore methods of processing and evaluating its work and adopt those which best serve its needs. It is also helpful to get the
The team accustomed to subdividing the workload and completing assignments or undertaking tasks between meetings. In the early phases of the project, team members often will be working on the same tasks. Later, assignment of tasks should be done according to members' abilities and interests.

The time it takes to form team identity and cohesiveness and to set up operating procedures will be rewarded with increased team productivity in the long run. Efforts to achieve these goals can move ahead simultaneously during the team's initial meetings.

DEVISING THE ASSESSMENT TECHNIQUE

The ecosystem model employs a two-phase assessment technique to obtain the necessary information with which to design environmental conditions. The first phase elicits, respondents' perceptions regarding the environment or behavior in the environment, and the second phase asks respondents to briefly describe why they have these perceptions. The condition, policy, program, or physical property discussed in the respondents’ brief descriptions becomes environmental referents (ERs) for the model's design purposes. The team will need to develop the test instruments or methodology for this two-phase assessment.

The more usual testing approaches can be used in the assessment's first phase. The team can develop its own instrument, modify an existent instrument, or use a standardized commercial instrument. Since 'environments tend to have highly unique characteristics from one campus to another, the team must take care that the instrument adequately covers conditions particular to its own environment and does not cover conditions or situations which do not pertain to its environment. Many instruments are designed for and helpful in establishing comparisons among college environments but are not very helpful in studying an individual college environment. Therefore, it is highly likely that the team will develop its own instrument based on a composite of methods. However, a review of other instruments can be extremely helpful in doing this.

The assessment's second phase will have to be developed by the team. It involves the obtainment of environmental referents. A simple form may be devised on which respondents can write their answers. There are advantages in using a tandem approach in which respondents answer the phase one instrument and then immediately supply phase two environmental referent information on a form designed for this purpose. First, the team will have to conduct only one set of testing sessions. Second, the analysis of data from both phases can begin simultaneously. And from the respondents’ viewpoint, they will be bothered only once. The team will need to develop its phase one instrument first so that its phase two method can match subsequent environmental referents to it.

REVIEW OF ASSESSMENT INSTRUMENTS

The team should assemble a copy of each assessment instrument it can locate that deals with the environment it is studying. Various offices on campus may well have a copy of applicable standardized commercial instruments. If the environment has been the subject of a previous survey, it is helpful to obtain a copy of the instrument that was used.
The review of instruments might turn up one that the team feels can be used for its project. Short of this, the review will enable the team to become more aware and conversant with the ways an environment can be assessed and provide ideas for the development of its own instrument.

It is equally important for the team to familiarize itself with the capabilities and constraints that its available computer resources and programs have. It may be that some of the instruments' formats could not be accommodated by the team's resources. The team will need to obtain expert information from a member knowledgeable in computer technology or from a consultant regarding the possible mat between assessment instruments and computer capabilities.

In reviewing the assessment instruments, the team should:

1. Determine which instrument covers all or the greatest number of the team’s chosen areas of inquiry and data objectives.
2. Determine how closely the instrument matches the desired level of inquiry are the items too general or do they cover important breakdowns the team wants to assess? For example, the team might consider an item such as, My room is satisfactory for studying, too general. They may want to know facilities in the room are adequate, or they may even want to ask about such specifics as lighting or bookcases.
3. Determine if respondents could easily identify with the instrument's language. For example, on some campuses it is applicable to use the term "student union" in reference to the campus' facility for student activities, government, etc., whereas on other campuses it is more appropriate to call it a "student center." In some cases a campus will have even developed a jargon in connection with the environment. To stray from this could weaken the assessment’s results by annoying or confusing respondents, i.e., calling the environment’s eating place a cafeteria when it is known as the dining hall or coffee shop. In other instances, some words are taboo and cannot be used in an instrument. Sensitivities among campus constituents may dictate against the use of such words as hell and damn.
4. Determine if the instrument is a feasible length for administration on the campus.
5. Determine if resources or computer availabilities can accommodate scoring and analyzing the instrument.
6. Determine whether, given the above considerations, there is an instrument that the team could use, intact, with modification, and/or additional section or scales.

TAILORING AN ASSESSMENT INSTRUMENT

If the team locates an instrument that it can use intact, then it can move on to developing its device or method for obtaining environmental referents. However, this fortuitous circumstances is not likely to occur often. The team will have a head start if it is able to locate an instrument that it can adopt for its assessment needs. The adaptations could entail writing additional items to achieve the level of inquiry desired, developing additional sections of items to cover facets of the environment not originally included, and changing words to reflect usage more common to the campus.
In tailoring an instrument for its ecosystem project, the team should:

1. Obtain permission from the instrument's author(s) to adopt it and instructions on how to handle copyrights if necessary.
2. Decide in what ways the instrument will need to be tailored for use on the team's campus.
3. Review and apply the specific considerations given in the following section on Developing an Instrument as guidelines when tailoring an instrument.
4. Set up a systematic approach for making adaptations or changes. For example, the team may want to begin by deleting unusable items, then identify and change words that might annoy or confuse respondents, and finally write additional items or sections to accommodate the teams' data objectives not included in the instrument. Or the team may want to subdivide into subcommittees to accomplish the tasks that will be needed in order to tailor the instrument. Whatever method used, it is helpful to keep each task separate. The team may experience difficulty with some of these tasks in the beginning. Repetition develops facility and this is hard to achieve if the team jumps from one task to another and back again.

DEVELOPING AN INSTRUMENT

If the team cannot find an instrument applicable to its use from among those reviewed, then it will have to develop its own instrument to use for the assessment's first phase. Development of an instrument is a fairly complex and time-consuming task. It does payoff, however, in providing the team with the best instrument for assessing their campus environment. Experience has also indicated that instruments developed by the team have a high "face validity," or acceptance, with respondents.

One vital consideration in developing or tailoring an instrument is obtaining the degree of importance that each item has for the respondents. This is crucial information for the team because a negative perception of some aspect of the environment does not necessarily indicate that the aspect so rated is important to the respondent. In a time of very limited resources, services cannot afford to invest their time and energies in changes that are not seen as important by those who live in the environment. An importance to the respondent measure can be built into the phase one format, or it can be dealt with in the environmental referent section. Some teams have chosen to include some ratings of importance in the phase one instrument, as well as in the environmental referent form.

The point of departure for developing an instrument is to review and become familiar with the various testing formats that can be used. For purposes of this article, these formats are classified as perceptual, goal statement, behavioral, and demographic.

**Perceptual formats** use a rating scale to measure respondent perception.

a. Likert scale presents a rating with discrete points (often five) which respondents use in replying to an item. The rating could be:

| Strongly Agree | Neutral | Disagree | Strongly |
Agree (SA) (A) (N) (D) Disagree (SD)
1 2 3 4 5

The campus is friendly. 1 2 3 4 5

b. Semantic differential uses opposite objectives to describe aspect of the environment; respondents place a check mark to indicate their perception somewhere along the continuum given between the two extremes. The campus is friendly – – – – – – unfriendly.

Goal Statement format uses the magnitude of discrepancy between "is" and "should be" ratings that respondents give in reply to the goal statement to measure perceptions. For instance, a category or area of inquiry concerning student services' goals in an instrument could title the section Goal of Student Services and use the format to measure perceptions on a number of items under that title.

<table>
<thead>
<tr>
<th>Goal of Student Service</th>
<th>Of No Importance</th>
<th>Of Medium Importance</th>
<th>Of High Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

To help a friendly campus
Is
Should

Behavioral format poses items about the environment in action or behavioral terms and asks respondents to note how often or how seldom these apply in their case.

<table>
<thead>
<tr>
<th>I have talked with my advisor</th>
<th>Once</th>
<th>2 to 5 Times</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Demographic format assigns each choice in a category a code number and asks respondents to indicate the one applicable to them. The number of codes which can be used will depend upon the available computer program.

Your age
0 = 17 and under
1 = 18
2 = 19
3 = 20
4 = 20-25

Are you a transfer student?
7 = Yes - from a two-year college
The perceptual, goal statement, and behavioral formats are most useful in connection with environmental referents. The demographic format is used in this model to give planners the capability to separate groups in terms of future redesign and programming. For example, it may be important to separate responses by the respondents' age or major to determine if needs and perceptions are similar to diverse age groups and academic pursuits.

The collection of demographic information should be limited to that which the team can reasonably use. Including a large number of categories produces more data than can often be dealt with and also requires a larger sample of respondents in order to assure that a sufficient number of respondents are included in each of the categories.

The team may choose a single format for writing items or it may use different formats for different areas of inquiry or categories of items. Team members often find that they need to practice writing some items in order to get a feel for the process before they can make definite decisions regarding the selection of a format or formats. Thus, there can be a great deal of moving back and forth between this section and the following one on item writing.

A suggested process would include these steps:
1. Become familiar with possible formats for the phase one instruments.
2. Choose one of the data objectives that the team has selected for assessment.
3. Have each team member write one or more items on this data objective, using one or more of the possible formats.
4. Have team members critique the items written in terms of how well the chosen format "fits," that is, how well does the format elicit the desired information? (For this step, it is advisable to review the next section on item writing).
5. Have the team repeat this procedure on three to ten different data objectives, or until it can make a tentative decision regarding what format or formats will be most useful.

As a result of its work with the basic assessment formats, the team may even wish to create its own format. In such instances, the team usually blends several aspects from standard assessment formats to obtain the information that will meet its specific desires.

The format selection process which interacts with the next section on item writing concludes when the team has:
1. Tentatively decided on a format or formats to use in writing items.
2. Decided how the assessment techniques will identify which items are most important to respondents.

The team may decide to write all the phase one instrument items as a team or it may divide into committees and have each committee write items for individual sections or areas of inquiry. If the latter course of action is chosen, the planning team as a whole would then review each section for revisions and approval. Whatever approach the team chooses, it is advisable for all the team members to practice writing some sample items and critique these before
undertaking the task in full.

The practice will readily demonstrate the variety of ways an item may be expressed, and team members will soon identify those formats which best convey the subject matter on which they desire information. After several practice rounds of writing items and giving them a critique as suggested under Process/Format Selection, members will become adept at producing items that best seek the information desired.

1. Important considerations to keep in mind while writing items for the instrument include:
   a. Writing clear and concise items to which respondents can easily reply.
   b. Each change of format should be accompanied by a set of equally clear instructions so that the respondents will understand what to do. Never asking about two things in an item or include more than one environmental element. If two points are included, the result will be an uncertainty on which point the respondent has replied when the data are analyzed. For example:
      Vandalism occurs because the place is rundown and students don't respect others' property.
      
      | SA | A | N | D | SD |
      |----|---|---|---|----|
      | 1  | 2 | 3 | 4 | 5  |

      should be stated:
      Vandalism occurs because students don't respect others' property.
      
      | SA | A | N | D | SD |
      |----|---|---|---|----|
      | 1  | 2 | 3 | 4 | 5  |

      and:
      Vandalism occurs because no one cares about keeping up this place.
      
      | SA | A | N | D | SD |
      |----|---|---|---|----|
      | 1  | 2 | 3 | 4 | 5  |

c. Use language, even some jargon when necessary, that the respondents commonly use or associate with the environment.

d. Be aware when adjectives are used in an item. Such words as "most," "few," and "usually" can load an item, diminish specificity, and thus, can bias results. For example:

      It is usually quiet in the room

      | SA | A | N | D | SD |
      |----|---|---|---|----|
      | 1  | 2 | 3 | 4 | 5  |

      Versus:

      It is quiet in the dorm when I need quiet

      | SA | A | N | D | SD |
      |----|---|---|---|----|
      | 1  | 2 | 3 | 4 | 5  |
Most rules are too restrictive

**Versus:**

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation on decorating rooms are unreasonable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**And:**

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would not like twenty-four hour visitation every day</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

At other times, adjectives are needed for clarity or to establish the extent or degree to which the statement applies. For example: Bull sessions about serious topics are a frequent occurrence. Most students living here are respectful of others' rights. I've had very few conflicts with the people living in my dorm. A good rule of thumb is to put yourself in the respondent's shoes to determine whether an adjective helps you or causes you a problem in replying to the item.

e. Phrase items in a manner that will prompt the respondents to think specific environmental referents when they answer the assessment's second phase. For example the phrase "facilities in my room" will help respondents think of such things as lighting, bookshelves, and desk space when they come to explain their reply on a statement such as, The facilities in my room are adequate for studying.

f. Attempt to use behavioral terms or terms on which there appears to be wide consensus. Avoid technical terms or those which describe emotional states which may be interpreted differently by various respondents. For example:

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience stress in the classroom</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Versus:**

There are factors or situations in the classroom which make me feel uncomfortable and interfere with my learning.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I need assertion training.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Versus:**
I need help in learning how to stand up for myself so people don't take advantage of me.

