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ABSTRACT

This document stresses the increasing awareness in higher education of the impact student/environment transactions have upon the quality of educational life and details a model and design process for creating a better fit between educational environments and students. The ecosystem model uses an interdisciplinary approach for the make-up of its design personnel and design process. It requires input, accessibility, and collaboration from all elements of the university. It requires clarity of educational values and objectives, in addition to a consistent monitoring of values and objectives and of causes and effects in student/environment transactions. For related documents concerning mental health on campus, see HE 004 815, HE 004 816, HE 004 828, HE 004 829, and HE 004 830. (Author)

# The Ecosystem Model: Designing Campus Environments

western interstate commission for higher education

*The Ecosystem Model:*
*Designing Campus Environments*

This report was prepared by the *EPIDEMIOLOGY, CAMPUS ECOLOGY, AND PROGRAM EVALUATION TASK FORCE* of the WICHE program, Improving Mental Health Services on Western Campuses, funded by a grant (MH 12419-01) from the National Institute of Mental Health, Experimental and Special Training Branch.

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# FOREWORD

The WICHE program Improving Mental Health Services on Western Campuses was designed to focus on the very complex human concerns evolving from the current state of higher education. The program, in its study of these problems, has convened task forces deliberately comprised of representative members from the university community and from the larger community. The task force design was used not only to facilitate an exchange of ideas, but also to explore applications of the community model as a means for resolving campus problems.

The first task force report describes changes occurring within and beyond the campus that are forcing the higher education system to become more flexible in its philosophy and operations. Members of the first task force felt that the response of the education system to its changing social context is crucial. In their report, *Quality of Educational Life, Priorities for Today*, they warn that "there are innumerable mismatches between the campus environment and structural organization and the needs and desires of the campus members." They advise that the need for "people and methods to map out the mismatches" receive a high-priority status on campus "in order to build environments and structural organizations that will have a better fit with student developmental needs and the needs of faculty and staff."

To aid campus administrators in their response to the many changes affecting them, the second task force report, *Consultation: A Process for Continuous Institutional Renewal*, discusses an institutional audit process and consultation design model. Through the medium of consultation, campus members assess campus conditions, determine trends and needs, and design and evaluate policy and program response. The consultative efforts rely heavily upon the sensor function of campus members sought out to feed information into the process. The task force members suggested that the consultative design would attain maximum effectiveness if a specific center on campus with research capabilities were developed. This would mean that consultation and its sensory information function could be better coordinated with institutional response and self-renewal.

The third task force report, *New Designs: Prevent Educational Casualties, Promote Educational Growth*, focuses discussion upon the monolithic nature of higher education's environment, student withdrawal from the educational environment, and racism within the educational environment. The task force members felt these conditions cause such high levels of stress that wholly new approaches are the best prevention and, therefore, they suggested several new campus designs.

The Epidemiology, Campus Ecology, and Program Evaluation Task Force

began its work with a review of student stresses and incidence of student problems. Of necessity, task force members then turned their attention to factors in the college environment which they felt generated these problems and stresses. Building upon the work of the other program task forces, they thought it imperative that a model be developed which would provide mechanisms to identify both harmful student/environment transactions and processes by which to design better campus environments. Their final report, *The Ecosystem Model: Designing Campus Environments*, notes the increasing awareness in higher education of the impact student/environment transactions have upon the quality of educational life and details the task force's model and design process for creating a better fit between educational environments and students.

I wish to express my appreciation to the task force for their participation and contributions to the program. The task force meetings, with their frank and honest exchange of ideas, were a valuable learning experience for us all. I would also like to express my thanks to the program's Staff Associate, Lu Anne Aulepp, who assisted with task force meetings and in the assembling of the final report. Valuable assistance was given by our Program Secretaries, Linda Martin, who made task force meeting arrangements, and Carol Francis, who prepared the manuscript for publication.

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# The Ecosystem Model: Designing Campus Environments

*The Ecosystem Model:*

*Designing Campus Environments*

The members of our task force believe the campus community can be viewed as a series of transactions among its various environments and its members. Each of these transactions has an effect upon the quality of educational life experienced on the campus.

