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EDUCATIONAL INNOVATION IN NONACADEMIC LEARNING: A CASE STUDY USING ADMINISTRATIVE SERVICE ELEMENTS OF MICHIGAN STATE UNIVERSITY

By

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ABSTRACT

EDUCATIONAL INNOVATION IN NONACADEMIC LEARNING: A CASE STUDY USING ADMINISTRATIVE SERVICE ELEMENTS OF MICHIGAN STATE UNIVERSITY

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Educational innovations have improved the ways in which students are taught in the classroom. Very little effort has been made to examine the potential resource of nonacademic administrative departments to provide a relevant career experience. Particularly in the light of present fiscal difficulties in higher education, the need for auxiliary educational services is substantial.

This study examined the potential of nonacademic administrative elements of the university providing such an educational experience. By using a case study department at Michigan State University, the concept was explored. The Waste Control Authority was conceived as an administrative department within the university business-service area to alleviate waste and pollution problems that arise in maintaining a university community of 60,000 people.

At first, no consideration was given to the educational opportunities for students in the Authority. However,

the interest of many students in environmental programs and recycling, coupled with a shortage of personnel in the department, provided an opportunity for career education. The program grew to a point at which students were actively solicited to contribute to the staff of the various projects undertaken by the Authority.

The more recent efforts to develop this innovative concept have included a planned, deliberate approach with cooperative academic departments, student personnel, and placement offices. Different aspects of the program now encompass independent studies, seminars, graduate student assistantships, and post-graduate employment placement. The graduate assistants employed to date have all been able to secure responsible positions in industry and government following graduation. The program has spread to other departments and other universities.

The study also examined the exportability of educational potentials in nonacademic departments such as those undertaken at the University of Michigan, the University of Minnesota, and several other institutions of higher education. Comparisons were drawn between these programs and Michigan State University's endeavor, and criticisms were offered.

The concluding chapter is an analysis of the program of nonacademic administrative education. The potential

for the future and recommendations for change were discussed. A model department was constructed and put forth as a blueprint for future operations of this nature.

This dissertation is dedicated to
my parents
Joseph and Dorothy
and my wife
Paula
for their support, understanding,
and faith in me.

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I wish to thank the many administrators, faculty members, and students at Michigan State University for their support and contributions to this project. I was audacious to undertake the project and am gratified to have achieved some new concepts. I am grateful to have had the support of Dr. William Sweetland, my advisor, committee chairman, and confidante. His advice and direction were invaluable in winding through the maze of a doctoral program.

I wish to thank the following guidance committee members for their contributions and suggestions throughout the doctoral program: Dr. Richard Featherstone, Dr. Jacob Hoefer, and Dr. Julian (Bob) Brandou. Recognizing the departure from their particular fields of study, these men nevertheless drew upon their many and varied experiences to suggest areas of concern or broader horizons.

To Drs. David Bing and Harold Sadoff, who helped when the night was blackest, and later to Dr. Mike Born, who encouraged me to earn a Ph.D. in Administration and Higher Education, I extend my appreciation.

A very special thank-you to the staff of the Waste Control Authority, who shared their ideas and showed

marvelous patience in the undertaking. Their faith and exuberance never flagged, and for a while they discovered Camelot.

Finally, I acknowledge the very special few who believe and support the need for a new and brave order. "You see things as they are; and you ask 'Why?' But I dream things that never were; and I ask 'Why not?'" [George Bernard Shaw as paraphrased by Robert F. Kennedy].

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CHAPTER I

THE PROBLEM

Introduction

The last two decades have seen enormous pressure for change in the American educational system. Russian accomplishments in 1958 with the Sputnik satellites caused a major expansion of science and engineering curricula throughout the United States. The Civil Rights movement of the 1960's placed added pressure on the educational system to encourage the entrance of minority students to colleges and universities. The post-war "baby boom" resulted in more and more potential college admissions.

Additional pressures that have been placed on the higher education system include anti-war demonstrations, student unrest, environmental awareness leading to militancy, and the general feeling that college students are estranged from society through liberal, activist beliefs. The overall catchword on the part of students has become "relevance."[1] In education, relevance is the attempt to relate, in a pertinent manner, classroom learning with "real-life" experience.[2] The search for relevance has been a concern not only of students, but also of faculty, administrators, and the general public.

The growth of higher education in the late 1950's and the 1960's, as measured by increased admissions, new building construction, faculty expansion, and the huge influx of administrators and staff, both resulted from and stimulated an expansion of funding from public and private sources. These monies for higher education came from the federal government in the form of research and construction grants, scholarships, fellowships, matching funds, and several titles, acts, and laws. Expanded funding came from the states through higher appropriations to colleges and universities; money also came from private foundations, industry, increased tuition, and other sources. In many cases, the increased funds and expansion of monies for higher education resulted from the above-enumerated pressures for relevance.[3]

The tremendous growth in higher education since World War II has been accompanied by the need for funds to support innovative programs and instructional techniques. In the 1950's, education using closed-circuit TV was emphasized as innovative. In the 1960's, there was a rise in the use of programmed instruction. In 1975, the need for innovation is just as strong. Institutions of higher education are still trying to meet these needs. Some examples of recent changes in higher education include the "open door policy,"[4] women's rights and equality, life-long education, and competency-based teacher education programs.

What has changed is that the funds that were previously so readily available to provide for innovative programs are drying up. For example, in 1975, the Ford Foundation announced a 50 percent cutback in foundation grants to higher education.[5] Colleges and universities are feeling the loss of "preferred status" in obtaining funds and the increased competition for social services expenditures by federal and state agencies. The overall budget for higher education shows decelerated growth. When decreased budgets are coupled with economic inflation, recession, and less revenue from fewer students enrolled, it means it is now extremely difficult to establish new programs. As Magarrell pointed out, "Higher education is suffering from the most severe deceleration of growth in U.S. history according to the Carnegie Foundation for the Advancement of Teaching."[6]

Universities must continue to search for new ways to provide students a relevant education. The ability to compete successfully in society as a wage earner probably can be more readily fulfilled if one has had some experience beyond formal classroom training. Employers are in a "buyers market" and grade point average, the internal

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Note: See also "Less Money Is Available to Higher Education, College Management, 1971; "Pressures on Higher Education," College and University Journal 12 (1973); and Carnegie Commission on Higher Education, Priorities for Action: Final Report of the Carnegie Commission on Higher Education (New York: McGraw-Hill, 1973).

measure of college achievement, may be less important in the job market than on the campus. According to the Department of Labor's Bureau of Labor Statistics, by 1985 the number of college graduates will exceed by about 800,000 the number of jobs requiring their skills. As a result, college graduates are

> . . . likely to obtain jobs previously held by individuals with less than four years of college. Problems for college graduates will more likely be employment below the level of skill for which they were trained, resulting in job dissatisfaction and high occupational mobility rather than unemployment.[7]

Terrel Bell, U.S. Commissioner of Education, recently wrote:

> Many educators would quarrel with listing a salable skill in any list of requirements for becoming a truly educated person. Others might grudgingly permit a salable skill to be listed but would quarrel with listing it first.
>
> Nevertheless, in my view, many colleges and universities face declining enrollments today simply because they lack a strong commitment to this first and foremost requisite. Many would argue that a student need merely master the basics in the liberal arts and humanities to be well on the way to becoming educated. As I see it, this is far too narrow a view of education. Education is preparation for life, and living without meaningful work is just not living life to its full meaning and purpose. Certainly education for employment does not represent a total education policy. The liberal arts will always have the place as the heart of the curriculum. But we need to liberalize vocational education--and vocationalize liberal education. In the process we will attain the full purpose of education.[8]

Statement of the Problem

Financial support to provide resources for change in higher education programs is declining, but the need for

innovation still persists. Universities are being called on to search for new ways to provide relevance in higher education. It is possible that mechanisms, experiences, and new materials may already exist within the present structure and system. How institutions provide innovation without the traditional financial support they have previously enjoyed is the general subject of this dissertation. In particular, by using a nonacademic administrative department within the university as a case study, the study examines how relevant educational experiences may be acquired.