2. When the team has established a level of satisfaction in writing items, it will need to:
   a. Seek advice from a consultant or team member knowledgeable in assessment techniques to assist in reviewing its practice items.
   b. Determine if the format or formats initially agreed upon are usable.
   c. Make a final decision regarding the formats it wishes to use for which sections or areas of inquiry.
   d. Set up systematic approach for developing the instrument and writing items. This might include how the team will divide to write items.

3. When the team has completed writing items for the phase one instrument, it should be given a final review and 20 to 30 copies prepared for a pilot test implementation.

   Once formats have been decided upon and items are being written, it is important for the team to decide how to set up an answer sheet for the phase one instrument. It is necessary to have a clear format for the answer sheet to aid the respondents in giving their replies. It is also essential that the sheet be set up with the constraints of the available computer programs in mind. At this point, the team or a subcommittee of team members will need to determine:

   1. The number of spaces (codes) available in the program being used for responses to anyone demographic item.
   2. Whether they will use keypunch or use a method to have the data read directly from the answer sheets.
   3. A general plan for setting up the answer sheets to accommodate the items in the instrument.

   The final setting up of an answer sheet will have to await the completion of the phase one instrument. Often it is necessary to consult with someone outside the team for this task, as it tends to be a fairly technical process.

   It is also very important at this point in the process for the team to decide what information they want from the computer analysis of the data. The team will most likely need to work with their computer consultant to determine the appropriate programs(s) that will provide the information they desire. Specific questions which must be answered include:

   1. How will data be reported? (Reporting in percentages is a common and useful procedure.)
   2. Will data be reported only for the total population or will the responses be broken down in terms of key demographic variables? (This latter procedure can be used initially or can be accomplished at a later time if so desired.)
   3. Will any tests of statistical significance be required?

DEVELOPING AN ENVIRONMENTAL REFERENT FORM
Phase two of the ecosystem model's assessment is fundamental to its originality and to its later design processes. It is the information obtained from this part of the assessment that will be most useful to the planning team in developing environmental designs or changes. A form needs to be developed on which the respondents can write descriptions of what is happening in the environment that produces their perceptions of it and thereby provide the necessary environmental referents. A method for analyzing this environmental referent information must also be devised.

Three examples of ER forms are given below. The process suggested for developing the assessment's second phase is to devise the form on which respondents will record their ER information, then concentrate on developing a method for analyzing the information. This sequence is recommended because the device or form that is created usually sets up the order in which ER information will be given, and, thus, can affect the design for analyzing the data.

When using the ER form in tandem with the phase one instrument, it is recommended that the respondents not be given complete details about the form until they have finished the instrument. Details about the form could become confused with instructions for the instrument, and the respondents might be tempted to bias their replies on the instrument in order to avoid having to answer many items on the ER form. However, it is fair and often essential to briefly inform respondents that they will be requested to give additional information on items.

Guides to follow in creating an ER form for phase two of the assessment technique include:

1. If an importance measure (those items considered most important by respondents) is to be obtained through the ER process, a method will have to be established by which respondents indicate importance on the ER form or through the selection of items for which they give ER information. Thus, when the data are analyzed the team will know which parts of the environment are most beneficial to retain and to change.
2. When a tandem approach is used, the ER form will need to establish a way to show how the respondent replied to items on the instrument. This is necessary because it is important to know whether the subsequent ER information stems from a highly negative or positive response.
3. If it is important to study ER data according to demographic information, the ER form will need to establish a method by which the respondents can provide the needed demographic information on the form.
4. The ER form will need to ask why the respondents replied as they did.
5. The ER form will need to ask what the respondents suggest to correct or improve the situation and what should be retained.
6. Give clear instructions for the ER form's use, preferably with illustrations. 7. After reviewing the example ER forms below, the team can either adapt one for its use or develop its own ER format. The subsequent ER form should then be prepared for a pilot-test implementation on some 20 or 30 respondents.

An ER form designed by Leland Kaiser, James H. Banning, and LuAnne Aulepp for use in tandem with a standardized, commercial instrument, The Institutional Goals Inventory, *
could be adapted for any instrument employing the Goal Statement format (see Figure 1).

In the case of this ER form, respondents are requested to review the first 91 items in the instrument and provide ER information on each item for which they have indicated a discrepancy of more than one-column space (see IGI format as illustrated in Figure 1).


**FIGURE 1 KAISER, BANNING, AULEPP ER FORM**

**ER Instructions:**

Now that you have completed the Institutional Goals Inventory, please respond further to those statements to which you have intended a discrepancy of more than a one-column distance between “is” and “should be.”

(IGI EXAMPLE)

<table>
<thead>
<tr>
<th>Importance</th>
<th>Of no importance, or not applicable</th>
<th>Of low importance</th>
<th>Of medium importance</th>
<th>Of high importance</th>
<th>Of extremely high importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To prepare students for graduate school is</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>should be</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

in the sample above, the respondent blackened the oval in column 2 for “is” and the oval in column 4 for “should be.” This is a discrepancy of more than a one-column distance between “is” and “should be.” The attached booklet contains seven pages with a set of numbered spaces that correspond with each page of the Institutional Goals Inventory questions you have answered. Number 1 refers to statement number 1 in the Inventory, number 2 refers to statement number 2, etc. Now briefly write a state describing your feeling of why the discrepancy exists on your campus and suggest some measures that could be taken to improve the situation. Your suggestion for improvement might include changes in policy procedures, regulations, activities, programs, and curricula.

**ER Example and Form:**

“To prepare students for graduate school”

<table>
<thead>
<tr>
<th></th>
<th>Why do you feel the discrepancy exists?</th>
<th>What can be done to improve the situation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The undergraduate faculty are more interested in general education than in the profession.</td>
<td>Permit undergraduate student to attend graduate classes for credit.</td>
<td></td>
</tr>
</tbody>
</table>

In a similar manner, please fill in the appropriately numbered boxes for each of the 90 statements on which you have indicated a discrepancy of more than a one-column distance between “is” and “should be.”
The team will thus obtain ERs on those items for which there is the greatest discrepancy between “is” and “should be.” However, there is no research to date with proves it necessarily follows that these items are the most crucial to respondents. In other words, a respondent might indicated that a high discrepancy exists, but the fact that it does exist may not be at all important to the respondents.

An importance measure could be built into this ER form by changing the way the respondents are to select items on which to give further ER form. Respondents could be asked to circle the numbers of those items that have the most importance for them as they answer the instrument, then instructed to use the ER form to give further information about the items that they circled.

Another ER form originally designed by Barbara Peavey, Ursula Delworth, and Luanne Aulepp, and subsequently revised through WICHE ecosystem model applications, has been used in tandem with instruments employing the Likert scale format (Figure 2). Respondents are asked to circle the numbers of items that hold significant importance for them as they answer the initial instrument. Then the ER form is given and the respondents are instructed on how to provide additional information about the items they have circled. In this manner the ER process is used to establish the importance measures. In this procedure, it is suggested that respondents be given a minimum number of items on which they are expected to provide ERs.

An ER format developed by John Corazzini, Lois Huebner, and Susan Wilson at Colorado State University, eliminates reference back to the phase one instrument in order to complete the ER form. Pages of the ER form are wider than the page of the instrument and can be attached behind each page of the instrument so that only a column of boxes is visible while the respondents answer the phase one instrument. Respondents answer the instrument according to instructions and then write the answer they have given in the corresponding ER form box that is visible (see FIGURE 3).

When respondents have finished the instrument, it is detached. The remaining ER form repeats each of the phase one instrument’s items. Respondents can then complete these forms (see FIGURE 4) according to instructions without having to refer back to the first instrument. The instructions for this ER form ask respondents to give information for certain answers in response to phase one items. A similar direction could also be used to ask respondents to write information on items that were most important to them.

Just as the team needed to consider computer programs and capabilities for scoring and analyzing data in its development of the phase one instrument, the team must devise some method of analysis for ER data so that it can consider the resources it will need to implement the analysis. Often students who could receive credit for conducting the assessment process and analyzing the ER data are recruited by the team. Whoever is recruited to help the team
implement the assessment and assisted with the ER analysis will have to be trained. Training cannot proceed until an ER analysis will have to be trained. Training cannot proceed until an ER analysis method is developed.

An ER analysis method has been devised for the WICHE ecosystem model ER form illustrated above. A similar method could be developed for any ER form by readjusting it to accommodate the needed demographic breakdown and the response format used in the instrument. This ER analysis was used successfully during three campus model application. Other planning teams may devise alternate methodology more appropriate to their own uses.

The team will thus obtain ERs on those items for which there is the greatest discrepancy between "is" and "should be." However, there is no research to date which proves it necessarily follows that these items are the most crucial to respondents. In other words, a respondent might indicate that a high discrepancy exists, but the fact that it does exist may not be at all important to the respondents.

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Just as the team needed to consider computer programs and capabilities for scoring and analyzing data in its development of the phase one instrument, the team must devise some method of analysis for ER data so that it can consider the resources it will need to implement the analysis. Often students who could receive credit for conducting the assessment process and analyzing the ER data are recruited by the team. Whoever is recruited to help the team implement the assessment and assist with the ER analysis will have to be trained. Training cannot proceed until an ER analysis method is developed.

An ER analysis method has been devised for the WICHE ecosystem model ER form illustrated above. A similar method could be developed for any ER form by readjusting it to accommodate the needed demographic breakdown and the response format used in the instrument. This ER analysis was used successfully during three campus model applications. Other planning teams may devise alternate methodology more appropriate to their own uses.

**FIGURE 2 WICHE ECOSYSTEM MODEL ER FORM**

**ER Instruction:**

In the preceding parts of this survey, you stated how you feel about various services and conditions at (name of school). It is also important to know why you feel the way you do and what you would suggest to improve or maintain each service or condition that is really important to you; for example, what you don’t like about it and what could be done to improve it.

Now, please go back to the statements you circled in Part II as being important. Reread those statements and select at least five to give additional information about. (If you did not have the chance to circle statements important to you, please take time to select the statement now.) Remember, you select at least five statements that are important to you because: (1) you feel the service or condition meets your needs and it is important to you that it remain as it is, or (2) you feel the service or condition must be improved or changed in order to create a satisfactory experience for you.

In the space provided on the following sheets, please write your reactions and recommendations in four steps.

Step 1: Write the number of the statement you circled
Step 2: Circle the responses you made to the statement.
Step 3: From your experience, explain in your own words what exists or has happened at (name of the school) to make you answer the way you did. Please be as specific as possible.
Step 4: Explain in your own words what you would recommend be changed to improve the situation or what you would recommend remain unchanged. Please be as specific as possible.

**ER Example and Form:**

100 – There are enough parking places at (name of school).