The campus's physical environment can affect community members:

*A Rocky Mountain state university was forced to close a dining hall adjacent to a women's residence hall. The women living in this residence hall had to walk five blocks to another dining hall. Many of the women were concerned because some of the area they had to walk through was very dark in the evening. The vice-president for student affairs appointed a group of the women plus administrative personnel to take this walk after dark in order to ascertain where additional lighting was needed.*

*Result: Lighting was placed in a manner which relieved the women of their fears and which demonstrated to them the university's concern for their welfare.*

The campus's administrative environment can affect community members:

*An 18-year-old freshman woman from the East Coast was admitted to a university in the Pacific Northwest. Her parents were informed they would be billed for tuition and fees. Registration was on September 15; but when the student attempted to register, she was told she could not until her tuition and fees were paid. Many of the classes the student wished to take were limited in enrollment and on a first-come, first-served basis. The student frantically telephoned to inform her parents of her dilemma. They had just received the bill for tuition and had mailed the check immediately. The parents in turn phoned the university and were reassured there was no problem.*

*Result: Inconsistencies between administrative rules and administrative actions can produce unnecessary student anxiety and needless expense. Had specific information about registration and payment of tuition been available to the student and her family even one or two days earlier, this episode could have been prevented.*

And student members can act upon the campus environment:

*The college's enrollment has a significant number of commuter students whose schedules require them to be on campus from early morning until late in the evening. For the most part, these students are without a "home" while they are on campus. One day a student*

*asked the health service if a bed were available so he might rest for an hour. Normally the health service beds would be used only for sick or injured students awaiting transportation home or to a medical facility. But it happened that the beds were not being used much of the time. So the student was given permission to use one of the beds, and ever since students have been using the beds to get some rest during their heavy schedule days on campus.*

*Result: The commuter students' need to have a place on campus to relax was met. The health service has never been short on beds for ill students and has not been inconvenienced by allowing the students to use the beds for a nap.*

Administrators and faculty members can act upon the campus environment:

*At a large western university, the counseling center conducted a survey among all women on campus 25 years or older. The results showed that students who were mothers of small children wished to both continue their educations and fulfill their family responsibilities. The university required all students except those working part- or full-time to carry a full academic load. Thus the student mothers of young children were faced with the limiting alternatives of neglecting family responsibilities or discontinuing their educational pursuits. The counseling center informed the vice-chancellor and the arts and science dean of the survey's results and the problem it revealed for mothers of young children trying to complete their education.*

*Result: A new policy of individualized course loads was established. Many students found the more flexible policy enabled them to resolve problems over conflicting responsibilities and thus function better in their student role.*

### *Increasing Interest in Campus Environment*

The effect transactions among campus members and environments have upon the quality of educational life has increasingly become a matter of interest in campus studies. In 1968, a committee of the Academic Senate of the University of California at Berkeley completed a report evaluating the total educational program. Among the many factors the report discussed was the size of the institution. This one environmental factor had several significant effects upon the quality of educational life. A third of the students felt their classes were so big that they learned very little in them. Communication with professors was also inhibited in the large lecture setting. Institutional size and widely scattered residences were cited as contributory factors to student feelings of loneliness and student decisions to transfer or drop out.

To deal with problems of learning and living within our expanding higher education systems, the report suggests that "Adaptation to

changing circumstances of our advanced and complex campus community can no longer be left to our present overworked standing committees supplemented by infrequent special reviews. There must be some facility for both continuing self-study, and continuous trial change. The studies must be sustained rather than spasmodic; the changes must be experimental rather than permanent."[1]

At Stanford University, committees composed of faculty, administrators, and students conducted a two-year study of their educational program. Included in the areas of study were residences, campus life, and extracurricular activities, because committee members felt that "the campus environment, especially those aspects of it that affect one's sense of community, has a considerable capacity for either increasing or diminishing the ability of students to educate themselves."[2]

The study reports contain many references to environmental features and their impact upon students. A lack of privacy and a quiet place to study in student residences and inadequate facilities for extracurricular activities were noted among the detrimental environmental factors. Among the reports' many recommendations, actions were suggested which the university could take to counteract the scarcity of community resources and Stanford's relative isolation from urban centers.

After the months of disorder and violence in Isla Vista (where many students who attend the University of California at Santa Barbara live), the Regents of the University of California established a commission whose charge was to investigate and recommend ways to alleviate the causes of unrest. In describing the nature of their inquiry, the commission said, "A major part of our investigation has been an assessment of the composition of the Isla Vista community and the attitude of Isla Vista residents toward their environment. An understanding of the 'realities of life' as perceived by the student community is essential to dealing with the problems of students.[3] Several transactions between environment and students that contributed to a dissatisfying quality of educational life were focused upon. First among these was the isolated ghetto-like concentration of student apartments in Isla Vista. The lack of a diversity in ages and life styles among the

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[1] Education at Berkeley: Report of the Select Committee on Education. Berkeley and Los Angeles: University of California Press, 1968, p.110.

[2] The Study of Education at Stanford: Report to the University, Vol. VI: The Extracurriculum. Stanford: Stanford University, 1969, p.3.

[3] Report of the Commission on Isla Vista submitted to President Charles J. Hitch of the University of California, October 9, 1970. Martin Trow (ed.). p.1.

majority of community residents served to highlight contrasts between the youth culture and other community members. A lack of recreational or cultural opportunities within the community was compounded by irregular and inconvenient public transportation out of the community.