Purpose of the Study

This study focuses on the use of existing university administrative facilities as an adjunct to the educational process. It is an attempt to extend what is learned in the classroom by drawing upon resources that are already available in the university.

The concept of nontraditional, alternative education has been incorporated in continuing education by its proponents, who, by and large, are interested in vocational and applied development. What differentiates this approach from youth-oriented public education is the ever-growing retraining and post-training of adults and professionals. The supporters of continuing education, as one of their major goals, wish to educate adults to function more effectively in their society by a decision-making process.

Such education is therefore directed more toward a specific goal, established by the sponsors, and not toward a liberal arts program involving a full-time commitment over a period of years. Continuing education thus has a series of sponsors that are easily differentiated from those of traditional programs; such education results in a more literate, skilled, and progressive clientele.

The following purposes are pursued in the dissertation:

1. To create a structural format for using non-formal education potential within an existing formal university structure.

2. To examine how administrative service elements can be an educational resource when used in a systematic manner to provide educational learning opportunities.

3. To identify student objectives and evaluate student performance, i.e., learning, in regard to relevant experiences obtained with the administrative case study. Relevance here is defined as the application of formal classroom learning to job requirements and functions.

4. To provide a case study for other departments, colleges, and universities that might be interested in developing similar educational programs. Although the case study involves the specific subject areas of natural resources, environmental protection, and recycling, other

unrelated areas are also discussed. Examples of the exportability of the case study are also given.

Case Study Background

By using a comprehensive case study, i.e., an existing administrative unit such as the Waste Control Authority at Michigan State University, the benefits and disadvantages associated with a planned, systematic approach to providing relevant educational experience can be analyzed.

The Waste Control Authority began operating as an administrative office of the University in January, 1972. The Authority is related to the business-service elements of the University through the Office of the Executive Vice-President, to whom the Authority and the Director report. Duties and responsibilities include coordination of the total waste disposal activities and long-range development of pollution, environmental, and waste-management effectiveness.

The educational aspects of the Waste Control Authority were initiated originally because funds were not available for a paid full-time staff. As a result, students were hired as part-time employees. They, in turn, informed other students of the opportunities available and soon many environmentally concerned projects were begun. The relationship between the Authority and academic departments developed gradually, originally as a minor

concern of the Waste Control Authority office activity. It soon became apparent that not only were the students using the program for course-related term papers and independent studies, but also the recycling and environmental action projects were benefiting from their input and ideas.

To develop further the potential of this program, it became apparent that systematic planning and organization were required. Through cooperative use of graduate assistantships with academic departments, research publications, and independent studies, a new learning-working concept evolved. In little more than two years, 25 students have become so involved.

Closer, more formal ties to academic departments have developed. The nonacademic learning program appears to be a relatively inexpensive and practical method of developing a new learning concept. It is an attempt to provide for the incorporation of sequential instructional programs in a variety of subject areas, to be discussed in the dissertation. An example could be a joint program with the Department of Resource Development. The relevant work experience a student gains in planning, designing, executing, and evaluating a river clean-up project would require prerequisite courses in resource development, limnology, management, and other areas. What is innovative here is to provide additional independent studies and later

an actual operational experience with the Waste Control Authority. This relates classroom learning more closely to actual experience.

Importance of the Study

The study is relevant in at least four educational areas. First, it appears that new monies for development of innovative educational programs will be more difficult to obtain in the future, whereas the need for innovation has not diminished. Second, little has been done in a systematic, planned way to exploit nonacademic educational opportunities that already exist in the present university system. The typical course-related measurement of student outcomes versus the measurement of work-based learning experiences is important. Third, it should be possible to overcome problems of achieving the "real-life" value of education by providing experiences applicable to a student's vocational ambitions during his years in school. Dressel pointed out that "discussions of curriculum too often are preoccupied with means rather than ends, with details rather than structure, and with causes rather than learning." He continued,

> Objectives are so inclusive, vague, and inconsistent that they satisfy no one, and no one expects they will be met. Moreover, faculty members think primarily in terms of their own courses, and most of the objectives do not define the conduct of a single course.[9]

Developments in liberal education include work-study programs and social and community service experiences.

The nature of nonacademic learning is closely tied to the concept of combining work and study--"believing that education would be enriched by applying to a job the concepts and principles learned in college. . . ."[10] The importance of this dissertation lies in examing educational values, including finding greater meaning in academics by relating theory to practice, human relations, and efficient use of facilities.

Finally, as Astin and Lee[11] and McKeachie and Solomon[12] pointed out, a traditional problem in education is the extent to which our educational system, as it is currently organized, actually can measure a student's progress. Do grades really reflect competence in "real life"? An alternative to the current measurement (grades) is actual observation of the student applying course-learned principles in "work" situations.

Methodology

Research Questions

The following research questions guided the study:

1. How does the Waste Control Authority as an administrative department interact with academic departments and programs?
2. What appears to be the potential of this case-study program for meeting student and university needs?

3. What problems and criticisms are associated with educational innovation as it pertains to nonacademic education?
4. How can other institutions develop similar programs based on this case-study evaluation?

Design

The dissertation proposal was submitted to consultants in the Office of Research Consultation, College of Education, Michigan State University for their comments. A total of seven consultants reviewed the proposal; their comments and suggestions have been incorporated into the dissertation.

As indicated previously, the dissertation is a narrative that used a case-study approach to trace specifically the development of educational innovations within an administrative support unit of the University. This particular support unit--the Michigan State University Waste Control Authority--was chosen because it is representative of nonacademic service departments and because of the planned, systematic manner in which relevant education was attempted, although not originally conceived of as such.

The specific design includes the following components:

1. Student reports, research articles, and their evaluations are examined to develop relationships between

the recycling program (work experience) and formal academic course work.

2. Several in-depth studies performed by students relative to environmental action programs are discussed. The subjects of these studies were mutually agreed on by the student, his academic advisor, and a representative of the Waste Control Authority.

3. The premise of this study is that the Waste Control Authority provides a relevant work experience for students with diverse backgrounds and majors. Examples of the variety of students in the program are reported, as well as the results of surveys on student attitudes and perceptions. Student workers who have graduated were contacted to see if they obtained their present jobs partially because of their work credentials and resultant recommendations; their responses are discussed.

4. Since other universities might conceivably implement similar programs, this study examines the potential exportability factor of such research. For example, the University of Michigan has begun a major study to develop an environmental education program based on the Waste Control Authority at Michigan State University. Their program is examined to determine what elements of the MSU program have been adopted. Other institutions have also expressed interest in the Waste Control Authority program. Some of these colleges and universities were

contacted to see if they have implemented any of the educational suggestions from the MSU program.

Limitations

The present study is inherently subjective. The writer is presently Director of the Waste Control Authority at Michigan State University, and thus can influence the interpretation of the case study. Every effort has been made to minimize subjectivity by applying rigid standards of impartiality and criticism, but many perceptions and beliefs can influence the conclusions reached.

The study is limited to a detailed examination of one particular case study, with supporting documentation obtained from other departments and other universities. It is recognized that quite possibly the generalizations resulting from specific case studies may become distorted.

The study is confined to examining educational innovation in publicly supported universities. It includes primarily large institutions that have a sufficient administrative staff to support this type of educational program. The data presented in the study are not primary information, but rather secondary interpretations of materials.

Organization of the Study

This dissertation has five chapters, which are organized according to the following plan:

Chapter I included an introduction, statement of the problem, purpose of the study, case-study background, importance of the study, methodology including research questions and design, and the limitations of the study.

Chapter II contains a review of the literature, which is divided into three sections. Section one includes a review of the literature relative to career education, cooperative programs, work-study programs, and examples of innovative education theories in higher education. Section two is a literature search on administration and organization models that are relevant to a discussion of innovative educational approaches. Section three includes the concept of continuing education and particularly the concept of nontraditional studies.

The actual case study used for illustrative purposes is reported in Chapter III. The first part of the chapter deals with the history and development of the Waste Control Authority, the second with administrative organization and guideline development, and the third with the educational case study or cornerstone from which the thesis is expanded.