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transfer your</td>
<td>What things at (name of school)</td>
<td>What would you recommend be</td>
</tr>
</tbody>
</table>
FIGURE 3 CORAZZINI, HUEBNER, WILSON ER FORM
AS VISIBLE DURING PHASE ONE

Phase One Instrument

Please respond to each of the statements below, following the instructions given on page 1.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Mildly Disagree</th>
<th>Agree/Disagree Equally</th>
<th>Strongly Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My major is preparing me for a job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Help in making vocational choice is available to me at (name of school).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am satisfied with self-directed learning experience at (name of school).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following steps comprise this ER analysis method:
1. The ER form is retained by the team or its implementers for scoring and analysis while the phase one instruction is sent to the computer for scoring and analysis.
2. The first step in analyzing the ER data is to take an ER item count. The ER item count entails a simple tally of the number of ER responses received per item on the initial instrument. When the team has selected an important demographic breakdown, the item count should be taken according to demographic category. Tally forms might look as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of ER Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
3. After an ER item count has been tallied, the tallied are assembled and an ER item chart is compiled. This chart provides a global view of the total number of ER responses per item and per demographic category, if desired. The team then has a quick and readable summary of those items receiving the highest number of ER responses system-wide. If broken down into key demographic variables, the summary also provides a list of those items receiving the highest number of ER responses from specific groups. The chart might look as follows:

### ER Item Chart

<table>
<thead>
<tr>
<th>Item</th>
<th>Total ERs</th>
<th>Day Students</th>
<th>Night Students</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
<td>6</td>
<td>17</td>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

4. Using the information displayed by the ER item chart, the team selects those items that should be given an ER content analysis. Items with a high ER response overall are good candidates for analysis. If the responses are broken down into demographic categories, the team may want to rank order those items on which a high number of ERs were given by a particular group.

5. When the decision has been reached on which items are to be analyzed, the items can be grouped according to their parent sections or scales used in the instrument for each area of inquiry. Those analyzing the item should be assigned items with a particular scale or section. At this point the ER from will have to be cut apart and grouped according to item number and scale. If important demographic variables are being scored and analyzed by computer, the team will have had to code the instruments and ER forms. Thus it will be necessary to write this code number on each ER response before the ER forms are cut apart and grouped. The team may want to photocopy the complete set of ER responses before cutting them apart. Then, if some are lost, the original set can be referred to.

6. The first step for those who analyzed ER responses is to sort each item’s ER form according to the “Agree,” “Disagree,” and “Neutral” responses. This is done by looking at which response the respondent has circled on the ER form.

7. The person then takes all the “Agree” responses and reads the respondents’ “why” comments several times until it is possible to group similar “Why” comments into a few categories. In some instance, a single response may have to constitute a category, but the fewer categories that have to be made the better.
8. Then the person should develop a heading or name for each of the categories and briefly describe it.

9. Then tally the number of “Why” comments in each category.

10. And finally, record information on “Agree/Why” (see Figure 5) for an example of the ER Content Analysis sheet that was developed for this purpose.

11. Once the “Agree/Why” comments have been categorized tallied, and recorded, the “What” comments contained in each “Agree/Why” category are read. Again, when possible, similar comments should be grouped and categorized.

12. A tally is taken on the number of comments that make up each “What” category. When it is possible to group a comment, it should be listed as a category.

13. Data concerning the “What” comments are recorded under their appropriate “Agree/Why” categories. (See point D in the ER Analysis Sheet.)

**FIGURE 4 CORAZZLNI, HUEBNER, WILSON ER FORM**

**ER Instruction:**

In Part II, the statements in Part I are repeated. Your responses are also recorded in the boxes to the right. You are now asked to give additional information about those questions to which you responded “Strongly Disagree” (1) or “Mildly Disagree” (2). Do this by answering each of the following three questions about that item:

1. What things in the university environment (physical, organizational, Interpersonal, etc.) exist or have changed to make you feel this way?
2. How have you responded to this situation or feeling?
3. What could be done in terms of a change in the environment (physical, organizational, functional, etc.) to improve the situation?

Remember, you are to respond only to those statements that have a “1” or a “2” in the box to the right.

**ER Example and Form:** (N. B.: ER Form is illustrated after detachment from phase one instrument)

Using the example in Part I, suppose you have responded with “Strongly Disagree” (1) to the statement, “I am satisfied with my living conditions (room, apartment, etc.).” You would now answer the above three questions about why you “Strongly Disagree” with the statement that you satisfied with your living conditions.

<table>
<thead>
<tr>
<th>Example: I am satisfied with my living conditions</th>
<th>What things in the environment exist or have happened to make you feel this way?</th>
<th>How have you responded to this situation or feelings?</th>
<th>What could be done to change the environment (physical, organizational, functional, etc.) to improve the situation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no decent place to study in my room, no privacy</td>
<td>I stay out of my room as much as possible – study at library</td>
<td>Don’t request freshman to live in dorms – make more private rooms available - have a quite rooms for</td>
<td></td>
</tr>
</tbody>
</table>
(room, apartment, etc.). and too much noise. sleeping and studying.

| 1. My major is preparing me for a job | □ |
| 2. Help in making a vocational choice is available to me at (name of school) | □ |
| 3. I am satisfied with self-directed learning experiences at (name of School) | □ |

**FIGURE 5 ENVIRONMENTAL REFERENT CONTENT ANALYSIS SHEET**

Please fill in appropriate information for the type of analysis being done.

Analysis Item Number_________________
State Item Number______________________________________________________________
_____________________________________________________________________________

Analysis is for (circle one) Agree, Disagree, or Neutral responses.

Please record your analysis information on this item in the proper spaces below if you have more categories than provided on the sheet, please follow this format in presenting the information on additional sheets. Staple all additional sheets on an item to the proper ER Content Analysis Sheet.

“Why” Category Number One

A. Name of Category________________________________________
B. Description of Category____________________________________
C. Number of Responses in This “Why” Category__________________
D. List Below Correcting “What” Categories

<table>
<thead>
<tr>
<th>Number of Responses in Category</th>
</tr>
</thead>
</table>

“Why” Category Number Two

A. Name of Category________________________________________
B. Description of Category____________________________________
C. Number of Responses in This “Why” Category__________________
D. List Below Corresponding “What” Categories

<table>
<thead>
<tr>
<th>Number of Responses in Category</th>
</tr>
</thead>
</table>

This analysis method results in ER data that can be reported statistically but retains the descriptive quality necessary for design purposes.
14. The same processes of reading, grouping, categorizing, tallying, and recording comments is applied to the "Disagree" and "Neutral" responses on the item.
15. The entire process is repeated for each item that has been assigned to be content analyzed.

THE ASSESSMENT'S PILOT TEST

The team is now ready to pilot test their assessment technique. By conducting a pilot test, the team can determine how long it will take respondents to complete the assessment procedures, to identify items that require revision or deletion, or to otherwise obtain a feeling for the assessment's usefulness.

Unless the respondent population is quite small and cohesive, it is best to pilot test the assessment on its intended respondents. Using respondents from the target population far outweighs the possibility that a full-scale assessment might be jeopardized by knowledge of the testing procedure becoming widespread. In past applications of the model, neither the pilot test nor sequential testing sessions has resulted in the respondents shortchanging ER information. Respondents have been aware that additional information would be requested on items, but completion of the ER form by one set of respondents has not reduced the number of answers given by later respondents. The only time this hazard might become a serious consideration in the selection of the pilot test population would be in the case of a small, cohesive group. In this event, the team might want to locate as similar a population as possible for purposes of the pilot test.

Having the assessment instrument answered by some 20 or 30 respondents should provide the team with sufficient information to refine and make final their assessment technique. The pilot test will also provide ER information for use in training people to conduct the team's ER analysis. In this manner the information received in the pilot test can serve to test out the team's method of ER analysis.

Important guides for the assessment technique's pilot test should include:

1. Selecting a small random sample from the target population or as similar a population as possible.
2. Timing how long it takes respondents to complete the assessment procedures.
3. Debriefing the respondents on their reactions to the assessment, including their comments on whether language used in the assessment was easily understood by them; what word substitutions they might suggest; what, if any, items seemed ambiguous to them and why; what, if any, items seemed irrelevant to them and why; and whether the instructions for the assessment procedures were easily understood and followed.
4. Arranging an expression of appreciation such as lunch or cookies and coffee for pilot test respondents.

FINAL ASSESSMENT TECHNIQUE
Based on results from the pilot test, the team can make final adjustments its assessment technique. If the assessment procedure is too long, then the team must make modifications. It is recommended that testing time not exceed 90 minutes; if adequate information can be procured in an even shorter time span, this is preferable.

The team does not necessarily have to send the responses of the pilot test on its phase one instrument to the computer for scoring and analysis. It will conserve resources and be much better if the team personally reviews them because the important information at this point will be the respondents' reactions and comments on the instrument's items and whether these items are prompting good ER responses. The latter are determined by comparing the ER responses to their parent item on the instrument. This can be facilitated by retaining the instruments so that each team member will have a copy from which to work.

The cost and services needed to prepare the instrument and form for implementation can be given realistic estimates after the team has made final its assessment technique. Team members who have been informing those persons in a position to provide these resources about project activities and progress should now confirm that the final estimates are agreeable and able to be met.

To complete its work on developing an assessment technique, the team will need to:

1. Review all results of the pilot test.
2. Rewrite ambiguous items.
3. Rewrite items that do not appear to elicit good ER information.
4. Cut items considered in the final analysis to be not very important.
5. Change wording as may be indicated.
6. Rewrite any ambiguous instructions.
7. Re-do any part of the answer sheet that was not clear to respondent.
8. Readjust a format if several respondents had trouble using it. (Another important indicator for the need to adjust a format is obtaining consistently unusable information in response to it.)
9. Determine how the instrument and/or procedures can be trimmed if the testing period exceeds 90 minutes or the time available for testing. Suggestions for this might include:
   - Asking half of the respondents to give ER information on the first half of the instrument, and asking the other half to give ER information on the remainder of the instrument.
   - Deleting one format in the phase one instrument if the format contains few items that could be rewritten for another format.
10. Confirm with those providing project resources, such as money and/or services that the estimates for those resources are agreeable and can be met.

When the final adjustments and/or modifications of the assessment technique have been made, clean copies of the corrected instrument, answer sheet, and ER form should be made for the team's final review and approval. If no further corrections, additions, or deletions are made, the instrument, answer sheet, and ER form can be proofread and sent out for printing. If changes
are made, then the instrument and ER forms need to be corrected and proofread. The team is now ready to proceed to administering the assessment technique and analyzing its results in order to design adjustments and changes needed in the environment.
Designing Campus Environments: A Review of Selected Literature
Leland Kaiser and Lynn Sherretz

This annotated bibliography has been compiled in response to the many requests for literature references on campus environmental design. As the title implies, in no sense is this bibliography exhaustive or necessarily representative of the burgeoning amount of literature in the field. The bibliography should be viewed as an introduction to this literature and as a sampler for the novice designer of campus environment.

The literature references have been categorized by chapters. Each chapter contains a listing of subject entries appropriate to that chapter. The chapter listings are not discrete. The placement of any single literature reference could vary, depending upon the viewpoint of the user and the intended use. To aid the user, the bibliographic entries have been arranged as follows:

Chapter 1 - Overview of Educational Environments is an introduction to the issues and concerns of campus design. A number of background and survey-type articles are presented to acquaint the user with the various dimensions of campus environments.

Chapter 2 - Campus Environment-Student Transactions is the largest chapter and contains the literature on campus-student transactions. The impact of campus environments on students is the focus of this chapter.

Chapter 3 - Student Characteristics emphasizes student characteristics as they affect the campus student transaction.

Chapter 4 - Housing and Residence Halls examines student campus transactions related to housing and residence halls.

Chapter 5 - Measurement of College Environments examines the methodological problems involved in assessing campus environments and some of the assessment instruments currently in use.

Chapter 6 - Student-Campus Environment Dysfunctions focuses upon transactional difficulties of students and their campus environments.

Chapter 7 - Intentional Campus Designs contains an assortment of articles useful for the campus designer. The chapter contains many suggestions for modification of campus environments to produce better student-environment fit. The references are particularly useful for redesign of existing college campuses.

The WICHE program Improving Mental Health Services on Western Campuses (NIMH Grant MH 12419) continues its support and interest in the design of campus environments with the publication of this bibliography. In an earlier program publication, The Ecosystem Model: Designing Campus Environments, the campus community was viewed as a series of transactions among various environments and their members. An ecosystem model was suggested for intentional campus design. Later, the program tested and refined this model through on-campus applications. This work resulted in the program's publication of a Training Manual for an Ecosystem Model.

We thank Dr. Ursula Delworth, program director of Improving Mental Health Services on Western Campuses, for her support of this annotated bibliography. Appreciation is also expressed to Renee Munoz and LuAnne Aulepp for their editorial assistance.
Users of this bibliography are invited to write Dr. Leland Kaiser, Division of Health Administration, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220, about additional literature references they suggest should be incorporated in future revisions of this bibliography.