The commission discussed how these shortcomings in the physical environment were intensified by administrative policies. Administrative efforts to increase campus enrollment, improve the school's academic stature, and attract more faculty subordinated concern for the welfare of the surrounding community. The result produced an increasing captive student housing market and a corresponding growth of an inadequate student living environment within Isla Vista. Relations among students, university, and community were placed under conditions of great stress and the environment became conducive to hostility and conflict.

These three reports are illustrative of widespread efforts to identify, among other things, environmental conditions which are counterproductive to higher education. In doing so, the reports reflect a methodology which has gone beyond individual situations on campus to the study of campus systems and how these interrelate with one another to create various environmental conditions in which students may find themselves. This more comprehensive view has resulted in reports rich with recommendations for changes or alterations in campus functioning which would enable the respective institutions to better meet educational goals.

For decades professionals in human behavior have studied the interactions between humans and their environment. Many have studied, developed, and evaluated environments on campus. New concepts in education--cluster colleges, open-space schools--have evolved from this work. A number of instruments are now available which provide measures of people's perceptions of their environment and the environment's influence upon them. And, as these three campus studies indicate, an approach which would enable schools to design student/environment fits to further educational goals would be superior to one that leaves this vital element in the quality of educational life to happenstance.

## *The Developing State of the Art*

The reports of the other program task forces have discussed in detail some of the grave problems confronting higher education. It would appear that we have come to a point in time when events on campus are no longer susceptible to traditional modes of solution. The critical need for change in the higher education system and growing knowledge about the impact environmental conditions have upon educational life make it imperative that a methodology for campus design be created. An ecological systems approach that utilizes the work already done on student/environment transactions

can provide a point of departure in the creation of such a methodology. While the art is still very much in a developmental stage, enough is known about student/environment transactions to begin designing campus environments.

Such a methodology could greatly increase the higher education system's ability to change and to find new solutions for many of the problems it is experiencing. In the first place, the ecological approach offers a new view of the campus. Heretofore, campus members have been expected to adjust to or fit the existing college environment. Whether the environment hindered or facilitated learning was thought of as inconsequential. But from an ecological systems approach, the question of whether the campus environment is supportive of learning becomes very important. The environment becomes an important element in obtaining educational objectives.

In addition, there are a variety of needs associated with the educational process--faculty needs, administrative needs, and student needs--which must be accommodated if optimal conditions for learning are to exist. The ecological systems approach can provide a means to design a variety of environments to meet these needs. It can allow the institution to move from stultifying educational norms toward more individuality and freedom in the learning process.

Since our task force's primary concern is how the campus environment interacts with students and affects the quality of educational life they experience, we will focus discussion of the ecological systems approach upon student/environment fit. The purpose of our discussion will be to develop and demonstrate the ecological systems methodology for redesigning selected aspects of the college environment, utilizing student perceptions of the college environment as a criterion.

The task force is indebted to Leland Kaiser for his assistance in the creation of the ecosystem model for campus design. He has done comprehensive research in the field of environmental design and developed several models for health and educational application. His work and ideas have been instrumental for building our model.

## *Design Philosophy for the Ecosystem Model*

A college campus should be designed to accommodate a variety of student life styles. Designing for diversity provides an opportunity to *fit campus environments to students*. Campus design is, therefore, an attempt to create campus environments that will foster student growth and development. The attempt is made to reduce student problems, not through treatment of the student, but through treatment of the environment which shapes student behavior.

Placed in this context, the following assumptions become basic to the ecosystem model's design philosophy:

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 any one 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 students 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.

In order to make campus design a reality, the ecosystem model identifies environmental shaping properties, those things in the environment that either help or hinder student growth, help or hinder a school in attaining its objectives. This information is used to design out dysfunctional features in the environment or design in environmental features which improve the quality of educational life.

## *The Ecosystem Design Process*

There are seven basic steps in the ecosystem design process. These steps apply to the process whether the environmental design is intended for the entire campus community, groups within the campus community, or individuals on campus.

Step 1. Designers, in conjunction with community members, select educational values.

Step 2. Values are then translated into specific goals.

Step 3. Environments are designed which contain mechanisms to reach the stated goals.

Step 4. Environments are fitted to students.

Step 5. Student perceptions of the environments are measured.

Step 6. Student behavior resulting from environmental perceptions is monitored.

Step 7. Data on the environmental design's successes and failures, as indicated by student perceptions and behavior, is fed back to the designers in order that they may continue to learn about student/environment fit and design better environments.

As the diagram of the design process indicates, the design steps are interdependent. Design work may begin with any one of them.