Examined in Chapter IV is the exportability of the program. Similar programs at the University of Michigan and the University of Minnesota are examined in depth. The remainder of the chapter deals with Washington State University and the other Big Ten universities that showed

interest in recycling and educational projects derived from nonacademic resources.

An analysis of the concept of educational innovation through administrative service elements of the University is conducted in Chapter V. The analysis includes criticism of the case study and recommendations for improving the program. Also, a model department is proposed, in which the experiences and theories learned to date can be further developed.

Footnotes--Chapter I

[1]Clark Kerr, "Destiny Not So Manifest," in New Teaching, New Learning, ed. G. Kerry Smith (San Francisco: Jossey-Bass, 1971), pp. 245-252.

[2]John M. Smart, "Campus Crisis and Public Policy: The State Higher Education Agency," Journal of Higher Education 41 (1970): 365-376.

[3]Charles S. Benson, "The Effects of Federal Support on Allocation of Campus Resources," in Campus and Capitol, ed. John Minter (Boulder, Colorado: WICHE, 1966).

[4]K. P. Cross, Beyond the Open Door: New Students to Higher Education (San Francisco: Jossey-Bass, 1971).

[5]"The Ford Foundation: A Drastic Cutback," Chronicle of Higher Education 10, 7 (1975): 7.

[6]Jack Magarell, "Higher Education's Severest Slowdown," Chronicle of Higher Education, 10, 7 (1975): 7.

[7]Malcolm G. Scully, "A Glut of College Graduates?" Chronicle of Higher Education 10, 5 (1975): 1.

[8]Terrel H. Bell, "Should Colleges Teach Salable Skills?" Chronicle of Higher Education 10, 7 (1975).

[9]Paul Dressel, College and University Curriculum, 2nd ed. (California: McCutchan Publishing Corporation, 1973).

[10]Ibid.

[11]Alexander W. Astin and Calvin B. T. Lee, "Current Practices in the Evaluation of College Teachers," Educational Record 47 (1966): 361-375.

[12]W. McKeachie and D. Solomon, "Student Ratings of Instructors: A Validity Study," Journal of Educational Research 51 (1958): 379-382.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The review of the literature is divided into three sections because it parallels the aspects of administration and higher education that are germane to this investigation. The first part deals with such types of programs as cooperative programs, work-study programs, and career education. The development of the "earning while learning" concept is illustrated. Included also are a review of curriculum and examples of the innovative approach to education.

The second section deals with administration and organization and models that have been proposed for academic operations. The model discussed in this study is used primarily in administrative departments but involves educational concepts. Thus, it is important to develop a framework for understanding and accepting existing theory, from which to construct innovations.

Described in the third section of the literature review is the concept of continuing education. It is included because many of the ideas and applications of

nonformal education are used in this dissertation, but in a different setting.

Work-Study Programs, Cooperative Programs, and Career Education

According to Dressel, there is a great need for work-study college programs. He stated that Herman Schneider introduced cooperative programs at the University of Cincinnati in 1906.[1] The pattern developed at that time has had a continuing influence. Schneider felt education would be enriched by applying to a job the concepts and principles learned in college. Therefore, he grouped engineering students into two sections, which alternately attended class and worked. Schneider's first program alternated work and study on a weekly basis, but later experience has tended to favor alternation on a quarter or semester basis. The literature search indicated that all of these work-study programs were basically off-campus applications. Dressel discussed the advantages of work-study programs, but mentioned that these programs do pose problems for the institution and that they are not without disadvantages to the employer. Although cooperative programs allow employers to observe and attract prospective employees, they are expensive. Since the term of employment may be quite short, the tasks are severely limited. A student worker may be assigned to relatively unimportant activities, which can be dropped or

continued by other workers when he leaves. As a result, cooperative jobs are often eliminated in recession periods.

Some businesses that endorse cooperative education may favor a particular type of work-study program. Some programs rotate students from one organization to another over a period of years, whereas many companies prefer to have an able student work only for them and join their regular staff at the completion of his program. If an organization provides work for the same students on a rotating or part-time basis, that organization and the college share equally the responsibility of the program. The student may acquire seniority and other benefits that rotating from firm to firm prohibits. On the other hand, familiarity with only one organization may restrict the educational opportunities inherent in the program. Dressel concluded his remarks by stating:

> In the relation to continuing, sequence, integration, the work-study program contains both obvious advantages and obvious disadvantages. Relating theory to practice certainly helps to achieve integration, but only if the student's work experience is related in a meaningful way to what he is doing on the campus. This does not require that a chemistry major work in a chemistry laboratory every work time but it does require that the chemistry major not be assigned to typing and filing.[2]

There are other conceptions of a work-study program. The original concept was to have students work in small industries or in small communities to help transform their immediate environment and perhaps their whole society. Must current programs, however, emphasize work experiences

in large cities, large corporations, and national-international organizations. The student learns to adapt to rather than to change his environment.

In a few colleges, the old ideal work-study experience continues to exist in two slightly different versions. In one type, students assist in the maintenance and operation of the institution. This often reduces costs and also involves students and faculty in a community or family-type living in which each learns to accept some type of responsibility. In other cases, students help to construct buildings, usually with some expert supervision. Another pattern that exists in a few small colleges requires students to manufacture and merchandise small handmade goods. However, such learning experience has little relevance to the formal curriculum and could be justified only to develop responsibility, maturity, and citizenship. Probably all institutions employ a considerable number of students in various jobs. However, these jobs rarely relate to the student's course work, although occasionally a student will find work in his own department that uses and develops competencies related to his course of study.

Dressel commented on campus-contained work-study programs:

> Work study programs when contained within the campus have some value but fail to obtain the objectives of travel, increased responsibility, introduction to the world of work. Work study programs are more difficult

> to establish for students in liberal arts than for those in engineering, business, and other applied fields.[3]

Wilson and Lyons, in a study of cooperative education, performed a study requiring the assistance and cooperation of many people. They mentioned the beginning of cooperative education and explained that it expanded not only in terms of the number of students involved, but also in terms of different curricula in which students may enroll.[4] Most programs in cooperative education are in engineering education, but numerous programs also exist in other professional areas such as business administration and home economics, as well as in nonengineering science programs in the liberal arts.

Recognizing both expansion and extension of cooperative education and the fact that higher education will face many challenges during the next several decades, Kettering suggested and arranged for the Thomas Alva Edison Foundation to sponsor a cooperative education conference in 1957 in Dayton, Ohio. Representatives of more than 80 colleges and universities and nearly 100 firms that employ co-op students attended this conference on cooperative education. The purpose of the conference was to look at the existing models of cooperative education that offer active demonstrations of what may be one way of serving effectively some of the enlarging student population who will seek advanced education in the future.

Wilson and Lyons reported the outcome of the conference:

> The conference revealed that cooperative education had been adapted to a variety of forms of higher education: public-private institutions, dormitory and urban colleges, liberal arts and professional curriculum. There were many kinds of businesses, industries, and professions using cooperative education. Those experienced in the cooperative education are enthusiastic about its educational and social merits. However, they recognize the need for objective scientific comparison of cooperative education with conventional education.[5]

As a result of that conference, Wilson and Lyons' study looked at major aspects of cooperative education and compared students and graduates in cooperative programs with those not having the systematic coordination of work-study experiences. The results of their study demonstrated several important values in cooperative education, which successful programs were able to achieve:

1. Theory and practice were closely related.
2. Coordination of work and studying increased student motivation.
3. For many students, work experience contributes to a greater sense of responsibility.
4. Because the work experience involved the students in relation to co-workers, they were able to develop greater understanding of other people and skills in human relations.
5. Cooperative education orients college students to the world of work.

6. Cooperative education has important value, making higher education possible and attractive to many young people who can not otherwise afford to go to college.
7. As work programs are planned, the faculty is better able to keep in touch with business, industry, and some of the professions.
8. Because cooperative education is commonly organized, there is more efficient use of the college facilities.

To obtain these values, programs of cooperative education had to solve certain common problems. The recommendations included in the values were evaluated through coordinated work experience with the campus education program.

The study went on to explain how to improve present programs of cooperative education, extend existing programs, and provide more adequate information about the cooperative education program.