BEGINNING BOOKSHELF

We have found these works to comprise a good beginning bookshelf for the student of campus environmental design.


EXPLANATION OF ERIC ACCESSION NUMBERS

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TABLE OF INSTRUMENT ACRONYMS

Whenever the use of a particular assessment instrument is referred to in an entry it is cited by an acronym. Refer to this table for full instrument names.
AI    Activities Index
CCI    College Characteristics Index
CSQ    College Student Questionnaire
CSSQ   College Student Satisfaction Questionnaire
CUES   College and University Environment Scales
EPPS   Edwards Personal Preference Schedule
JCES   Junior College Environment Scales
IAS    Interpersonal Attitude Survey
ICC    Inventory of College Characteristics
OPI    Omnibus Personality Inventory
POI    Personal Orientation Inventory
TAPE   Transactional Analysis of Personality and Environment
URES   University Residence Environment Scale
VPI    Vocational Preference Inventory

Chapter 1    Overview of Educational Environments
            . Conceptual models
            . Applications of intentional campus designs
            . Methods of describing educational environments
            . Importance of educational climate
            . Socio-political issues


The authors contend that the proximity of a college has little effect for most youth on the likelihood of going to college, regardless of the type of institution.


This report discusses the planning principles, administrative and advisory structure, and implementation of the structures and functions that must be established if total institutional response to the requirements of operating a multiethnic campus is to be achieved.


One can only generalize concerning an environment to those individuals who are genetically alike. Those involved in planning the school environment must recognize that they must classify pupils and consider the suitability of the environment to each type of pupil. Finding heredity or prior environment as a determinant of a particular pupil outcome does not preclude
the possibility of varying the current environment to offset the effect of previously established conditions.


The authors believe that private institutions, often church-affiliated, with relatively open admissions policies and enrollments under 2,500, can offer their particular students the kind of college experience they seek.


A growing number of behavioral scientists advocate a realignment of current knowledge and reexamination of human behavior within a unifying holistic model, that of ecological phenomenology. The ecological systems approach, as opposed to the interdisciplinary approach, focuses on and clarifies the interfaces between systems where important communication processes and information exchange take place. It serves to bridge the gap between the conceptual systems of single disciplines.


This paper offers an interconnected set of propositions dealing with environmental pressure on the autonomy of college/university faculties, coupled with a discussion of the coping strategies utilized by faculty when threatened. The author believes that much of the variation in the internal operation and structure of an institution is predictable from a knowledge of its relations with the outside environment.


Banning and Kaiser review the seven basic steps in the ecosystem design process and identify and illustrate three levels of implementation (macrodesign, microdesign, and life space design).


This paper reviews existing research on the student's social environment and his relations with other individuals and groups that affect his learning behavior.

Brawer offers a new method of assessing college students that yields a full multidimensional profile of the student's total personality. She believes the resulting theories and information can be used as a basis for planning curricula and instituting changes in higher education. Bibliography.


Current beliefs about the extent of the influence of college experience are surveyed through a review of the literature. Several of the principal conclusions formulated by Freedman from this review are that: (1) the outcome of college education is likely to be a compromise between entering student characteristics and the ideals of a liberal education; (2) changes that occur in students during the college years reflect the national and international ethos, and that attitudes and values with which students leave college tend to have considerable persistence; (3) students are swayed more by fellow students than by any other force; and (4) although student society and culture are the most important college influence, the most important determinants of the outcome of college experience are the characteristics of the entering student.


In this paper, French describes an interdisciplinary program of research on the effects of the social environment on mental health. Hypotheses are advanced that the objective environment is one of the determinants of the psychological environment, and that the psychological environment produces affective, physiological, and behavioral responses in the individual. Preventive, as opposed to therapeutic, implications of this research are emphasized.


This report consists of a critical analysis of research on the population characteristics and educational programs offered to the disadvantaged student. Two of the recommendations for raising the standard of research and educational programs are more appropriate design and control of social-psychological learning conditions and matching population characteristics of the disadvantaged to the design of appropriate learning environments and experiences.

This work describes how colleges traditionally have been expected to assume responsibility for socialization of the young. This task has been difficult, however, because American society has been incapable of developing a consensus model toward which the young should be socialized.


Huff develops a model of organization-environment interaction that relates a general description of interaction between an organization and another actor with descriptions of the cumulative impact of all environmental contacts. Exchange theory, as developed by Peter M. Blau and others, is extensively used. The theoretical framework developed in the first section is then used in a field-study evaluation of the environmental relations of two innovative, community-oriented social service organizations.


This investigation examines intellectual commitment as an outcome of commonly occurring interests and circumstances. Two hypotheses are strongly supported: (1) that preuniversity behavior is a definite determinant of an individual's intellectual commitment: and (2) that the university environment, through the influence of the individual's associates, is a determinant of an individual's intellectual commitment.


The authors suggest that colleges should consider each student's perceptions of the environment in order to better understand the individual's interaction with the environment.


The intent of this publication is to alert the reader to a body of research that examines the nature of emotional climate and environments, and the relationship of various environments to student achievements, attitudes, and behaviors. This research has indicated that schools do have quite different climates and that the adjustment and success of an individual student may well be a function of institutional environment and the extent to which the school is supportive of individual needs.

Morrill and Hurst stress the importance of focus on both individuals and the environment by helping professionals. The focus should be not just helping people "adjust" to an environment, but also on changing the environment so that the developmental experiences needed by students are available. Thus the major focus becomes studying the student, the environment, and their interaction as a means determining how best to: (1) contribute to, modify, or change the environment; and (2) facilitate maximum utilization of that learning environment by students.


"All in a Name" discusses the influence of a white Anglo-Saxon Protestant college milieu upon the mores, lifestyle, and orientations of a Jewish student during the late 1950s and early 1960s.


This issue is devoted to proceedings of the 1975 National Association of Student Personnel Administrators (NASPA) Conference. Of primary interest are the address by Leland Kaiser, "Designing Campus Environments," and the panel presentations by Ursula Delworth, Robert Svob, Michael Ford, and Keith Nawley on the design of campus ecosystems.

Pace, Robert C. The Influence of Academic and Student Subculture in College and University Environments. CRP-1083. Los Angeles: University of California, Los Angeles, 1964. 269 pp. ED 003 037.

Students from nine colleges and universities around the United States were studied to determine the compatibility of certain student influences with the purpose of the institutions.


Several ways of looking at college environments are discussed. It is concluded that "the fullest advancement of understanding about college cultures and their impact on students will come not only from applying the most rigorous methods, but from using a variety of methods to explore the wisest questions we can formulate."


In this paper, the major source of dissatisfaction at a small liberal arts school is the lack of adequate coeducation and poor social life. The pursuit of social standing is rejected in both dating and academic spheres. The more satisfied seniors perceive the college environment as providing significantly greater opportunity and encouragement for the satisfaction of intellectual,
academic, cultural, and achievement-related work.
Plant, William T. Personality Changes Associated with a College Education. San Jose, Calif.: Department of Psychology, San Jose State College, 1962. 92 pp. ED 074 987.

This longitudinal study of more than 2,000 subjects was designed to determine whether or not there are changes in personality characteristics associated with a college education. Changes were found in the direction of decreased ethnocentrism, authoritarianism, and dogmatism for all those who aspired to attend college, regardless of whether or not they actually did.


This paper presents and examines the results of four surveys on the issues of student self-determination, student satisfaction with university experiences, and perceived student needs. Students express a strong desire to participate in university decision making, are generally satisfied with academic experiences, and demonstrate considerable selectivity in supporting programs with required fees.


This paper is an attempt to increase fundamental knowledge about psychological characteristics of college environments. Included are a description of the development of the AI and CCI and an extensive bibliography.


". . . The social effects and relationships of the college environment may be the ultimate controlling influences and may provide almost the whole of the motivation of student effort."


For persons and organizations, informational complexity of systems is contingent on the informational complexity of the environment. Nonauthoritarians, cognitively complex and creative individuals, and administratively decentralized and innovative organizations are more complex than authoritarians, cognitively simple and noncreative persons, and organizations that are centrally managed and/or non innovative. System malfunction is contingent on the pace of environmental complexification.

This study investigates the contention that curricular specialization in high education produces a polarization between the scientific and humanistic cultures. Predictions concerning attitudinal differential accentuation of initial major field differences are generally unconfirmed.

Bibliography.


A variety of recruiting, training, and environmental incentive factors are studied as they relate to college motivation among talented high school students (random sample of National Merit Scholars) and to scientific productivity and intellectual achievement after a student has entered college. The reason most cited as a cause for dropout following high school graduation is the inability to pay college costs. Considering retention, scholarships are more effective than loans. Relatively few college dropouts cite dissatisfaction with their college as the reason for withdrawal. College press scales do not help appreciably in predicting which colleges will have unusually high or low retention rates. The physical sciences rank first in ability to recruit the academically talented as prospective majors.


This dissertation explores the concept of personal space as it relates to environmental conditions characteristic of education settings that vary in degree of population density and crowding. Behaviors associated with density-related characteristics are investigated. It is concluded that the data show tentative but equivocal support for the personal space concept.


After outlining relevant issues and the individual-environment relationship, Walsh considers Barker's theory of behavior settings, the subcultural approach (Clark and Trow and Newcomb subculture models), Holland's theory of personality types and model environments, need x press = culture theory, and Pervin's transactional approach. The final chapter presents a comparison of both substantive and formal attributes of the theories.


This study discusses the college experience and its effect on the students' occupation, lifestyle, and social and political values.

Chapter 2
Campus Environment - Student Transactions

- Perceived campus environments
- Impact of campus environments on the student's personality, achievement, attitudes, expectations, and development
- Group and subgroup differences in perception
- Perception of selection aspects of the college environment
- Impact of the campus environment on faculty, administrators, and the community
- Need-press studies


This study investigates the effects of type of college, place of residence, and reference group identification on the college environmental perceptions of selected sophomore subgroups. Results indicate that the college environment as a whole is a major determinant of variation in college environmental perception. Differentiated elements of the environment, such as residence and reference identification, also appear to significantly affect student environmental perceptions.


The authors' conclusions are that: (1) instruments designed to assess student perceptions of the college climate are useful and valid tools for determining intrinsic attributes of college environments; (2) faculty attributes have only moderate or little direct effect on college climate, at least a climate having to do with students' concern for faculty as individuals at their institution; and (3) the pervasiveness of college-structured attributes, particularly size, cannot be explained by either the types of students or faculty attending the institution.


Citizen satisfaction with the University of Minnesota is strongly related to their perception of campus life related to the ideological context of the work ethic and Americanism.

Black, Kathleen (University of Oklahoma). "The Effects of Field of Study, Classification,! Sex on Students' Opinions of Campus Environment." Dissertation Abstracts International, 1_: Vol. 32, No.7, 3713-A.

Attainment of educational objectives, composite ACT scores, and grade-point average are related to the campus environmental perceptions of one or more institutional subgroups.

The CUES was administered to determine whether the use of trained peers to lead small process groups in freshman orientation alters student perception of the college campus. No change in perceptions was detected.


The CCI and OPI were administered to two groups of students: both entered an experimental college at the same time; one group graduated while the other left to graduate at the liberal arts college of the same university. From an analysis of the CC profile, predictions were made regarding the set of OPI characteristics maximal compatible with such an environment. Significant differences in the predicted direction were found between the two groups on most of these characteristics.


Administering the AI and CCI, Brewer finds that students have strong dependency and intellectual needs and weak impulse expression needs, while the institution has strong dependency press and weak intellectual and impulse expression press. Need-press congruence is not related to persistence, to graduation, or to grade-point average.


Carter utilizes administrations of the OPI to students in six widely differing small liberal arts colleges at entrance and again at the end of the sophomore year to demonstrate consistent relationships between different patterns of change in personality inventory scores and various college characteristics. He interprets these relationships to mean that student development is significantly influenced by college climate, characteristics of student peers, classroom experiences, and the nature and frequency of student-faculty interaction.


The CUES is used to measure those dimensions of the college environment believed to be potentially vulnerable to a new open admissions policy. Pre- and post-open admissions student and faculty responses are compared. It is emphasized that further research is needed before adequate conclusions can be drawn from the findings.