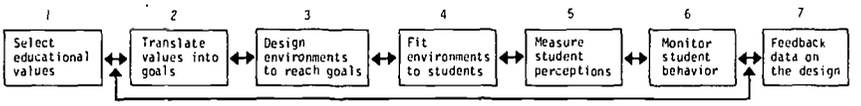


FIGURE I: Design Process

If one were building a new school, the process of campus design would start with the selection of educational values and follow on through the sequence of steps. However, the usual situation is that the school is in place, its values and goals published in the school catalogue, and its programs and policies embedded in its systems' functions. Very often students and school will hold the same values and espouse similar goals, but the environments in which these operate will have become so inadequate that campus members will no longer see the campus environments as supporting these common values and goals. The issue becomes one of mapping those aspects of the environment which make campus members feel that the school's values and goals are different from or in conflict with their personal values and goals.

In other instances, the school's values and goals will indeed be different from those held by students. The school may want to change its environment to fit students by establishing new values

and goals or by diversifying values and goals. Or the school may want to fit students to its environment by changing the school's admission policies.

In these more usual campus situations, the design process would tend to be used first as a means to eliminate undesirable environmental stimulations. The designers would likely begin the process at Step 5, measuring student perceptions of the environments, and then work back and forth among the other process steps as they match environments with students and values with goals. For example, the designers can use various instruments that have been developed to measure student perceptions of school. Results from these tests will indicate those areas in students' lives which are unsatisfactory or distressing. The designers can then refine this information through student interviews to map out specific features in the environment (environmental referents) which cause students to be distressed or dissatisfied. The designers will also want to study what kind of student behavior the environment in question produces. Having determined the environmental causes of distress and resultant student behaviors, the designers will next discuss these findings with appropriate campus members.

Several things may be learned as a result of these conversations. It may be that the environmental irritation results from existing programs or policies that are vehicles for achieving different goals from those held by the students. The designers and appropriate campus personnel must determine whether or not the school should shift its values or diversify its values to be more supportive of student values; then the designers may engage in planning new programs and policies to implement goals which flow from the new values. If the decision is to retain the original values, the designers may engage in planning various methods to recruit students holding similar values.

Or the designers may learn from their conversations that the values and goals of students and school are much the same, but that environmental irritation results from programs and policies which no longer serve these values and goals, and which may in fact be blocking their achievement. Then the designers will work on developing new programs and policies that will create environments with better means for achieving the values and goals.

Successful campus design, wherever the process is begun, for whatever reason, will depend upon how well the designers can:

Achieve consensus among the various campus constituencies on educational goals.

Translate environmental goals into campus structure.

Fit structures to campus members.

Determine how the campus environment is viewed by students.

Relate student environmental perceptions to specific environmental referents, i.e., policies, curriculum, faculty-student relations, programs, services, etc.

Measure resulting student/environment transactions and relate this information back to original goals.

There are many instruments and techniques already available for the designer to use in implementing the ecosystem design process. As designers work with these techniques and instruments, they will be able to determine which of them can best be adapted to the design process and what new tools are needed. Undoubtedly, as designers become more proficient in the use of the process, they will develop new tools.

The design process can be implemented at different levels, which we label I, II, and III. In the ecosystem model, Level I is concerned with designing environments that will serve large numbers of students. In mapping out student/environment matches and mismatches, the process uses population assessment instruments[4] to determine students' perceptions of the campus environments. Among other tools and techniques the designers can use are data acquired by various campus offices and data from other testing programs and surveys conducted on campus. In addition to collecting generalized data, the designers will want to conduct personal interviews to ascertain specific environmental referents causing certain perceptions.

Level II of the ecosystem model is concerned with designing environments for specific groups on campus. Thus, the designers use such group assessment instruments as group auditing, the Delphi technique, and study of group processes to determine the congruities and incongruities groups are experiencing with their environments. Of course, results from population assessment instruments also identify broad categories or groups of students experiencing negative reactions to the environment, and designers find data collected in this manner useful as well.

Level III of the ecosystem model is concerned with the individual and campus environments. The designers will use such individual

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[4] Instruments which lend themselves to use in the ecosystem design process are: Activities Index, College Characteristics Index, The Environmental Assessment Technique, Inventory of College Activities, Transactional Analysis of Personality and Environment, Institutional Functioning Inventory, and Institutional Goals Inventory.

assessment techniques a. the Student Profile of Environmental Transactions (see appendix) to assist them in determining the student's environmental preferences and general student/environment fit. The designers will also need to assess the student's life space against a profile of the student's tolerance to different types of environments to determine environmental needs and better student/environment fits.

The design process can be utilized by any concerned person on campus. Campus-wide design (Level I) would most likely be handled best by a centralized facility, a design center. At Level II, any unit of the school, such as academic departments, residence halls, or student centers, might carry out the design process. At Level III, it would be in order for various student services, such as the counseling center, mental health service, or academic advising unit, to use the design process.