The writers concluded that whereas a cooperative plan is a single educational concept, in a sense a systematic work experience is introduced into the college curriculum. Each institution must set its own goals, and must have its own means for achieving goals and establishing organization and administrative policies in terms of institutional goals, student clientele, and other specific circumstances. This research examined cooperative

education in two different professional curricula and the liberal arts. In some programs students alternate between on-campus learning and work programs each year or each quarter. Some programs make cooperative experience mandatory; others have programs that are optional for the student and programs for which students are selected. The study indicated that cooperative education has made a positive contribution to society by attracting able young people to college and then providing them opportunities to continue their education.[6]

Lyman Glenny, in 1973, indicated the most important major trend in education, largely ignored, is the increasing tendency for those who want training in a great variety of skills and in career education to attend proprietary and industrial schools rather than traditional colleges and universities, including community colleges.[7] The shift in emphasis is toward occupational and career training rather than liberal education. The institutions that have responded most readily to this shift in goals continue to increase in enrollment. This trend is affected in the short run by business cycles, but the overall trend has been accelerating since the 1950's.

In Field Work College Education, Lynd wrote about field work, which includes systematic observation, participation, and research carried on outside the college. Such work has become an essential part of education in graduate

and professional as well as elementary and secondary schools. Only recently, however, have undergraduate colleges begun to extend their conception of material suitable for college education to include work in the field. Lynd noted:

> Contemporary demands on liberal education for actual results rather than labels. For breaking down the duality between life and letters. For more coherent and significant outcome of the years spent in college, a number of colleges should begin to include field work as a prominent feature in undergraduate education.[8]

Lynd went on to say that at Sarah Lawrence College a close relationship developed during World War II. All manner of informal contacts were available, as well as nursery school teaching and adult education classes. Individual faculty members, in addition to directing student projects, were active in establishing the position of the college as a cooperating agency in the community. Particularly during the war years, a system of cooperative education proved extremely valuable for both the students and the community.

The National Commission on Cooperative Education conservatively predicted that over 500 colleges would be involved in work-study programs by 1975. This estimate appears reasonable and seems to support the findings of Birch and McGrath, who showed that in 882 four-year institutions, 89 programs had been established before 1961.[9]

Educational Innovation

Many books and articles have been written on innovations in education, particularly in higher education. One such report is the proceedings of the Towson Conference on Curricular and Instruction Innovations in State Colleges and Universities.[10] In the conference summary the participants stated they had worked for a long time within a rigid framework in higher education. They tended to think of everything new in terms of courses, academic departments, and credit hours--the usual limitations and the usual straightjackets. They were still too inclined to encase every new idea in terms of a new course, whether in a two-, three-, or four-hour form, or a new department. They thought perhaps they should question this whole structure and that there might be another fruitful area for discussion to interject new elements into the curriculum. As they planned curricular innovations, they were told to guard against the mere introduction of new course titles and placing old courses in a new order. The overriding mood of questioning, the willingness to bounce ideas off each other, and the willingness to try some of the ideas, with or without grants, produced answers to what, at present, might seem to be the unanswerable.

Conference participants began to ask the questions that in turn would lead to improvement. They went on to talk about educators who believe independent study

might be the most productive and easily managed type of curricular flexibility. The use of independent study in the teaching-learning process will undoubtedly increase, for it appears clear that undergraduates must take more responsibility for their own education. The conference supported independent study for several reasons. It tends to improve the use of faculty resources, it can enable an instructor to recognize the wide difference in student characteristics, and it can preserve something of the personal touch in the face of increasing class size. The chief contribution of independent study well may be in the encouragement of more effective teaching and learning across the board, not just in the programs themselves.[11]

Additional examples of innovative programs were described by Matthew Miles[12] and Felix Robb,[13] and in a report entitled Innovations and Experiments in University Teaching Methods.[14] One of the major points made in the latter report was, "An increasing concern to achieve various long-term objectives in teaching arising from the demands of industry is that the changing situation is reflected in current innovations and experiments in university teaching methods." Perhaps most notable are methods devised to encourage students to be innovative by solving open-ended experimental problems, thinking creatively in a project, or undertaking some research. A response to the demand that students should learn to study more independently and

continue to teach themselves is also evident in these new teaching methods. But special provision for independent work is also being made by using audio-visual aids and programmed books to enable students to work at their own pace and in their own time. Still more recently, experiments have begun to investigate individual differences more fully and the interactions between personalities and teaching and learning, or to investigate preferences for different teaching methods associated with personality type. These investigations suggest a need for flexibility in teaching methods, and there is some evidence that such resiliency is also on the increase.

Relevance

In the mid-1950's, curriculum committees in mathematics, earth sciences, and physics were actively discussing, planning, writing, and experimenting with new content and more meaningful methods to present the material. By the end of that decade the trend was also underway in the industrial education field. As a result, a number of

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Note: Some of the other publications of note include Herbert I. Van Haden and J. M. King, Innovations in Education...Their Pros and Cons (Worthington, Ohio: C. A. Jones Publishing Company, 1971); Louis B. Mayhew, Innovations in Collegiate Instruction (Atlanta: Southern Regional Educational Board, 1967); K. G. Collier, ed., Innovations in Higher Education (Windsor: Society for Research Into Higher Education, 1974); Robert E. Lehti, Innovative College Management (San Francisco: Jossey-Bass, 1973); Leslie H. Cochran, Innovative Programs in Industrial Education (Bloomington, Ill.: McKnight and McKnight Publishers, 1970).

curriculum efforts in industrial education were funded through federal, state, and foundation sources to develop and experiment with innovative plans and programs for more adequate and accurate presentation of the industrial aspects of society.

As new educational programs have been developed in any field of specialization, certain basic questions have come to the attention of educators. For example, how does the plan fit into the total educational program? Is it really new or only a new title disguising old practices? Is it really better? What implications does it have for students and staff? These and other questions cannot be answered without a thorough understanding of the program and its relationship to the curriculum.

Industrial education has been in a constant state of change in the United States since its inception in the secondary schools. The contemporary stage is no different. In fact, the 1960's produced more modifications with wider implications than did any of the preceding decades. Acting on the impetus provided by Sputnik, "new frontiers" began to emerge. Technological development, automation, and other economic factors focused attention on providing students with a wider range of experience programs to meet "life needs" and activities directed at understanding our society. Based on these influences, new programs in industrial education were developed. New programs

incorporated innovative methods, plans, and ideas for meeting students' needs. With a large number of innovative plans and programs under consideration, however, it was difficult to forecast their influence.

If one phrase could be used to characterize the shifts in industrial education during the 1960's, it would be "to make education relevant"--relevant in the sense of content and teaching methods in relation to a technological society.

The Process of Education by Jerome Bruner provides a basis for effectively teaching a subject in an intellectually honest way to any child at any stage of development. Bruner summarized the most salient arguments for structure and instructional content by indicating: If one understands the fundamental ideas of a subject, it becomes more comprehensible if details are placed in a structured pattern; they are remembered better. If fundamental ideas and principles are understood, the basis for transfer of this knowledge is enhanced and the structure of this field is grasped with the gap between advanced and elementary knowledge narrowed.[15]

Industrial education, for the most part, was originated so high school students could gain some cooperative educational experience. This purpose has been expanded, however, to include college experience, seen particularly with the growing number of junior and community

colleges that are training students in a two-year vocational program. A common thread seems to run throughout these books, articles, and periodicals on innovative programs and innovative education; it can be summarized as follows: there is a concern for curriculum relevancy that can be illustrated by the need for curriculum innovation and implementation.