Cohen, Arthur M. Work Satisfaction among Junior College Faculty Members. Los Angeles: University of California, Los Angeles, ERIC Clearinghouse for Junior College Information,
Cohen reviews previous research and discusses a study conducted to determine the job satisfaction of junior college faculty members. More than two-thirds of the faculty indicated that job satisfaction was related in some way to their students, while only one-third of the instructors felt that dissatisfaction was. It is concluded that faculty job satisfaction can best be enhanced by removing obstacles to faculty-student interaction. Specific recommendations are included.


This study attempts to find a best fit among students' major, type of institution, personal characteristics, college environmental perceptions (CUES), involvement in extracurricular activities, and perceived benefits from the college experience when measured in terms of satisfaction with the college experience (CSSQ).


This paper discusses the results of a survey designed to assess the needs and perceptions of commuter students. It reveals which offices and services are most used and which are seldom frequented by commuters, some special needs of commuter students such as facilities for rest and occasional overnight residence, and that finances and desire for privacy, rather than undesirable residence hall systems, are the most commonly cited reasons for commuting.


Administration of the CCI and AI revealed that students and alumni are rather passive and uninvolved individuals beyond their own social needs. It was concluded that the faculty reinforced these qualities within the students.


Students with needs (AI) similar to the Huntingdon College teaching environment (CGI) as perceived by the faculty achieve significantly higher first-semester grade-point averages.


This study attempts to identify demographic and environmental factors associated with changes in selected attitudes of college freshmen. Brunswik's (1957) "distal-proximal" model is utilized to identify initial student attitudes and background characteristics. While no single
antecedent variable can be significantly related to attitude change scores, a combination of variables provides predictability of attitude change.


Utilizing an author-developed questionnaire, student, faculty, and administrator perceptions of various physical environmental factors at selected vocational-technical schools were assessed and compared. It indicates that, when better facilities are provided, user responses to the physical environment are more favorable.


Dufault finds a significant relationship between students' measured achievement levels (Scholastic Achievement Test) and environmental perception (CUES). He concludes that it is necessary to develop environmental assessment instruments as free as possible from influences based on strongly identifiable characteristics of the respondents themselves.

Eanes, Harvey R., III (University of Texas at Austin). "Students' Rated Affective Responses to Selected Facets of Their Collegiate Environment" Dissertation Abstracts International, 1911 Vol. 33, No.1, 189-A.

This dissertation discusses the development and testing of an instrument designed to measure students' responses to selected facets of the collegiate environment


The congruence between environmental perception (CCI) and psychological needs (AI) of high-ability business and engineering students at Memphis State University was determined prior to the freshman year and again 18 months later. The IPAT Anxiety Scale revealed those who were highly anxious. The post-test scores, in contrast to the pre-test scores, yielded considerably more significant correlations between congruence and grade-point averages for both groups and for the highly anxious subjects.


This study is designed to investigate the relationship between personality needs (Edwards Personal Preference Schedule) and student satisfaction with dimensions of the William Carey College environment (CSSQ).

This dissertation is primarily concerned with the development and testing of an instrument (Environmental Perception Scale) designed to assess several aspects of campus life (academic, co-curricular, facilities, regulations, services, and social) affecting college or university environments.


This study attempts to determine whether or not a supportive group-oriented tutorial project for predicted low achievers could result in better achievement and more positive self-esteem for its participants when compared to a matched (sex, socioeconomic status, high school rank) control group. The tutorial project is based on the premise that colleges can and do have an influence on students and that peers can be especially influential. Results show that achievement and one of the four measurements of self-esteem are significantly higher for participants than for nonparticipants.


This study investigates the relationship between student-environment fit (VPI) and academic success and satisfaction (TAPE). No significant relationships between these variables are found.


This report on the job satisfaction of junior college faculty is divided into three sections: (1) a description of four frameworks that have been applied to the analysis of job satisfaction: the traditional, two-factor, need-hierarchy, and cognitive dissonance approaches; (2) a description of the junior college as a workplace from the traditional, sociological, and psychological points of view; and (3) an identification of the major job satisfaction and dissatisfactions as perceived by junior college faculty members.


Students who choose to run for student government offices differ in their perceptions of the campus environment (CUES) from those who do not run. Those who ultimately win hold
significantly different perceptions then those who ultimately lose. Regardless of outcome, the election experience does not significantly affect candidate perceptions of the environment.


This research attempts to determine whether or not married and single students differ in their perceptions of the campus environment (CUES II) at selected Wisconsin state universities, and if they differ in the types of problems they have (Mooney Problem Check List).


The CUES and Edward Personality Inventory are used to ascertain the relationship between students' differential perception of the campus environment and selected personality characteristics. Those with positive and negative perceptions of the environmental press have some personality characteristics related to their manner of evaluating the institutional image.


Congruence of needs (AI) and environmental press (CCI) for male students prior to entering and after six months of residence are not significantly related to second-quarter cumulative grade-point averages. During this period, student needs remain relatively stable but environmental perception changes significantly. Low-ability students greatly increase intellectual and applied interests, personal aggressiveness, and self-assertion, while high-ability students feel less emphasis than originally anticipated in self-expression, group life, and development of formal social skills.


Results of this study support the conclusions that relationships do exist between environmental press (CCI) and psychological needs (AI), which influence the academic performance of minority group students. Effects of manifest anxiety (Manifest Anxiety Scale - MAS) and achievement motivation (Internal-External Scale - I-E) were removed, The findings must be qualified, however, because of the use of multiple t-tests.


Students who were uncertain about their vocational plans were less satisfied with the college environment (CSQ). Those who had received decision-making assistance and those who
considered their course work as very relevant to their future plans were more satisfied with the environment.


Students in medical schools oriented toward research and teaching, as opposed to those in clinically oriented schools, tend to perceive their faculties as less concerned with specific rules and regulations and more willing to permit students to engage in independent and individually creative activities. Also, peer press for academic achievement is perceived of as greater in research-oriented schools.

Jones, Dean H. An Analysis of Students' Perception of Their Role in Governance at Gaston College. Practicum. Fort Lauderdale, Fla.: Nova University, 1974. 29 pp. ED 094 820.

Jones reports the results of a survey assessing the degree to which students felt they should be involved in the governance of selected college activities ranging from selection of the college president to control of student publications.

Koplyay, Janos, and Matthis, B. Claude. The Relationship between Teacher Morale and Organizational Climate, 1967. 10 pp. ED 012 266.

Results of a study indicate that an "open" climate is associated with high morale, regardless of the type of salary schedule.


This study utilized the CUES, Webster's Developmental Status Scale, Pace and Baird's Attainment-Satisfaction Scale, and Astin's ICA to assess and compare the environmental perceptions, attitudes, attainment of certain goals, and selected behaviors, respectively, of college freshman subcultures.


As measured by the CUES, activists perceive the campus environment as exerting significantly less stress in Community, Awareness, and Scholarship areas than do nonactivists. The Thurstone Temperament Schedule shows activists to be significantly more reflective and significantly less vigorous and impulsive than nonactivists. Lannon concludes that the intellectual-social-cultural climate of a campus may be a decisive factor in fostering student activism.

Lehmann, Irvin J., and Dressel, Paul L. Changes in Critical Thinking Ability, Attitudes, and

The authors investigate the relationship between the amount of college education and changes in attitudes of stereotype and dogmatism, in traditional-value orientation, and in certain selected attitudes and views related to higher education. In nearly all instances, the amount of education is related to a significant improvement in critical thinking ability, a lessening of stereotypic beliefs, a movement away from an authoritarian attitude, and a movement toward the traditional-value orientation.


Students preferring one type of independent study are shown to consistently under-achieve. Instructor types, which facilitate high achievement levels for older students and marketing majors, are identified in behavioral terms. It is concluded that it probably would take drastic manipulation of the learning environment in order to produce effective changes in learning pattern.


Four student subcultures, which permit discussion of sociological factors in educational performance, are identified: academic, vocational, incipient rebel, and perpetual teenager. Students create an environmental press, and the values they bring to college are critical determinants of educational outcomes.


A significant relationship is found between feelings of adequacy, or self-esteem, and the perception of others and the environment. Inadequate individuals not only have difficulty coping with human interactions but also feel incapable of coping with their surroundings. Adequate individuals tend to function from an internal frame of reference, while inadequate individuals rely more on external cues.


Results indicate that: (1) high or low staff morale does not necessarily reflect the attitudes of the students, (2) students have very accurate perceptions of the morale of their teachers, and (3) teachers are very inaccurate in their perceptions of student attitudes.

This paper discusses a study undertaken to examine the conceptualization and function of college images as a factor in college choice. It includes an examination of student preconceptions of campus environment, how entering freshmen obtained their information and impressions of the college, and the importance of image in the choice of a particular campus.


Students at the University of Missouri - Columbia perceive the college environment as similar, regardless of area of academic concentration. Student needs are related to both environment and area of academic concentration.


Through a case study of the Alpha Phi Omega (APO) fraternity at a small, liberal arts, church-related school, Motsinger finds the process of leader development to be fostered through group cohesiveness and continuity, esprit, high member expectation, and continued attainment of campus leadership positions. It is concluded that leadership could be learned, and that APO membership could make a significant difference in one's successful attainment of political office.


Students whose environmental perceptions (CUES) changed appreciably over a three-month period participated a greater amount of time in designated activities. Greater participation led to greater understanding of the institution and its policies. Included is a review of current research and writing in the measurement of college environment, a historical review of the subject, and information in the CUES.


Hypotheses about person-environment congruency, consistency, and differentiation from Holland's theory of careers were tested. Utilizing three measures of college satisfaction as dependent variables, the authors find statistically significant main effects for school, sex, and congruency, but not for consistency and differentiation.

Drawing from a broad survey of theoretical and empirical research in the fields of higher education and psychology, Nakata hypothesizes an inverted U-shaped curve (modified by degree of openness to change and sex) to represent the relationship between personality change and perceived student-college fit. The OPI, TAPE, and CSQ are used to measure student personality change, student perceptions of self and environment, and student degree of openness to college goals, respectively. Data analysis fail to support the hypothesized relationship.


This follow-up study is directed not just toward what former students are now doing, but also their satisfaction with various aspects of Catonsville Community College. Student satisfaction levels with the college environment, college services, course work, and effective development are reported and discussed.


Pace and McFee review the literature on the interaction between person and environment and on environmental or institutional dimensions of demonstrated or potential value for research on the impact of college environments on students. It is speculated that college environments that have some conflict between parts and some harmony, but not too much of either, may be most educative.


A good review of the research treating performance and satisfaction as a function of the interaction of the individual and environment. Several transactional models are discussed. Bibliography.


There are no statistically significant differences between satisfaction or dissatisfaction of freshman and junior students with relation to the Louisiana State University environment.


Richardson finds that clustering, as outlined in the Model for Reorganization, is not associated with differences in student educational and social experiences, either when compared across college clusters or when compared to reported experiences by students prior to clustering.
Clustering was not associated with measurable differences in the environmental perception held by students of different clusters. The Student Reactions to College Survey (SRCS) and the JCES were used.


A hypothesized relationship between student-campus environmental fit (CUES), openness or closedness of belief systems (Rokeach Dogmatism Scale E), and earned grade-point average is not confirmed.


Robinson discusses the impact of student-administration, student-faculty, and student-student relationships on students. The students' relationship with the college environment as a whole is also covered. It was found that students encounter more positive than negative experiences and that the source of most frequent positive and least frequent negative experiences is the student peer group.


Student expectations of college environment (CUES) are not significantly related to their improvement in intellectual maturity (CSQ).


This study assesses the effect of the college experience on women's attitudes toward their role in society. Significant freshman-upperclass differences in ideology were found in only 9 of the 40 institutions of higher learning investigated. It is concluded that college does not have a large impact on women's sex role ideology.


Utilizing the CUES and the Perception of Counseling Services Scale (an author-developed instrument), Rossier found that, while decentralization does not generally have a significant effect on student perceptions of the institutional environment, student views of the counseling
services are more favorable under decentralization.


Policies that may discourage or inhibit female students in higher education are discussed. Also discussed are the effects of the attitudes of peers and teachers on the female achievement motive. It is concluded that colleges and universities must provide a structure and environment in which women can maximize their inherent potential.