Levels II and III particularly lend themselves to designing environments with only a modest expenditure of monies and manpower. Even at Level I, some elementary designing of campus community environments can be done with a minimum of extra manpower and cost.

As the benefits of intentionally designed campus environments become recognized and as greater knowledge is acquired about how environments on campus interact to have a cumulative effect upon the quality of educational life, we believe a commitment to campus-wide designing will be viewed as necessary. And so a number of skills from many disciplines and sources will be needed, and the coordination of environmental designing will become critical.

### *A Design Center*

A separate design center on campus would best accommodate campus environmental design needs. Such a center can accommodate the type of multidisciplinary and community representative staff needed to operate the ecosystem model and develop the authority necessary to cut across the real or imagined boundary lines extant on campus. It can take responsibility for institutional/environmental studies, coordinate individual efforts for maximum effectiveness, and provide a centralized place where all study results can be compared and stored. In many instances, separate findings may be grouped together to give a more comprehensive picture of patterns and trends which originate from or are reinforced by several campus sources. This type of information is essential for designing environments which will have broad impact. A center can also generate the skills and manpower necessary to act upon information in a coordinated manner. It is in the best position to command the resources needed to attract various types of campus or community expertise to conduct studies and research and to create campus designs. Campuses with offices that have research capabilities have

a head start toward the development of such a design center.

The ecosystem model uses the concepts of centralized data gathering and campus design center in several ways. The center is advisory to the administration in that it constantly monitors campus conditions and can suggest new approaches and designs. The center is advisory to the campus community, its agencies and people, in that it can provide various types of consultative services. Each part of the university--students, staff, faculty, administration, and so forth--have input into the running of the center through some form of representation.

Just as the design process at the three design levels uses different tools and techniques, different personnel as key designers, and different strategies and aims focused on different targets, a design center would also operate in different ways at the three design levels.

*Level 1: Campus Community--Macrodesign*

At this level, the design center initiates activity. The decision to act may have been prompted in a number of ways. Faculty, students, or administrators may have identified a problem. Data gathered and studied at the center may have indicated a problem. Campus events may have signaled conditions in need of investigation. Or the case might be simply that the time has come to evaluate what is happening and whether the campus is functioning as well as it thinks it is or as well as it wants to function.

As the center begins its work, it will use such tools as population assessment instruments, retrieval of selected information from institutional data tapes, and surveys to determine campus environmental priorities and perceptions of campus environment. The center, through an array of discipline expertise and perspectives represented on its staff--e.g., sociologists, human behavioralists, environmental planners, architects, and specialists in system analysis--will interpret the data collected and suggest designs for environmental alterations or designs for new environments where appropriate. Since the macrodesign must work with environmental factors that have influence over great numbers of students, the design must deal with campus units that have far-reaching environmental effects. Therefore, the school's major components--administration, student body, trustees, curriculum, policies, etc.--are the targets for macrodesigns. Strategies will vary depending upon the design's aim.

*At one of the center's advisory committee meetings, students' and regents' representatives voice concern over the school's intellectual climate. The center begins to study the issue. It uses the College and University Environment Scales to assess student and faculty perceptions. The college's score (norm) on the CUES*

*scholarship scale shows that both groups perceive the school as nonacademic and little involved in the affairs of the mind. Follow-up interviews reveal, among other things, that the faculty feel little scholastic stimulation in their environment and students feel some of the curricula offer little scholastic challenge. The center's strategy is to organize a task force of members of the faculty, student body, administration, and regents to design environmental changes they can implement which will improve the intellectual climate of the school. The task force's strategy is to initiate several programs, including curriculum review and upgrading, increased library collection, an honors program, and a lecture series for visiting scholars. Two years later, everyone at the school perceives it as offering an intellectual atmosphere, and the image of scholarship is emerging.*

*Level 11: Groups on Campus--Microdesign*

At this level, the design center may initiate activity, or a group on campus may seek its help. It may be that in the course of watching the ebb and flow of campus conditions, the design center becomes aware of student groups that find their environment at variance with their values or goals. The center can approach these groups with an offer to assist them in developing programs or policies that will be more compatible with their aims. Or student groups can ask the center to help them with problems they are having a hard time overcoming. Because environmental design will be specific to group needs, the center's activities will be both narrower in scope and decentralized, moving out to those areas on campus that are most significant to the group.

In working with groups, the center may again use various population assessment instruments, but it can also employ assessment methods such as auditing group process and dynamics to determine environmental perceptions, priorities, and needs. There will be a corresponding shift in the type of people the center will draw upon for designing new or altered environments. The group's natural leaders and/or elected representatives are essential in the design process. Where they exist, the school's ombudsmen may be needed. Professionals who have expertise in community change, either from the center's staff or recruited from elsewhere, will also become involved in the process.