John Cantelon remarked that next to the family the college is the most threatened and problematic institution in modern American society. There is an increasing amount of uncertainty about both the goals and the methods of higher education. Until recently, it would have been ludicrous to ask whether the liberal arts college has a viable future; today it is not. Cantelon observed:

> A major problem in our colleges and universities may contain within itself some answers to the question of the issue of the relationship between academic institutions and their environment. Since World War II, colleges and universities have increasingly served the needs of the nation as well as their local community. Part of this increased service orientation was due to the important place university research played in industrial and military activities. But also it represented the increased support that higher education gained from the community in general. Unlike older colleges, modern institutions and higher learning exist without walls between them and the community, thus the traditional "town and gown warfare" is taking on entirely different forms and directions.
>
> But the cooperation between college and community has forced to the forefront a major issue regarding a function of higher education and our society. The question is whether a college or university should be a center for independent study and criticism standing detached from the community, or whether it should be a primary agency for social change within the community. This problem exists in many forms. It poses

> little difficulty if the community service is providing what society feels it needs to operate its various institutions as they are and to staff the professions as they are currently functioning. If this is understood, there is little debate. The university and college then regard it as an extension of the training ground of the establishment. Only a scattered voice of a few educational traditionalists would insist upon a greater emphasis upon pure research and social criticism than is now the case in state and industrial supported institutions. But this issue is a very touchy one when phrased in another form; that is, whether the university should bring its critical expertise upon the total reconstruction of society, including its institutions, particularly with respect to the urban crisis and the quality of human life.[16]

Curriculum

In College and University Curriculum, Dressel stated, "Discussions of curriculum too often are preoccupied with means rather than ends, with details rather than structure, and with causes rather than learning." He continued, "Objectives are so inclusive, vague, and inconsistent that they satisfy no one, and no one expects they will be met. Moreover, faculty members think primarily in terms of their own courses and most of the objectives do not define the conduct of a single course."[17] This statement is interesting in terms of basic considerations for planning a curriculum. According to Dressel, the five elements to be considered in curriculum planning include: (1) liberal and vocational education, (2) breadth and depth, (3) continuity and sequence, (4) conception of learning and teaching, and (5) continuing planning and evaluation. No

attempt has been made to incorporate these elements into a planned approach to the concept of nonacademic education. Particularly, as Dressel stated,

> Evaluation is essential to the selection of objectives. The choice among many conflicting views should be made by evaluation of the rationale and logic underlying these views. . . . Objectives are like traveling in that one may go where one wishes only if one chooses to go where one can.[18]

The developments in liberal education include work-study programs and social and community service experiences. The nature of nonacademic learning is closely tied to the concept of combining work and study--"believing that education would be enriched by applying to a job the concepts and principles learned in college. . . ." Several educational values can be gained from this program, including finding greater meaning in studies by relating theory to practice, gaining a better understanding of human relations, and making more efficient use of facilities.

McClatchy, in The College and the Student, said that a curriculum, to be relevant, must allow students to develop intellectually. He continued,

> Academic restrictions due to the programmed course of studies plus the increasing demands for specialization are indeed a major problem, and one that is seemingly insoluble. . . . The problems of restrictive curricula, inadequate counseling, unimaginative administrative planning, and failure to tap the creative resources of the students--are only a very, very few of the difficulties to be found today in American colleges. They have all been noted and debated for a long time now, and are still far from easy solutions. I am convinced that today's student is as deeply concerned about his education as are those actually in charge of

> it. He realizes that his future depends upon and is derived from his four or more years of higher education. He must be given every opportunity to enjoy the benefits that the really best education can offer.[19]

McKeachie, writing in the same book, felt that teaching quality is far more important than curriculum and that improvements in college teaching will come about only if the quality of teaching improves. He stated that curriculum planning occurs without taking into consideration the faculty who will implement it; rather, concern is expressed only with the structure of the subject matter. This viewpoint is relevant to the present study's proposal of using administrative service elements as instructional adjuncts. McKeachie continued:

> A curriculum in which teachers' contacts with students are distant or transitory is doomed to failure no matter what the logic of its arrangement of sequences or content. Teachers may learn how to be more effective teachers by observing the effects of their teaching and by having opportunities to try varied teaching methods. This implies that the teacher will have classes where choice of method is not restricted by size or by a curricular format which demands lecture, laboratory, or some other limited range of methods. It also implies opportunities to know the student as an individual and to observe and guide his development at more than one point in his academic career.[20]

Certainly the nonformal educational opportunity, as expressed earlier, has the advantage of a one-to-one interaction. The curriculum developed here must be integrated into the traditional, departmental objectives, but perhaps, of necessity, not be controlled by them. McKeachie concluded his remarks by saying:

> No curriculum is better than the teachers who implement it; and quality of teaching depends not only on the skill and dedication the teacher brings to it but also on the effect of the curriculum on the teacher's development. Thus, if one plans a curriculum for the ultimate objective of student learning, he must perforce plan it for the faculty as well.[21]

Beard and his associates wrote from a psychologist's viewpoint about behavioral objectives, which they felt should "state what student will be able to do at the end of a course of study which they could not do initially and to test the effectiveness of each course in terms of the achievement of these objectives."[22] Concerning the definition of objectives they warned,

> An attempt to define objectives and to design courses in any detail will limit students' goals and even the means they may choose to achieve them. If the educational technologist counters that a scheme of general objectives need not restrict learning in these ways, some teachers reply that the most valuable experiences in their courses cannot be defined at all or that any general objectives they could state would be so vague as to be meaningless. The majority of these teachers not only choose activities and offer courses of study for their students, but also set examination papers which enable them to set forth objectives. In the process, they then determine whether the resulting scheme will serve any useful purpose.[23]

Jerome Bruner, in The Process of Education, stressed the importance of structure in curriculum. He went on to say that

> The curriculum of a subject should be determined by the most fundamental understanding that can be achieved of the underlying principles that give structure to that subject. Teaching specific topics or skills without making clear their context in the broader fundamental structure of a field of knowledge is uneconomical.[24]

Bruner cited three reasons why such teaching is uneconomical: Generalizing from what the student has learned to what he will encounter is difficult, intellectual excitement is not rewarded, and knowledge or learning without structure to tie it all together is often forgotten quickly.

In Priorities for Action, the Carnegie Commission on Higher Education stated:

> Higher education experienced in the 1960's an increase in its total resources greater than ever before in its history. . . . Higher education does not lend itself very readily to permanent increases in productivity. Thus, its rising costs for salaries and other expenditures are directly related in the price it must charge to public or private sources of funds; whereas, in industrial sectors of the economy, cost increases are offset by an average annual rate increase in productivity of 2.5 percent. . . . The answers lie in the two-pronged search for better use of resources on the one hand and augmentation of resources on the other.[25]

Dressel, in Undergraduate Curriculum in Higher Education, discussed stages in curriculum planning. These stages include identification of objectives, selection of experiences, organization of experiences, and evaluation. Under the definition of objectives, the author defined needs: "A need simply defined, is a discrepancy between the characteristics which students presently have and the characteristics which it is judged they ought to have."[26] Dressel included four levels in the hierarchy of needs. The first level is needs explicit in the stated objectives of an institution. The second level consists of facilitating factors. The third level recognizes the

inevitable concomitants of the continuing association of a sizable group of people. The fourth level of needs is those for which a college has no obligation.

In his article entitled "Teaching and Learning: Whose Goals Are Important Around Here?" Wendell wrote,

> If American colleges and universities are to take teaching seriously, they must provide space for student development, they must make the private needs and concerns of students a dominant thrust in their policy. This priority status for teaching calls for an alliance between educators and student innovators, more concern with how college graduates act as well as with how much they learn, and major innovations in the approach to student learning.[27]

He concluded:

> It is clear that higher education can best be an effective critic of society by acting upon major criticisms it has been making of itself. Here it is crucial that its institutions, especially the multiuniversities, begin by building teaching and learning models to reinforce and assist students in becoming self-directed learners. In doing so the institution is at once developing a self-renewing mechanism both for itself and for those who are ready to participate actively in the process. Individual and institutional self-renewal becomes more than an educational slogan; it becomes a dynamic, working process central to the identity of the institution. With its new identity, the institution not only can be more responsive to the individual needs and concerns of its students, but also can be more active and effective in the development of a freer world.[28]

Discoursing on the future of departments within universities, Dressel et al. commented that the discipline-oriented department was dominant and that

> Many universities have already recognized the need for some type of organization apart from the departmental one. Continuing education programs serving short-term conference and longer term training programs have found it necessary to enlarge their own professional faculty to carry on these activities.[29]