Satisfied students, at a liberal arts college for women, manifest greater needs to be dependent, to conform, to be generous with others, and to have things run smoothly. Dissatisfied students express a greater need for success and recognition, criticism of opposing views, and novelty and change in daily routine. Satisfied students, more than dissatisfied ones, perceive the college environment as friendly and cohesive, stressing personality enrichment, expressiveness, and academic pursuit.


This speech summarizes and discusses results of the administration of the IGI, a "what is" and "what should be" questionnaire, to students, faculty, and administrators of 116 California state institutions.

Shaw, Kenneth A. (Purdue University). "Accuracy and Inaccuracy of Expectation of Purdue University's Engineering Environment as It Relates to Achievement, Attrition, Change of Degree Objective and Selected Background Factors." *Dissertation Abstracts International,* 1967, Vol. 27, No.4, 3698-A.

No significant differences were found in mean grade-point average (GPA), predicted GPA, attrition, size of high school graduating class, prestige of father's occupation, and residence status between "accurate expectors" and "inaccurate expectors" of the college environment as measured by an initial and followup administration of the CCA.


This study sought to determine the effects of academic clustering upon the academic achievement, attrition, campus environmental perceptions, satisfaction with college experiences, and personal stress within the collegiate environment of freshman community college students.
The findings failed to substantiate the hypothesized effects. This is attributed to the failure of the study design to ensure for the establishment of socio-psychological groups.


The nature of the "Freshmen Myth," identified by George Stern as unlimited freshman student expectations of the college environment, is investigated using the CCI and AI.


Significant differences are found in attrition, use of college counseling services, and changes toward congruency with the environmental press between a group whose needs (AI) are congruent with the press of the college (CCI) and a group whose needs are not congruent. The need-press relationship is not significantly related to academic achievement or expressed satisfaction with the college.


The effects of geographic accessibility of a college on the proportion of high school graduates continuing their education is discussed. College accessibility is defined not merely as an ecological variable but is considered to be a distribution of educational opportunity over socioeconomic space.


Underwood, upon administering the CUES to Oregon State University student participants in joint student-faculty committees and those who served on all-student committees, concludes that: (1) student participation in university government does not result in significant changes to previously held environmental perceptions; and (2) student participants on student-faculty committees do not view the environment differently from those on all-student committees.


The environment at Colorado State University was not perceived in a significantly different manner by students at different achievement grade-point average levels. Group counsell-
ing had no significant effect on the environmental perception exhibited by low achievers.


This study attempts to predict graduate student satisfaction and achievement utilizing knowledge derived from Holland's theory of vocational choice. The author's hypotheses are partially supported.


Seating arrangement influences leadership emergence in small face-to-face groups of American college students. Bibliography.


This study investigates relationships between perceptions of actual and ideal-self and actual and ideal-environmental perceptions (author-modified version of TAPE), as well as the relationship of these discrepancies to adjustment (California Psychological Inventory). Sampling 43 male college students, the author finds that self-ideal/self-discrepancies are significantly related to some adjustment scales but are independent of actual-ideal environmental discrepancies.

Chapter 3

Student Characteristics

- Student opinions and expectations
- Biographic and demographic data
- National norms
- Student profiles


Biographic and demographic data, career plans, educational aspirations, high school background and behavior, and current attitudes of full-time freshmen first entering college in 1972 are presented in this document.

This is the report of the eighth annual national survey of characteristics of first-time full time freshmen. It presents biographic and demographic data as well as career plans, educational aspirations, and current attitudes.


This report includes the results of a survey of 33,000 graduate students at 158 sample institutions. Included is information on demographic and background characteristics, academic progress and experience, career progress, attitudes toward higher education, and general and political attitudes and preferences, all by sex, highest degree expected, and field of study.


Results of a recently completed survey of student characteristics are presented along with a review of the literature concerning enrollment trends in higher education.


This publication is the first of four reporting the results of a national survey concerned with understanding enrollees in junior / community college occupational programs. Data on students' personal and background characteristics, experiences, and perceptions are presented. In addition, recommendations are made to increase the societal exposure of postsecondary occupational education and to help recognize the vital role played by guidance and counseling personnel.


Various characteristics, including background information and educational aspirations and outcomes of freshmen who were 20 years of age or older at the time of matriculation, are presented.

This report summarizes and assesses secular and scholastic characteristics of students who are new to education. It considers academic and study skills, coping behavior, intellectual functioning, motivation and aspiration, economic factors, self-concept, and social influences. The review of the literature includes suggestions for new educational programs, services, tactics, further research, and educational models sensitive to the needs of new students.


This document reviews recent literature on commuting students and summarizes important findings that include: (1) increases in the number of commuting students can mainly be attributed to those living off-campus, not those living with parents, (2) the cost saving given as the primary reason for commuting is usually minimal, (3) psychological differences between commuters and residents have seldom been established, and (4) the college experience of commuters differs from that of residents.

Chapter 4

Housing and Residence Halls

- Residence hall life
- Student perceptions of the residence hall environment
- Living-learning colleges
- Resident attitudes, values, beliefs, and behavior
- Alternatives to residence halls
- Innovations in residence hall living
- Integrated curricula
- Roommate satisfaction


Significant relationships between student attitudes toward residence hall environment and achieved grade-point average are identified. These relationships are affected by sex, class, and curricula factors. Recommendations concerned with the development of a more effective living-learning environment are given.


Differences in freshmen expectation and satisfaction with the physical, personal, and study environments, and with privacy, programming, and staff qualifications of privately owned off-campus residence halls are reported by sex.

This volume contains 11 articles concerned with methods and techniques for designing specialized schools and institutions for handicapped and gifted children. Emphasis is placed upon the incorporation of both psychological and physical needs of the special populations into architectural design. Appended is a list that briefly describes research projects involving environmental design and the handicapped.


This dissertation first presents the case histories of four residential colleges that illustrate various difficulties which such living-learning colleges often encounter. It then explores the positive contributions that the residential college can make to higher education and to student development.

Billingsley, Karen, and others. Attitudes toward Residence Hall Life. Fredonia Student Attitudes on the College Student Questionnaire. Fredonia, N.Y.: State University College at Fredonia, 1972. 36 pp. ED 077 327.

On-campus and off-campus students differ significantly in their perceptions of residence hall staff and atmosphere, with on-campus students holding more favorable attitudes. Both groups express discontent with rules and regulations. No significant differences in attitudes were detected between men and women and between students living in various life styles.


This study concerns systematic floor assignment by academic major influences social interaction and students' feelings about their goals (change in major by minority residents).


This extensive bibliography focuses on aspects of the development and current status of residence halls in the United States.


This book advocates humanizing traditional dormitories by changing standard double
rooms into suites of bedrooms sharing a living area. It discusses alternatives to traditional methods for obtaining new residences through management techniques, leasing buildings, or forming co-ops.

Flather, Clifton C. Apartment Type College Housing. Columbia, Mo.: Association of College and University Housing Officers, 1972. 51 pp. ED 068 509.

A study of student housing trends shows that students prefer apartment living over dormitory living. It was found that one-, two-, or three-bedroom apartments can be constructed for less than the cost of campus dormitories. In addition, apartments afford more parking space and reduce the need for costly dining hall facilities.


This study explores the development of self-actualization (POI) in the context of a specific experimental living-learning community in a midwestern university. Aspects of self-actualization related to the environmental conditions are identified.


This paper discusses the development and initial standardization of the University Residence Environment Scale (URES). Environmental comparisons are drawn between various types of student residences. Also discussed are the uses of the URES in program evaluation and architectural-behavior research.


This document discusses the objectives of residence hall programs and the potential role, selection procedures, and training of undergraduates as staff members. Bibliography.


Holzman focuses on the need for establishing alternative campus-based living/learning environments at large universities. He proposes an experimental environment that emphasizes personalized learning based on four major problem areas affecting people and their environment: war, overpopulation, depletion of natural resources, and pollution.

and Wanted Social Interactions of the 'Live and Learn' Program Freshmen compared with the Honors College Freshmen at the University of Oregon, 1971-72." Dissertation Abstracts International, 1973, Vol. 34, No.3, 1096-A

Investigation of the influence of a "Live and Learn" program on its participants reveals no significant differences in academic or social achievements when compared to non-'Live and Learn' Honors College freshmen.


This report discusses and evaluates the New College Living-Learning Unit begun in 1972 as an optional beginning semester for entering freshmen. This unit emphasized the notion of community from a multiplicity of discipline perspectives while also providing unique physical facilities. Results of a survey of 40 percent of the participants indicate that the unit failed to materialize as a cohesive, meaningful, learning experience.


After comparing freshman dormitory residents on several dimensions, depending on the type of dorms in which they live, the authors conclude that type of housing is not a key element in the lives of most students.


Relationships between mode of residence (all-male and all-female residence halls, fraternities, sororities) and perception of the campus psychological climate (CUES and VPI) are identified.


This speech emphasizes the significant contribution a student's residence can make to his academic, social, and economic welfare. It challenges colleges and universities to provide housing responsive to the changing life styles and demands of students.

Objectives of coeducational housing are discussed. Results of a University of Maryland survey indicate that: (1) coed dorms have more activities and programs, but they are not necessarily more varied; (2) residents of coed dorms have more contact with faculty and interact more with members of the opposite sex, watch less television, and seek help from somewhat different sources; and (3) residents of coed dorms seem to be more generally satisfied with their residence experiences.


Miller details a simple behavioral model for roommate conflict. Based on a model for resolving marital conflict, it assumes that conflict occurs when maladaptive attempts, usually aversive, are used to change another person's behavior. It involves the tabulation of specific pleasing and displeasing behaviors in time-limited contracts.


First impressions of new residents at randomly selected residence halls at the University of Maryland are reported. It was found that those who exhibit public conformity and private disagreement with residence hall norms tend to feel less positive and to have adjusted less well to dormitory life. The authors recommend that greater emphasis be given to initiating residence hall programs before students move in.


This article discusses student-initiated housing, a process in which student groups lease, purchase, or even develop their own living quarters as an alternative to more traditional forms of residence hall or off-campus living.


The document discusses the research and planning preceding construction of new student housing at New College. Preconstruction seminars were held in which students, faculty, and staff discussed various aspects of college housing. The resulting structure reflects the students' desire for privacy, the planning team's arrived-at concept of living/learning in one facility, and the builder's efforts to provide quality at a reasonable price.

Roommates who were dissatisfied with their roommate relationship had significantly lower grade-point averages (GPAs) than those who were satisfied. Likewise, those with low GPAs were significantly more dissatisfied with their roommate relationship than those with high GPAs. Satisfied roommates rated the college as exhibiting more CUES Awareness and Propriety characteristics than the dissatisfied roommates did.


This paper examines the effects of territorial control over residence hall rooms on student attitudes and behavior toward the residence hall and the university in general CUES, roommate compatibility, damage to rooms, noise level, and disciplinary problems. Although some significant relationships emerged, the findings do not support the overall importance of territorial control as related to attitude and behavior.


This speech discusses the University of Denver's attempt to develop community residence halls emphasizing communal warmth, people's basic need for affiliation, and a philosophical approach to learning.


This article describes a unique approach by the University of Denver to residence hall living that is designed to increase the positive effect of the environment on the student. Two programs, one designed for disciplines that predominantly use empirical methods and the other for disciplines dealing with symbolism and aesthetics, offer students the chance to manipulate and play in an active manner with the ideas that have been stimulated in the classroom. It is reported that the academic performance of participating students showed marked improvement and that resident retention within the halls was greatly increased.


This study shows that residence halls, whose inhabitants scored highest on the Community scale of the CUES, have well-defined floors or wings of similar and moderate size, less diverse traffic patterns, and more common-use rooms near primary traffic flow. Perceptions of the environments of halls other than the one lived on are only occasionally congruent with the perceptions of those who live on each hall.

Striner, Erma B. College Housing and Community Design. New York: Educational Facilities
Striner reviews the research concerned with student preference for apartment-style versus traditional residence hall living and discusses the resultant problems facing colleges and universities. Specific recommendations are given for the design of new living facilities and the renovation of existing ones. Examples of residence hall innovations at several universities are given.