The range of groups with which the center may become involved is limited only by the type and number of groups existing on campus. Some of the groups will have their origin in ethnicity, living place, political allegiance, or other special interests. Other groupings could be underachieving students or students who are experiencing career choice problems.

The designs which can emerge for groups can be infinite. In general, designs will aim to increase the group's psychosocial competence and locate or create compatible campus environments that

will accommodate the group's values and goals.

*A growing number of students feel the school is not interested in the plight of a ghetto community near the campus. As this feeling spreads among the students, members of the center's design staff research the array of campus programs and note a lack of any community projects. The center arranges a meeting between the group's leaders and administrative spokesmen. At the meeting the decision is made to initiate some programs, and the center staff acts as a broker between community leaders and students to match up community needs with student interests. Before long, students are participating in several community programs. There is a growing awareness on campus of the community's concerns and the feeling that the school, through its community projects, is helping.*

*Level III: Individuals on Campus--Life Space Design*

At this level, the center can act in a number of capacities. It may help other campus agencies apply the model to evaluate and design environments for the individuals they serve. It may conduct research for these campus agencies. It may act as a broker of environments, helping agencies locate existing environments that will serve individual needs. A center, by virtue of its own functions, will have accumulated a great deal of information so that campus agencies will find it a convenient resource and consultant.

The people directly concerned with the individual life space design process will usually be staff members of a student service. In the course of working with students, the counselors, psychologists, psychiatrists, or social workers will be able to identify aspects of the student's environment which are causing problems. This may result as a natural outcome of conversations with the student or from various test results which give a profile of the student's environmental transactions.

In order to match the student to environments with less abrasions or with more features to help the student's growth and development, the staff person can call upon the design center for an inventory of environments on campus which contain the features deemed necessary. It may be that another dorm would be more compatible for the student or that some groups exist that would be beneficial for the student to join. In this instance the design center functions as consultant and a broker of environments.

*A female student takes an overdose of sleeping pills. After emergency treatment, she becomes a client at the mental health clinic. In the course of working with her, her counselor finds an appropriate time to have her fill out a Student Profile of Environmental Transactions. The counselor follows up some of the test answers in a subsequent interview. Analysis of the student's profile reveals she has found few opportunities for self-expression on campus, few*

*of her behaviors are paying off, she is involved in few activities, and has few friends.*

*The counselor and student discuss her present environmental shortcomings and they decide it might be beneficial to restructure part of her campus environment. As a result of this decision, the counselor calls the design center for an inventory of campus/off-campus environments which would encourage the student to express herself, gain competence, occupy free time, and develop friendships. The counselor provides the center with a list of some of the student's interests, including her love for children.*

*A center staff member draws up a list of possible environments, and meets with the counselor and student to talk about the environments and what they have to offer. They all decide she would find working in a community day care center very exciting. Arrangements are made for her to do volunteer work at the center.*

*An evaluation some months later shows the student feels her environment gives her opportunity to express herself, that she has gained status, that her free time from study is occupied, and that she has developed friends among the center staff and other student volunteers.*

### *Carry the Process Further*

As the examples illustrate, campus environments can be designed for many purposes. Designing out undesirable environmental features or designing in new features to plug environmental loopholes is necessary, of course, but the design of campus environments can also be carried even further with much greater benefits. Environments can be designed to compensate for deficits within individuals, groups, or community. The ultimate aim can be to bring the individual, group, or community up to a level at which the deficit is no longer a deterrent to optimal functioning.

Other environments can be designed which will enhance individuals, groups, or communities and enable them to more fully realize their objectives. Environments may also be designed that expose individuals, groups, or communities to new stimuli, which enable them to develop potentials they might not otherwise have been aware of.

### *Using the Design Philosophy and Process on Your Campus*

For existing campus units or a college or student service administrator or faculty member interested in creating environments that will enrich the quality of educational life, we recommend that a first step be a commitment to collect and study data from the many sources on campus. The second step is to apply this knowledge in a manner that will improve environmental conditions.

Most campuses have a wealth of readily available information. All too often, these data have been collected for purely descriptive reasons. Or the data have been applied to only one problem when they might be useful in designing whole campus environments. If the data scattered among the many campus offices were pulled together and studied for their meaning in relation to the ongoing processes of the school, an important step could be taken toward understanding the student's interaction with the school's environments.

For one simple example, the academic calendar may well provide a valuable predictor of stressful stimuli when studied in relation to the student flow at counseling centers, health services, mental health facilities, and student personnel offices. Periods of high stress can be identified. It is then possible to make changes that will eliminate or decrease the stress, to design preventive measures, or to develop programs that will assist students to cope during the stressful periods.