Administrative Organizations and Models

Krachenberg felt that colleges and universities today are being forced to find better modes of operation and administration. Current societal needs and circumstances demand this. In attempting to meet this demand, institutions of higher education are borrowing many management and operating techniques from other areas, especially business and government. Krachenberg asserted that higher education is borrowing these techniques from different areas but at the same time overlooking the importance of marketing:

> Ironically, higher education has always engaged in marketing such as student recruitment, advertising of program offerings, soliciting alumni support . . . but this has been poorly done with a keen lack of appreciation for all the tools of marketing. A major need, therefore, is for the universities to gain a deeper appreciation for the value of marketing, making it a more formal and ongoing part of its activities. Marketing will be a link of communication where the university tunes in on its clients or customers and attempts to learn all it can as to how it might serve them. These marketing decisions should be made by considering institutional resources and capabilities, institutional goals or objectives and societal needs and wants.[30]

In A New Approach to Academic Administration, Phillips commented:

> Beset by pressures for change from without and within the university community and academic administrators have seen the financial security of their institutions eroded in a time of great national prosperity. The more vocal critics of academic policy have tended to leave finance and fiscal control to the so-called experts. . . . The establishment of viable systems of governance for our institutions of higher education can no longer remain a matter for

> scholarly debate. There is a wide range of questions which academic leaders must answer today. They understand the magnitude of the national commitment to higher education. However, lack of precedents and open-ended responsibility often leave these leaders uncertain and frustrated. As they seek to meet the demands of students, faculty, trustees, parents, alumni, and other users of higher education, our top college and university administrators need a new concept of administration.[31]

Phillips went on to discuss his model using a program of internships in academic administration:

> Internships in various company offices offer an opportunity to increase understanding of how the institution functions, office by office, and in the whole. Seminars are another avenue for interesting the new or not-so-new administrator in the potential of his job and of increasing his understanding of the institution. Internships and other educational programs can, of course, be combined in various ways. The aim of such programs should be to present a wide range of subjects in a way that will excite the interest of students to bring high intellectual qualities to bear on institutional problems. The curriculum must deal with the current problems affecting higher education noted earlier in this book, as well as consider how decisions are made and authority exercised within the college or university as an institution for the continuation and improvement of our society.[32]

Petersop discussed three categories of decisions--policy, managerial, and operational. These three types of decisions are distinguished along four dimensions, including the time range over which they apply, the range of individuals or organizational units directly affected by the decisions, their content, and their means-end relationships.[33]

Mood et al. reviewed applications of operations research technology to problems in educational administration. They concluded:

> The primary purpose of all of the above mathematical models is to provide advice to university decision makers that will improve their predictive powers and lead to improved policy decisions. . . . None of the models we have discussed are capable of predicting and accounting for environmental effects outside the academy. The abolition of military conscriptions, the changing job market, increasing affluence and the changing tastes of youth will contribute to future student flaws in ways that are difficult to predict. To put it simply, the variables that might have the greatest effect are outside of the model and there is no way to bring them in. With this in mind it is important to design a model of realistic scale that does not exert too much costly energy in making computations at an unreasonable level of accuracy. . . . Provided that one carefully considers the limitations of the model applied, management science can assist in improving the efficiency of educational operations.[34]

Griffiths discussed the decision-making process and developed the following six-step decision-making model:

1. Recognize, define, and limit the problem.

2. Analyze and evaluate the problem.

Note: For a further discussion of this topic, see also R. W. Judy and J. B. Levine, A New Tool for Educational Administrators (Toronto: University of Toronto Press, 1965); H. E. Koenig, M. G. Keeney, and R. Zemach, "A Systems Model for Management, Planning and Resource Allocation in Institutions of Higher Education," Final Report, # C-518, National Science Foundation (East Lansing: Michigan State University, 1968); and Z. Wurtele, "Mathematical Models for Educational Planning," Report No. SP-3015 (Santa Monica, Calif.: Systems Development Corporation, 1967).

3. Establish criteria or standards by which a solution will be evaluated or judged as acceptable and adequate to the need.
4. Collect data.
5. Formulate and select the preferred solution or solutions. Test them in advance.
6. Put into effect the preferred solution.
   a. Program the solution.
   b. Control the activities in the program.
   c. Evaluate the results and the process.

Griffiths concluded his remarks by stating:

> Decision-making in an organization is not a personal matter, but an organizational matter. . . . The criterion by which an organization may be evaluated is the quality of the decisions which the organization makes plus the efficiency with which the organization puts the decisions into effect.[35]

According to Deutsch,[36] symbols are used in the process of thinking and are combined into layer configurations which are known as models. This appears to be true particularly when models are involved in forecasting events beyond the thinking system realm and certainly when discussing the past or future behavior of an organization.

Models are used willingly or not when thinking in a systematic manner. The model depends upon what elements are included, what rules and structure are placed on the elements, and what use is made of the various possible orderings of the elements. By studying models, the theory of organization can be derived.

> By a model is meant a structure of symbols and operating rules which is supposed to match a set of relevant points in an existing structure or process. Models of this kind are indispensable for the understanding of more complex processes. The only alternative to their use would be an attempt to grasp directly the structure or process to be understood, that is to say, to match it completely point for point. This is manifestly impossible. We use maps or anatomical atlases precisely because we cannot carry complete countries or complete human bodies in our heads.

The author went on to discuss four functions of a model including the organizing function which relates unrelated data by forming similarities or connections between these data which had not been previously noticed.

> If the new model organizes information about unfamiliar processes in terms of images borrowed from familiar events, we call it an explanation. The operational function of an explanation is that of a training or teaching device which facilitates the transfer of learned habits from a familiar to an unfamiliar environment.

The second function is the heuristic one.

> The heuristic function of a model may be independent to a considerable degree from its orderliness or organizing power, as well as from its predictive and mensurative performance.

The third function is the predictive aspect which involves the requirement of verifiability by physical operations. Measurement represents the final function.

> If the model is related to the thing modeled by laws which are not clearly understood, the data it yields may serve as medicants. If it is connected to the thing modeled by processes clearly understood, we may call the data obtained with its help a measure.

Models should have the elements of originality, simplicity, and realism. One must guard against sophisticated

mathematics with naive assumptions in the social sciences. The author went on to illustrate examples of the difficulty of using mathematical models in social science settings and the errors that can be made in so doing.

Chin[37] states that there are many assumptions about how events achieve stability and change. There are ways to make assumptions explicit by constructing a simplified model of human events using concepts as the tools. The purpose of this paper is to present concepts relevant to, and the benefits to be gained from using, a "system" model and a "developmental" model in thinking about human events. We will try to show how the systems and developmental approaches provide key tools for a diagnosis of persons, groups, organizations, and communities for purposes of change.

Continuing Education

The concept of nontraditional or continuing education as opposed to traditional or formal education embodies school dropout programs, adult education, church- and faith-based associations, and other nondegree pursuits.[38,39] The mediating or delivery system is not the formal education system. The goal of adult education is to prepare people for work; the content stresses information, skills, and preference patterns.

Arbolino developed a plan for awarding external degrees. He proposed the establishment of a federally

chartered national university that will award external degrees and will also award joint external degrees with those colleges wishing to participate. He raised and discussed two key issues: (1) What are degree requirements? Very often a student has gained a certain minimum number of credits, but do these credits represent acquaintance with the major branches of knowledge or the ability to move with understanding within only one field of learning? Does a degree indicate a state of being that will be forever or does it represent the ability to swim one hundred yards? What about patience and stamina and time and money as well? These are degree requirements too.[40]

(2) Do institutions meet the needs of individuals, or vice versa? If the gap between individual needs and degree requirements is to be closed, we must recognize that degree requirements consist of more than courses and subjects. To close the gap between individual needs and degree requirements, Arbolino suggested: (1) increasing the granting-of-credit examination; (2) establishing a federally chartered national university that will award external degrees. The College Level Examination Program (CLEP) is already set up to evaluate prior learning <u>as a basis</u> for awarding credit by many colleges.

Arbolino concluded that an external degree program conducted jointly between institutions and a national university would be preferable to either the institutional

external degree or the national university external degree.