Participants in a living-learning residence program at North Carolina State University at Raleigh have a more positive reaction to the campus (CUJS), earn a higher grade-point average, and drop out of school at a lower rate than nonparticipants in the program.


As a result of a revitalization effort, the University Quadrangle at the University of Pennsylvania has been turned into the most popular place of residence on campus. This effort was not expensive as it did not involve major renovation. It was accomplished through the introduction of innovative programs and living situations, division of living units into distinct houses with resident-determined emphasis and interest, coeducational living, resident faculty, a student-run coffee house, and rooms for arts and crafts.


Basic goals of a proactive growth program, specific experiences offered to students, and a review of research and future directions are covered, with particular focus on the incorporation of proactive growth into residence hall education.

Chapter 5

Measurement of College Environments

- Methodological problems
- Measurement approaches
- Measurement instruments
- Impact research

Factor analysis is used to identify six principal dimensions along which institutions of higher learning differ.


Astin reviews some of the major methodological aspects of college environmental impact studies: inferential errors, single versus multi-institutional studies, longitudinal versus cross-sectional data, statistical designs, measurement errors, and detection of student-environment interaction effects. He states that "the most definitive information about college impact is obtained from multi-institution longitudinal studies in which data on student inputs, student outputs, and environmental characteristics are obtained."


In this follow-up paper, Astin is concerned with the problems encountered in collecting data and measuring environmental attributes of colleges. He discusses several techniques for detecting and minimizing the effect of systematic errors inherent to the collection of data. A proposed solution to the problem that the student's perception of his institution can itself be influenced by institutional impact, is the basing of environmental measures on directly observable events rather than on perceptions.


This report describes a method for measuring the college environment. Reliability and validity information is given, and advantages, limitations, and possible applications of the proposed technique are discussed.


This document describes several different approaches used to obtain information about college environments.


This 70-item Likert-type scale questionnaire includes items related to various aspects of
college life: policies and procedures, working conditions, compensations, quality of education, and social life. It can be administered to individuals or groups and takes 10 to 15 minutes to complete.


The changes that take place in students between matriculation and graduation often depend upon the type of environment to which the students are exposed. Many aspects of the college environment, such as institution type, size and location, administrative policy, and peer press, are assessed and described.


Feldman proposes that path analysis, a "convenient and efficient method for determining the direct and indirect effects of each of the independent variables in a casual chain composed of standardized variables in a close system," can be an effective aid in measuring overall college environments. While path analysis cannot totally eliminate the limitations inherent in any chosen approach, it can help put these difficulties into a broader perspective, guard against incorrect interpretations of the data, and circumscribe and reduce unwanted effects. Bibliography.


Feldman analyzes some of the theoretical and methodological frameworks employed in the study of the effects of college environments on students. Particular emphasis is placed on campus subenvironments. A developmental model that incorporates several of the discussed approaches to campus research is advanced.


A hypothesis that prediction of student grade-point averages could be enhanced by the inclusion of type of course mix and type of residence as environmental moderators was rejected. Reexamination of the data led to the conclusion that future studies should stress environmental influences that are psychological in nature, as opposed to the physical aspects utilized in this study.


The author outlines four major approaches to environmental assessment (demographic,
perceptual, behavioral, and multi-method), summarizes the strengths and weaknesses of each approach, and cites currently published instruments and references in each category.

Liljestrand, Kenneth, and Sells, S.B. The Interaction of Individuals in the College Setting with Their Environments. Fort Worth, Tex.: Texas Christian University, Institute of Behavioral Research 1968. 64 pp. ED 074 971.

This document discusses the results and methodology employed in a factor analytical study conducted to identify empirical linkages among current and past life situation variables and measures of personality, interest, performance, and achievement in a college environment.


This study attempts to explain the variability of some of the CUES items. It was determined that some items are significantly influenced by certain personality and motivational properties of the subjects.


This study verifies that student perceptions of the college environment, as measured by the CCI, are independent of the personality needs, as measured by the AI, of the informants filling it out.


Mitchell, while reviewing the pertinent research on the person-environment interaction on the college campus, specifically addresses the many troublesome methodological hurdles encountered in an interactional approach. Bibliography.


This document contains 183 bibliographic citations concerned with institutional research. Of particular interest are the sections on space utilization and scheduling, student characteristics, perception of the college environment, retention, attrition, and transfer.


Through factor analysis of the ICA, several dimensions for describing effective learning environments are identified. Interpretations and recommendations for their use in future studies are included.

Perceived self-college similarity is related to ratings of satisfaction with the college environment on both forms of TAPE.


This paper generates strategies intended to provide workable procedures for assessing the effectiveness - capacity of the institution to facilitate academic, vocational, and affective student development - of programs and institutions of higher education.


This study aims to develop and test an instrument designed to measure college student morale. The relationship of morale to several demographic and perceptual variables is explored. Congruency of expectations, reported general satisfaction with college and involvement in college activities are all significantly related to morale.


This paper discusses the development and testing of the Medical School Learning Environment Questionnaire (LEQ), an instrument designed specifically for use in curriculum evaluation and relating in particular to experiences characteristic of the first year of medical school.


Included in this introductory manual are a description of the CSSQ, tentative norms, psychometric characteristics of the instrument, and suggested possible uses.


In this paper, Thistlethwaite repudiates criticism from Astin regarding conclusions and methodology employed in an earlier publication. He also discusses the results of a new study that show that a student's motivation to seek the Ph.D. degree can best be explained as a result of demands, images, and pressures created by teachers and peers.

Warren, Jonathan R., and Roelfs, Pamela J. Student Reactions to College: The Development of a
This paper summarizes the development of a questionnaire and reports the results of its assessment of the educational and other college-related concerns of junior college students and how effectively the students felt their needs were being met.

Chapter 6

Student-Campus Environment Dysfunctions

- Dropout, transfer, and retention
- Migration
- Demonstrations, strikes, and outbreaks of violence
- Student alienation
- Environmental obstacles


The major findings of this extensive study are that: (1) national dropout rates are lower than has been suggested in recent reports, (2) attrition at two-year colleges is higher than at four-year institutions, and that (3) major predictors of persistence are high school grade-point averages and test scores of academic ability.


This report discusses the results of a survey conducted to assess the needs and frustrations of those who elected to drop out during the registration process at three California community colleges.


This study is concerned with how withdrawal and nonwithdrawal students differ in their satisfaction with various college services and experiences. Although a significant statistical relationship between the reasons for discontinuance and satisfaction with college experiences is not revealed, and item-by-item analysis identifies several college services that are evaluated significantly higher by nonwithdrawals than withdrawals.

This book documents some of the major issues encountered in the Youth in Transition study of dropouts. It also discusses family background, characteristics of personality and behavior, school experiences and attitudes, and job outcomes of dropouts and graduates. Dropouts' own impressions and reasons for leaving school are included.


This paper reviews descriptive and inferential data on student attrition and compares the number of dropouts at various types of colleges. Schools with smaller enrollments enjoy higher retention rates. The value of special programs for potential dropouts and the types of college environments conducive to higher attrition are discussed.


This study is concerned with when, during the semester, students drop out, what reasons they give for quitting, and why faculty think they quit. The possibility of a relationship between reasons for quitting and the time of withdrawal is discussed.


This study attempts to provide definitional clarity to the concept of "alienation." Specifically, it incorporates the research findings of Seeman and Keniston on alienation into a phenomenologically based research methodology concerned with categorizing, analyzing, and interpreting alienation as experienced and verbalized by selected community college students. Alienation "themes" are identified and it is concluded that alienation appears to be more directly related to the subjective and perceptual world of community college students than to their objective, external environment.


This paper discusses possible sources of stress and resultant human responses. Emphasizing that it is not possible to make gross generalizations about stress or man's ability to adapt to it, the authors call for multivariate research in this area.


This report describes a study conducted to ascertain the causes of student attrition and to identify that college's assets from the student's perspective. Related material and the survey instrument are included.

The relationship between college environment (CUES) and student attrition is explored. The significant finding of note is that place of residence (on- or off-campus) is related to attrition.


Although administration of the CUES to college freshmen reveals significant differences between male and female environmental perceptions, it does not significantly differentiate between dropouts and retainees.


The authors offer empirical support to the argument that, in the perception of students, broad environmental presses can be differentiated from one another and that one or more of these presses can be a focal point of a student's discomfort and resultant withdrawal from school.


This dissertation attempts to determine whether or not any significant relationship exists between certain variables within environments of institutions of higher education and student demonstrations. Student demonstrations are found to be: (1) strongly related to crowding, (2) possibly related to institutional size, and (3) not related to regional or campus densities or to residential mix.


Dienst presents the results of a study undertaken to clarify the relationship between psychological alienation and activist political alienation, and to learn something about the students who manifest these forms of alienation.

Freske, Robert H., and others. College Student Migration. Iowa City, la.: American College Testing Program, Research and Development Division, 1972. 27 pp. ED 079 396.

This extensive investigation reveals significant differences between background characteristics of first-time enrolled freshmen and the proximity of their chosen college to their
hometown. Significant shifts in college migration patterns were detected over the period studied. 
Goldhaber, Gerald M. Communication and Student Unrest: A Report to the President of the 
University of New Mexico; Part I: Student-Administration Channels, Student-Faculty Channels, 1972. 57 pp. ED 075 868.

This report examines the various channels at the University of New Mexico - informal 
and formal, vertical and horizontal - that exist for student-faculty and student-administration 
communication. Goldhaber stresses the need and gives recommendations for the establishment of 
an open and permissive interaction climate.

Gum, Harvey S., Jr. (Oregon State University). "A Study of Dropout Propensity of Selected 

This study identifies several underlying causes of student attrition at the College of San 
Mateo in California. While the major reasons for leaving were determined to be employment, 
health, financial, and personal problem related, other cited causes were campus environment 
related.

Hannah, William (University of Southern California). "Drop-out/Stay-in Personality 
No.2, 584-A.

Integrated, more anxious, altruistic, religiously liberal students more frequently withdraw 
from friendly, supportive, sympathetic environments that place less emphasis on the search for 
personal meaning. Dropouts from professional or vocation schools exhibit greater interest in self-
understanding and relatively little interest in practical accomplishment. Those who withdraw 
from liberal, experimental colleges are highly sensitive, withdrawn, artistic individuals who 
exhibit hostility, and are less practically oriented.

Holloway, Ernest L. (University of Oklahoma). "Environmental Perceptions of Unsuccessful 
Students on Selected College Campuses." Dissertation Abstracts International, 1971, Vol. 31, 
No.6, 2705-A.

Unsuccessful academic achievers at different institutions have similar environmental 
perceptions regardless of institutional uniqueness. Sex has some influence on student perception.

Isaacson, Arlene. College Student Attrition: An Annotated Bibliography. Brooklyn, N.Y.: 

This annotated bibliography focuses on attrition studies published between 1965 and 
1973. It does not include theses and dissertations.

Jablonsky, Adelaide, compo Dropouts: An Annotated Bibliography of Doctoral Dissertations, 
ERIC-IRCD Doctoral Research Series, No.8, August, 1974. New York: Columbia University, 
This annotated bibliography covers doctoral research on "Drop-outs" reported in Dissertation Abstracts International from 1965 through June, 1973. The annotations are arranged into several categories: Dropout Prediction; Dropout Prevention; Characteristics of dropouts: Characteristics of Potential Dropouts; and School Climate and Teacher Influence on School Holding Power.


Educational, demographic, and student-opinion data collected from samples of persister and dropout Vancouver City College students supported the research hypothesis that all types of students, including those of serious intellectual interest and high academic ability, withdraw from the comprehensive community college. Several recommendations designed to alleviate attrition are included.


Results of a major California junior college attrition research effort by the Northern California Cooperative Research Group (Nor-Cal) and the Coordinating Council for Higher Education (CCHE) are reported. The study was designed to follow up those students who had completed only one, two, or three terms before withdrawing ("stopouts"). Characteristics of the three groups of stopouts are compared and discussed. Stopouts expressed two major concerns: improvement of financial aid and development of a more realistic view of responsibility in career education.