The typical college admission application is a storehouse of demographic information. Both major national college admission testing programs, ACT and CEEB, have a student profile section as well as psychometric measures of ability. Many campuses test incoming students on a variety of personality measures. Results from these sources can be used to study the composition of incoming students and to identify their needs. The needs can in turn be studied in light of the school's environments to determine if any changes are needed to better serve those needs.

Registrars' files bulge with data concerning academic achievement, attrition rates, changes in academic majors, grade patterns, etc. Counseling and student personnel centers often have statistics from research on academic vocational interests. Some schools have an office of institutional research which can provide information on faculty and staff composition as well as results of surveys conducted on special issues. If these types of data were collected from their separate repositories, they could prove helpful in determining the academic settings and factors which inhibit or enhance student learning.

Within various deans' offices there will be found information on policies and procedures. These have direct bearing upon the type of environment students will encounter. Across campus or down the hall, student services such as counseling, health, financial aid, and reading and study skills are able, through their student contacts, to identify those policies and procedures which are productive or nonproductive in facilitating student growth. Yet the information used in the formation of policy is seldom compared with the information developed about the consequences of policy, except in times of crisis. Greater progress could be made in designing campus conditions conducive to learning if these two streams of information were brought together and studied.

Certainly there are confidential data in each campus office, and confidentiality must not be violated. But many times these data can have their uses in studying student/environment fit. The confidential nature of the data need not be divulged to extrapolate its meaning in terms of the environmental properties of a problem.

*A counseling center became aware of an influx of students presenting feelings of isolation, lack of social contacts, and fear of physical assault. These students received individual help, but the information gathered in the process pointed to environmental factors that exacerbated their problems. They all lived in a trailer park provided by the college. The counseling center staff looked at conditions in the trailer park and learned that it was isolated from the center of campus and had no recreational or social facilities. A check with campus security revealed that the park had recently been victimized by petty robberies.*

*In this situation, the counseling center had done the mapping necessary to determine that student/environment fit at the trailer park was poor. Neutral data has been assembled. Neither the students' personal identities nor their specific problems had to be compromised in showing that a number of students who lived at the trailer park had sought help from the counseling center. The physical properties of the trailer park had been identified together with statistics on robberies at the park. Now the counseling center can apprise appropriate campus units of the poor student/environment fit at the trailer park and the way will be opened to remedy some of the factors aggravating student problems.*

### *Implications of the Ecosystem Model for Mental Health Services and Counseling Centers*

Adoption of the ecosystem model by no means eliminates present mental health activities. It does require relating student distress to environmental factors and transmission of information about student/environment fit to decision making and policy making units on campus, or to a design center, if one exists. To use the ecosystem model and become involved in campus design, mental health activities will need to enlarge their perspectives.

To address campus problems, services will need personnel with a nontraditional approach to mental health, who are willing to experiment with new preventive and therapeutic techniques, interested in investigating cause-and-effect relationships, and able to communicate effectively with people of diverse disciplines and backgrounds. The ecosystem model expects mental health personnel to work with community members in designing preventive and developmental interventions, rather than expending all their energies on treatment. It expects mental health personnel to meet with students and other campus members in a variety of settings on and off campus, rather than always in the consulting room. To further illustrate the

type of changes required of mental health activities, the following table summarizes a few comparisons between traditional and ecosystem mental health models.

| Traditional | Ecosystem |
|---|---|
| 1. Follows medical model. Student is defined as ill and treated. | 1. Considers not only characteristics of student, but also characteristics of environment and transactional relationship between student and environment. Environment can be defined as ill and treated. |
| 2. Primarily concerned with aiding student to cope with environment or transition to another environment. | 2. Concerned not only with aiding student to cope with environment, but also with modifying environment to encourage student development. |
| 3. System is generally passive. Action initiated only after someone outside the mental health facility, i.e., the patient (student), or the person making a referral makes a problem known. | 3. System is active. It attempts to identify student and institution characteristics and works on designing appropriate student/environment fit. |
| 4. Requires a problem to develop and become symptomatic before any action can be initiated, often after it is too late to salvage the educational experience. Is relatively less concerned with prevention than with treatment. | 4. Attempts to anticipate problems and initiate remedial action before the situation is beyond salvage. Is relatively more concerned with prevention than with treatment. |
| 5. Tends to be isolated from the rest of the institution. Limited efforts to inform students of resources available. Limited participation with other elements of institution in sharing information. Limited participation in decision making. | 5. Encourages active participation with rest of institution through gathering and disseminating information and becoming involved in decision making process. |
| 6. Reaches a limited proportion of the population (primarily students who define themselves, or are defined, as needing help). | 6. Has potential to influence a larger percentage of the population (unnecessary for students to be defined as patients or clients). |

The role of counseling centers is also expanded by the ecosystem model. Their relationship with both administrative and academic units is much closer, and they assume a double function as a learning system within higher education.