The concept of using nonacademic administrative elements as educational tools is an amalgamation of traditional and nontraditional education. The students are from the traditional, formal setting but the locale is more aligned with continuing education.

Sponsors of continuing education characterize it as a means of providing necessary vocational and applied development. What differentiates continuing education from the more youth-oriented public education is the ever-growing retraining and post-training of adults and professionals. Its sponsors see continuing education as a means to allow adults to function better in their society through a decision-making process. The nature of the education is thus directed to a specific goal, established by the sponsors, and not to a liberal arts program involving a full-time commitment over a period of years. Continuing education thus has a series of sponsors easily differentiated from those of traditional nonadult programs, and this education results in a more literate, skilled, and progressive clientele.

Continuing education is usually disseminated beyond the normal working hours, and in a manner that can be accepted by adults. It is a nontraditional, more informal, and essentially privileged activity that is utilized in a

nonuniversal manner. This alone distinguishes the type of education that must cater to its students from the content and evaluations of a nonadult public school education. Unlike public school instruction, adult education is often of short, intensive duration. It may be interrupted for many years, and can also include escapist courses because students want them and need them to enjoy a fuller adult life.

The education the student receives is often a sufficient reward, as are his attendance and participation. Adult education often does not measure the student's outcomes or assess his progress. Rather, it provides a service function, similar to a data bank, and allows the student to take what he wishes. The educational quality of a course can be measured in terms of its popularity in attracting students, or in the sponsor's perception of a necessary skill learned. Continuing education is not funded primarily by allocations for all students, but rather by organizations and individuals fulfilling a need. Thus a program's educational success is measured or accountable by the continued fiscal support of sponsors and students.

Continuing education is often provided in a manner dissimilar to public school education. It may employ the skills of a vast number of qualified but "uncertified" individuals. In fact, some such education is provided by supporters who, themselves, in traditional settings would be

students! The education of adults can be achieved through direct teaching and counseling or by the preparation of materials and staff support. A great amount of this education is provided by peers or individuals with a highly specialized but nonformal education. Since continuing education is often characterized by a lack of textbooks, exams, and structuring, mentors provide the dominant role. The quality of the education provided by people with such diverse backgrounds is often highly inconsistent; the continuing education program may use individuals with inappropriate or restricted skills all the way to those with sophisticated and authentic educational ability.[41]

The Task Force on Lifelong Education at Michigan State University defined lifelong education as:

> For the individual, lifelong education is a process of learning that continues throughout life. Lifelong education implies an opportunity--and for some, an obligation--to seek knowledge which contributes to personal growth and the welfare of society.
>
> For institutions of higher learning, lifelong education is a process of academic instruction at post-secondary levels and of educational service to individuals and institutions at many levels of need. Lifelong education implies for all colleges and universities a responsibility to recognize, anticipate, and assist in meeting the needs of individuals and groups.
>
> Lifelong education, then, includes both the individual's process of lifelong learning and the institution's process of lifelong service, insofar as these processes are appropriate to the mission and available resources of that institution.[42]

The Task Force report went on to question whether or not the university was responding to the needs of a changing society. If the university was not responding,

what new programs and structures should be developed? The Task Force felt Michigan State University must expand its present objectives in areas of public service so that lifelong education potential can be achieved.

William Grant, in The Lifetime University, indicated that previous federal government decisions to make the nation's universities a key center for military and other research are becoming invalid.[43] Availability of the federal research dollar is declining. In addition, community colleges grew rapidly when they began to offer a wider range of vocational and technical courses. The Carnegie Commission of Higher Education claimed that two-thirds of the nation's colleges are in financial trouble or headed for it, because of rising costs and competition among universities for students. Such "outright competition" can lead inevirably to arguments for more coordination of the states' system of higher education. Grant went on to discuss the fact that college presidents must carefully define the mission of their schools, and concentrate on what can best be done there, leaving other programs to other schools. Mature adults are the new generation of college students. Accordingly, "Colleges can no longer continue to justify the narrow focus of on-campus education combined with some limited public service."[44]

Hesburgh et al. indicated that to enter the new world, education must become a lifelong process of learning. The

university plays a vital role in the creation of a learning society. The attitudes that need to be changed include the false beliefs that (1) young people need formal education whereas adults do not, (2) the education one receives as a child or young adult is enough to carry him through a lifetime, (3) education is the same as schooling, and (4) the business of education is formal schooling and that educators should not be concerned with the education that goes on elsewhere.

Hesburgh and his associates contended that educational institutions

> . . . should emphasize intellectual curiosity more and pre-established knowledge less. The center of educational gravity in society is shifting away from educational institutions toward informal learning, continuing education outside of school in the community, and self-learning without formal structure or conventional teachers.[45]

The aim is to build a new learning system that can combine the intellectual vigor of the whole academic system with the authenticity of life experience. Therefore, continuing education should be "a conduit for the transfer of knowledge from the campus to the community." Universities are important centers in contemporary society for the creation and diffusion of knowledge, but technological change is running ahead of the ability of social institutions to absorb the changes.

In Diversity by Design, the Commission on Non-Traditional Study set forth the following recommendations:

1. Lifelong learning is basic, continuing, and recurrent. It requires a new pattern of support.
2. Colleges and universities must shift emphasis from degree granting to service to the learner.
3. Faculty must be redirected through in-service development to the use of nontraditional forms and materials.
4. Educational technology such as cable television, computers, video-tape recordings, and satellite broadcasting must be used and promoted.
5. New agencies must be created to provide and disseminate information, provide counseling, and assess and keep student credits.[46]

In the same report, formal education was defined as an educational system that adheres firmly to established institutional, curricular, and/or participation patterns and requires a new component to conform to those patterns and/or its own maintenance requirements. Conversely, nonformal education is designed or adapts as a system to accommodate new components, whether institutional, participant, or curricular, and especially to serve particular missions.[47]

Gould and Cross stated:

Note: See also Patricia Cross, John R. Valley, and associates, Planning Non-Traditional Programs (San Francisco: Jossey-Bass, 1974).

> Consideration of work experience as a component of education is still another aspect of the pattern of flexibility. There are two types to be identified: first, work and study as a regular curricular approach in college or university, and second, recognition of certain kinds of experience as being educationally valuable and therefore worthy of credit toward a degree. The former is a well-accepted academic adaptation presently being used, with variations in its details, by a few hundred of our higher education institutions; the latter is much less prevalent as an accepted concept or as an accepted part of the degree-granting process. Some proponents of non-traditional education are calling new attention to this concept and are urging that it be part of the total flexible pattern, assuming, of course, that such work experience would be carefully evaluated before academic credits were given.
>
> . . . . . .
>
> If flexibility is a necessity for non-traditional study, then individualized learning is its most important component. It is an enormous step forward in breaking all sorts of lock-steps and in establishing for each person a set of educational directions that can take him where he, himself, needs to go. Individualized learning has many implications that are still rather mysterious, whether one thinks of selection, guidance, study patterns, rewards, or financial requirements both for the student and the institution. Without individualized learning nontraditional study becomes no more than a shadow of what it might be.[48]

Summary

This chapter has reviewed some of the major literature sources related to the development of the proposed educational innovation. Very little information is available on the role of nonacademic administrative service departments of the university in providing relevant educational experiences. Thus, it is necessary to draw upon similar programs in allied fields, such as work-study programs, career education, and continuing education. The

development later in the dissertation of a model department to use the more effective areas of the case study was drawn from the body of literature available on model construction and theory, which was presented in part in this chapter.

Footnotes--Chapter II

[1]Paul Dressel, College and University Curriculum, 2nd ed. (California: McCutchan Publishing Corp., 1971).

[2]Ibid.

[3]Ibid.

[4]James A. Wilson and Edward H. Lyons, Work Study College Program Appraisal and Report in the Study of Cooperative Education (New York: Harper and Brothers Publishers, 1961).

[5]Ibid.

[6]Ibid.

[7]Lyman A. Glenny, "Pressures on Higher Education," College and University Journal 12 (1973): 5-9.

[8]Helen Lynd, Field Work College Education (New York: Columbia University Press, 1945.