Twenty-nine community colleges participated in the experimental phase (Phase III) of the NORCAL study, a study purpose of which was the design and testing of treatments aimed at reducing attrition among entering freshmen at community colleges. Included are reports of true experiments, quasi-experimental studies, and further validation of the NORCAL instrument at various participating colleges.


This study assesses the degree to which university undergraduates who change majors are similar to the students in the fields they enter and in the fields they leave on measures of activities, attitudes, family background, aptitude, and personality traits. Results imply that following curricular transfer there is greater homogeneity within each major field and greater heterogeneity between major fields than before transfer. Major field turnover is thus to some extent logical, orderly, and predictable.

This dissertation reveals significant differences between perceived personality need (AI) and the perceived environmental press (CCI) of terminal students and of transfer students at selected Alabama junior colleges.


Perceptions of administrators in public two-year colleges as to the major reasons for attrition of academically disadvantaged minority students are presented. Reasons most often cited are inadequate finances, emotional stability and motivation, and lack of institutional support and finances for programs designed to help these students.


College dropouts, when compared to nondropouts, come from lower socioeconomic backgrounds, do not plan to attend graduate school, and have lower high school grades. Educational outcomes are determined by personal characteristics and environmental effects.


A study conducted on 50 Princeton University upperclassmen supported the hypothesis that discrepancies between perceptions of self and college, self and students, and existing and ideal college environment are significantly related to the reported probability of dropping out for nonacademic reasons and to nonacademic dissatisfaction with the college. The utility of distinguishing between academic and nonacademic dropouts and sources of frustration is clearly indicated. A favorable attitude toward dropping out is significantly related to the perceived probability of dropping out.


This study investigates student perceptions of the transfer process and offers specific recommendations for its improvement.


This review of the literature covers recent publications on self- and college-related causes
of student attrition at community and four-year colleges.


A college environment (as measured by CUES) that is sympathetic and supportive of students, congenial, and allows students the opportunity to participate in decision making and evaluation of instruction is less likely to experience student activism than one which lacks these characteristics.


The OPI utilized to identify several areas of significant university impact on selected personality factors of transfer students.


This document defines dropouts, reviews recent data on dropouts, and develops a theoretical model that seeks to explain dropping out as an interactive process between the individual and the institution. Bibliography.


This study investigates the relationship of environmental change (transition from high school to college) on the performance and attrition rate of community college students. Voss finds that perceived community college intellectual press differ significantly from that at high school. Negative change in the goodness of fit (need-press congruence) is related to the transfer intention of high achievement students and to the attrition rates of low achievers.


This investigation analyzes the association of selected individual factors and campus environmental characteristics (author-devised opinionnaire) with attrition. In general, environmental factors are not significantly correlated with attrition.

CUES and the Allport-Vernon-Lindzey Study of Values are used to identify relationships between student perceptions of the campus environment and student transfer to other institutions.


A person who has not developed internal sources of imagination or fantasy is more prone to respond to external stimulation and control and would seem likely to reject a college environment characterized by ambiguous external stimuli. A student is more likely to leave college when behavior reinforced by the institution is incompatible with behavior previously reinforced. Sources of reinforcement for the college student are identified.


The JCES compares the perceptions held by persisting and non-persisting students of real and ideal academic environments of four Alabama junior colleges.


For those who failed to reenroll at Hofstra University in fall 1971, the average grade-point average and selected major did not differ from that of the returning student body. There were, however, greater proportions of females, lower classmen, and female dormitory residents among the dropouts than among the persisters. Academically better students tended to cite dissatisfaction with dorms and nonacademic aspects of Hofstra as reasons for leaving, whereas the poorer students gave more personal and financial reasons. Suggestions for discouraging attrition are included.

Chapter 7

Intentional Campus Design

- Increasing student productivity
- Design models
- Fitting the environment to the student
- Decision making
- Designing for innovation
- Communication systems
- Campus security
- Commuter services
- Orientation classes
- Student support services
• Financial aid
• Use of survey research
• Use of the Delphi


This paper discusses the effectiveness of campus communication and methods of improving it.


A four-year longitudinal study of high-aptitude students resulted in the identification of several differential college effects believed to have impact on students' motivation to seek the Ph.D. degree. An input-output design was used to control differential student input.


In addition to academic ability, Astin shows that a college's productivity rates (Ph.D. completion) are related to two characteristics of its entering students: the percentage planning to major in natural science and the percentage aspiring to the Ph.D. degree. Partialling out the two input variables considerably reduces the size of the correlations previously obtained between college press and productivity rates. These findings emphasize a major difficulty in attempting to assess the influence of the college environment on its students: relevant student input variables must be defined and controlled.


This study develops an operational process of institutional self-analysis, integrating campus environmental perceptions (CUES II), related factual data, and institutional objectives in order to provide information for decision making. More specifically, it outlines a method of providing the college administrator with statements of institutional objectives, assessments and comparisons of the real and the ideal campus, environmental perceptions of various campus groups and subgroups, and potential problem areas.


This report discusses the development and implementation of a student opinion survey
system whose concept is based on perceived need of various university decision makers for information on student opinion.


Brown argues that efforts should be directed toward promoting achievement either by matching the individual to the college that will maximize his potential or by arranging the college environment to meet the different patterns of need and expectations of different groups.


Topics emphasized in this book are (1) characterization of the college, its students, and its faculty; (2) institutional research; (3) challenging traditional concepts in the curriculum; (4) vocational education and Black studies; and (5) suggestions for institutional forms that could help alleviate tensions between the college's social and educational functions. Bibliography.


This study attempts to bring together the perceptions of campus environmental conditions held by administrators, faculty, and students by utilizing the Delphi, "a methodology which relies on intuitive judgments for gathering data, evaluating the importance of each statement and responding to a group consensus on each idea." The Delphi process was found to be a useful method for communication and the building of consensus across status lines in this study.


A system for organizing the services provided by community colleges in a meaningful fashion which optimizes college resources is presented. The authors believe that this case study in management may provide ideas and insights for planners of community services.


This study identifies and describes legal and operational structures of campus security offices; obtains and appraisal of campus security offices by students, faculty, and administrators; and develops a model for an effective, supportive, and integrated relationship with students.

Hardwick, Mark W., and Kazlo, Martha P. Designing and Implementing a Commuter Services Program: A Model for Change. CRR-3-73. College Park, Md.: University of Maryland at

The major purposes, goals, functions, organization staffing, and future directions of the Office of Commuter Services at the University of Maryland are discussed.


This study develops a theoretical scheme of personal identity formation and relates it to factors in the college setting that affect individual growth. Within this framework, the author assesses and compares the impact of conventional and innovative undergraduate programs at the University of Michigan. Specific features seen to relate to specific kinds of identify development are identified.

Hopkins, Keith W. "Rationale and Directions for Student Personnel Services in Community College." Seminar paper, University of Florida, 1974. 15 pp ED 092 211.

The study identifies characteristics of community college students and discusses implications of these characteristics for student personnel services.


Suggestions are given for creating exciting, innovative learning experiences for a liberal arts education. Suggestions range from curriculum and scheduling to living-learning and study abroad programs.


This model is designed to provide program-planning and evaluation information for input-output analysis of student personnel service. Included in this document are two instruments: "Student Personnel Services Objectives Assessment" and "Outputs for Student Personnel Services." The former provides student and faculty rating of selected student personnel objectives while the latter measures student and faculty opinion of the ability of student personnel services to accomplish these objectives.


Drawing upon the formulations of several human development theorists and the findings
of a large number of research studies, Munro develops a comprehensive model of the community college environment.


In addition to ascertaining campus environmental expectations and perceptions (JCES) held by students entering a community college, this study investigates the impact of an orientation class on those expectations and perceptions. The data reveal that orientation had no significant impact on student expectations and perceptions.


This study compares perceptions of institutional environment (CUES II) and counseling services (Perceptions of Counseling Services Scale) held by the faculty and students of two community colleges - one with decentralized services and the other with centralized services. Decentralization of service's was not found to have a significant effect on faculty and student perception of institutional environment.


This paper discusses dimensions of the campus referral process and the roles of its various participants. It suggests that referral should include a human factor and be seen as a "transfer of trust" rather than as a mechanistic operation.


This study determines the perceived academic advising needs of junior- and senior-level industrial arts majors. It then develops a general model for the advising of all students.


Comparing the campus environments described by eight college catalogs with perceived college environments (CCI), Speegle concludes that a discrepancy exists between described and actual environments. The catalogs of smaller, unitary colleges tend to be more congruent with measured perceptions than those of larger institutions.

Thistlethwaite describes a method for comparing the effectiveness of undergraduate colleges in stimulating students to seek the Ph.D. degree. Separate measures of "productivity" in the natural sciences, the arts, humanities, and social sciences have been adjusted to control for differences in intellectual ability. The importance of faculty behaviors in stimulating or inhibiting intellectual achievement is underscored.


This paper discusses the structure, principles and goals, and methods of learning of various University Without Walls programs.


Windowless buildings, designed by architects and engineers to alleviate some technical problems, are contrary to the educational philosophy that the natural environment should be utilized in education. Research findings are cited along with the recommendation that a multidisciplinary committee study each school design in order to assure provision of optimum human conditions.


Current types of financial aid and the principles and practices that guide college financial aid programs are discussed. The authors agree that guide college financial aid programs are discussed. They encourage a solid working relationship with off-campus agencies as well as the appropriate university offices.


This document advances a consultation design model incorporating assessment, definition, implementation, and evaluation. Within the context of institutional change, this model can be useful in viewing the policies and procedures of the institution's government and its social and physical environments. It can also speak to modes of prevention, remediation, or enhancement of conditions within an institution that affect the educational and life goals of its members.

Western Interstate Commission for Higher Education. The Ecosystem Model: Designing Campus Environments. Boulder, Colo.: Western Interstate Commission for Higher Education,
This document stresses the increasing awareness in higher education of the impact that student/environment transactions have on the quality of educational life. Using an interdisciplinary approach requiring input, accessibility, and collaboration from all elements of the university, it details a model and design process for creating a better fit between educational environments and students.


This report suggests that, through the promotion of student unity, students can gain the power necessary to engage in representative conflict that will change the monolithic nature of higher education and prevent destructive conflict with the system. To prevent student withdrawal, it suggests new designs that promote student responsibility, authority, and participation in the higher education system. These new designs imply more open and involved mental health delivery systems.


This report discusses how campus life has been affected by changes in society and changes in the university's role. It describes how the university has grown inflexible and dehumanizing as a result of system priorities and how a change in priorities can be instrumental in resolving campus problems. It details the implications that this holds for changing mental health delivery systems on campus.


This document provides a research design by which accurate, descriptive baseline data on campus and on student characteristics may be gathered. This enables mental health personnel to assume a proactive role in the planning and conducting of educational programs that ameliorate student problems and/or enhance school and student educational goals.


Whisnant believes that an attempt to understand the present crisis in the university might well begin by analyzing the university in spatial terms. "If we recognize that educational philosophy, administrative organization, instructional program, and physical facilities are images of each other, we may begin to see the physical environment as a useful point of leverage for reducing tension and bringing about change." Four principles and attitudes that could lead to
more enlightened spatial organization are proposed: less piousness concerning the use of physical facilities, more pluralism of architectural style, integration of traditionally separate spaces and functions to a much greater degree, and abandonment of the insular campus model.


Freshmen who were academically clustered and residence grouped derived academic and social benefits from the environmental structuring. Academic clustering alone was shown to have no effect.


This paper discusses (1) staff recruitment and development at the community college level, and (2) cognitive and affective characteristics of the "new" nontraditional students and ways to encourage productive outcomes of the interaction of "new" staff with "new" students.


This anthology contains papers arranged under three major headings: (1) General Environmental Conditions, (2) Special Environmental Settings, and (3) Environmental Decision Making. All papers were either originally presented at a meeting of the American Psychological Association or were selected from previous publications. All are concerned with some aspect of the behavioral responses in man-environment interactions and are written by experts from varied disciplines. In addition, the editors summarize the role of behavioral scientists in the study of environmental and behavioral science and discuss future research projects.


Wood concludes that (1) student activity programs seem inadequate for the complex nature of the two-year college, and (2) student unions seem merely to be structures to house services and offices rather than centers for student activities.