The design of educational environments requires the knowledge counseling centers gain through their research activities and student contacts about the effects campus programs and policies, living and classroom conditions, have upon students. In the ecosystem model, counseling centers must transmit this information to appropriate policy and decision makers, or to a design center. This can be accomplished by having counseling center staff participate on administrative and academic committees, or in a design center. Whatever means are developed, the important factor in the ecosystem model is that counseling centers engage in the necessary function of educating the higher education system about its various impacts upon the educational environment and students.

Within a counseling center's more traditional activities--evaluation and vocational/educational guidance--the ecosystem model requires that these functions be related to campus environments and their impact on student learning. By taking this more comprehensive view, counseling center staff can create educational environments and programs or help other parts of the school set up educational environments and programs as the students' educational needs change. Thus the counseling center is active in the students' education and instrumental in the provision of educational experiences which go beyond usual academic formats and are tailored to specific student needs. In the ecosystem model the expertise represented on counseling centers staffs is used to design educational environments which can compensate for student deficits, facilitate student growth, or develop latent student potentials.

*Summary*

The ecosystem model is based upon the transactional view of students and their environments. It assumes that environment has a shaping effect upon people and that people have a shaping effect upon the environment. Different people will respond or function differently in different types of environments. The hope is to design and fit environments to people so they can achieve their greatest potential.

Today's higher education system fosters environments which do gross disservice to the people living in them. We believe this has happened as a result of environments being left to evolve on campus without study or evaluation of their interactions and subsequent effects upon learning and educational goals. We think higher education and its students would be better served if environments were designed with educational objectives in mind. The challenge is to be able to map out specific features in these en-

vironments which cause harmful student/environment transactions and determine the educational values underlying these features in an effort to design better environments which will serve both institutional values and student learning.

To accomplish its goal, the ecosystem model uses an interdisciplinary approach for the make-up of its design personnel and design process. It requires input, accessibility, and collaboration from all elements of the university. It requires clarity of educational values and objectives. It requires a consistent monitoring of values and objectives and of causes and effects in student/environment transactions.

The concept of an ecosystem design center establishes areas of competence, responsibility, and accountability, and eliminates duplication of effort. The design center concept is also a vehicle for frequent exchange of ideas and information and frequent appraisal of campus values and goals.

Using the ecosystem approach to design campus environments will, in most instances, generate considerable initial turmoil, because cherished and protected activities, policies, and practices will come under review and reevaluation. Those policies or practices which fail to support defined values and objectives will be changed or discontinued. Values no longer viable will be dropped.

This process could make many campus members anxious and defensive. Care and no doubt considerable time will be needed for educating campus members about the model, its philosophy and implementation. Certainly emphasis needs to be placed upon the fact that the ecosystem model not only requires that design values be explicit, but also requires every element of the campus to be represented in determining what these values will be. Furthermore, the process calls for continuous feedback to evaluate designs and uses all types of assessment tools to determine student/environment fit--which will also feed back information on the effects of designed environments once they are in place. Thus campus members can be reassured that they will have input into the design's conception and a voice in the design's evaluation.

As campus members become familiar with the ecosystem design process, we believe they will regard it as a valuable means for building a better quality of educational life, enabling them to create environments which will maximize their growth and development.

# APPENDIX

## *STUDENT PROFILE OF ENVIRONMENTAL TRANSACTIONS*

Leland Kaiser

1. What opportunities for self-expression do you use on this campus?
2. Which behaviors of yours are paying off? What rewards or satisfactions are you receiving?
3. How do you spend your time outside class? What is the usual frequency and duration of each activity?
4. What incentives do you feel here for continued self-development?
5. Where on the campus do you feel needed or important?
6. What accomplishments have you felt during the last semester?
7. How many students would you call "friend?"
8. Who is your role model on campus? Who is your hero or heroine?
9. What threats (physical, psychological, social) affect you here?
10. What are your life goals and how are these being implemented at this college?
11. What skills and abilities have you developed here?
12. Are you in some way helping other individuals? How many?
13. Are you involved in a love relationship?
14. What do you do for variety or change of pace?
15. To what extent is your life ordered?
16. In what groups are you active on campus?
17. In what kind of community activities are you active?
18. Do you need emotional support or reassurance? How do you receive it?

19. In what areas do you feel you are lacking? In what way would you change yourself?

20. Are you free to change? What parts of your campus life are not under your control?

21. What things would really stimulate you on this campus?

22. Who depends on you?

23. What do you dislike most about this college?

24. What things have you wanted to do but couldn't? Why?

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