[9]Michael Birch and Earl J. McGrath, Innovations in Liberal Arts Colleges (New York: Teachers College, Columbia University, 1969).

[10]Kenneth J. Hallam, ed., Towson Conference on Curricular and Instructional Innovations in State Colleges and Universities (Baltimore, Maryland: Towson State College, 1966).

[11]Ibid.

[12]Matthew B. Miles, Innovation in Education (New York: Teachers College, Columbia University, 1964).

[13]Felix C. Robb, Innovations in Education (College Park, Md.: University of Maryland Press, 1965).

[14]Innovations and Experiments in University Teaching Methods, Proceedings of the Third Conference, University Teaching Methods Research Unit, Department of Higher Education, University of London; London, England, 1968.

[15]Jerome S. Bruner, The Process of Education (Cambridge, Mass.: Harvard University Press, 1960).

[16]John E. Cantelon, In College Education and the Campus Revolution (Philadelphia: Westminster Press, 1969).

[17]Dressel, College and University Curriculum.

[18]Ibid.

[19]McClatchy, in The College and the Student, ed. Lawrence Dennis and Joseph Kauffman (Washington, D.C.: American Council on Education, 1966).

[20]W. McKeachie, "Effective Teaching: The Relevance of the Curriculum," in The College and the Student, ed. Lawrence Dennis and Joseph Kauffman (Washington, D.C.: American Council on Education, 1966).

[21]Ibid.

[22]R. M. Beard, F. G. Healey, and P. J. Holloway, Objectives in Higher Education (London: Society for Research Into Higher Education, 1973).

[23]Ibid.

[24]Bruner, The Process of Education.

[25]Carnegie Commission on Higher Education, Priorities for Action: Final Report of the Carnegie Commission on Higher Education (New York: McGraw-Hill Book Company, 1973).

[26]P. L. Dressel, Undergraduate Curriculum in Higher Education (Washington, D.C.: The Center for Applied Research in Education, Inc., 1963).

[27]Philip R. Wendell, "Teaching and Learning: Whose Goals Are Important Around Here?" Whose Goals for American Higher Education (Washington, D.C.: American Council on Education, 1968).

[28]Ibid.

[29]Paul L. Dressel, F. Craig Johnson, and Philip M. Marcus, The Confidence Crisis (San Francisco: Jossey-Bass, 1971).

[30]A. R. Krachenberg, "Bringing the Concept of Marketing to Higher Education," Journal of Higher Education 43 (1972): 369-380.

[31]Ellis L. Phillips, Jr., A New Approach to Academic Administration (New York: Teachers College Press, 1969).

[32]Ibid.

[33]Marvin W. Petersop, "Decision Type, Structure, and Process Evaluation: A Contingency Model," Higher Education 2 (1972): 91-93.

[34]Alexander M. Mood et al., Papers on Efficiency in the Management of Higher Education (Berkeley, Calif.: Carnegie Commission on Higher Education, 1972).

[35]Daniel B. Griffiths, The Decision-Making Process in Administrative Theory (New York: Appleton-Century-Crofts, 1959).

[36]Karl Deutsch, "The Evaluation of Models," in Management Systems, ed. Peter B. Schoderbeck (New York: John Wiley and Sons, 1968).

[37]Robert Chin, "The Utility of System Models and Developmental Models for Practitioners," in The Planning of Change, ed. Warren G. Bennis, Kenneth D. Benne, and Robert Chin, 2nd ed. (New York: Holt, Rinehart and Winston, Inc., 1969).

[38]Carnegie Commission on Higher Education, Less Time, More Options: Education Beyond the High School (Hightstown, New Jersey: McGraw-Hill, 1971).

[39]Smith, Kidd, and Alan, eds., Handbook of Adult Education in the United States (New York: New York Institute of Adult Education, Teachers College, Columbia University, 1972).

[40]Jack Arbolino, "A Plan for External Degrees," in New Teaching-New Learning; Current Issues in Higher Education, ed. G. Kerry Smith (San Francisco: Jossey-Bass, 1971).

[41]Russel Kleis, An Area Approach to Continuing Education (East Lansing: Michigan State University, 1974); Malcolm Knowles, Modern Practice of Adult Education (New York: New York Association Press, 1970); Edgar Faure, Learning to Be, International Commission on the Development of Education (Paris: UNESCO, 1972).

[42]Task Force on Lifelong Education, The Lifelong University (East Lansing: Michigan State University, 1973).

[43]William Grant, "Value of Adult Education in Higher Education," The Lifetime University, Detroit Free Press, September 23, 1973.

[44]Ibid.

[45]Theodore M. Hesburgh et al., Patterns for Lifelong Learning (San Francisco: Jossey-Bass, 1973).

[46]Commission on Non-Traditional Study, Samuel B. Gould, chairman, Diversity by Design (San Francisco: Jossey-Bass, 1973.

[47]Ibid.

[48]Samuel B. Gould and K. Patricia Cross, eds., Explorations in Non-Traditional Study (San Francisco: Jossey-Bass, 1972).

CHAPTER III

THE CASE STUDY

Introduction

The Waste Control Authority at Michigan State University was not originally intended to develop into educational and academic learning areas. In fact, the thrust of such an authority was a result of the national concern about ecology and pollution problems. This concern was translated into demands upon administrators involved in the construction of new medical school facilities to comply with federal and state regulations.

To assess the problems associated with an educational program outside the familiar bounds of academic departments, deans, provosts, and others, it is essential to trace the initial development of the Authority, because this orientation is what later made it so difficult to shift emphases and priorities while still maintaining the viability of the program. In succeeding discussions of the exportability of the concept, the reader will note that attempts were made to avoid similar mistakes; these comparisons are noted.

Once again, in tracing this long and convoluted developmental phase and particularly in formulating

guidelines, the reader should be aware of the strong polarity of the members of the Authority about involving an administrative support unit in an academic program. Since this is an actual case study, the departure from theory into application and compromise is an accurate picture of the potential for turning this program into a model for the future. True, no model was envisioned when the case study was initiated. Thus, there can not be an adequate statistical evaluation. Nevertheless, as will be seen later, it is possible to construct an amended theoretical model as a result of these initial experiences.

History and Development of the Waste Control Authority

In March, 1969, the chairman of the Safety and Sanitation Committee, one of a number of advisory and administrative committees made up of appointees covering a wide range of university activities, sent a letter to the President of Michigan State University. He noted that the University Provost had suggested to him that the problem of waste disposal be put directly before the President. The chairman's remarks reflected the following concerns of the Safety and Sanitation Committee:

1. That the University should immediately seek long-term solutions to existing and future waste disposal problems.

2. That Michigan State University, to find these solutions, should employ a competent engineering consultant to determine the total problem and recommend a solution.

3. That central administration should be represented on the committee so the committee could have a more direct means of presenting its problems and so early administrative action could be taken.

4. That students be represented on this committee so their views could be heard.

5. That since these problems were not usually directly academic, the committee might more properly report to some administrative officer other than the Provost.

The Provost agreed with these concerns, and the suggestion was made that this proposal might properly concern the Secretary of the University.

On June 2, 1969, in responding to the chairman of the Safety and Sanitation Committee, the University President expanded the role by indicating:

> Clearly, the problem of environmental pollution of communities in general are compounded here [M.S.U.] by the need to plan for the disposal of radiological, biological and other exotic wastes. I think your identification of a survey to determine the dimension of the University's waste disposal problems is a logical starting point.

On June 12, 1969, the Secretary of the University wrote to the President, saying in part:

> The problem of waste disposal on this campus has reached the point where immediate action must be taken

> to identify how big this total problem is. For a number of years we have had individual departments handling their own waste products and worrying about their own problems. The problem of waste disposal is now becoming acute. We are also faced with an increasing problem of handling the disposal of radioactive material, plus the remains of research animals.
>
> The State and Federal governments are going to be more and more restrictive in the areas of environmental pollution and it is my feeling that the University should take some leadership in the area.
>
> Therefore, I would recommend that the Board of Trustees recommend the employment of a competent engineering consultant at once.

A week later, the Board of Trustees approved the above recommendations. In August, the chairman of the Safety and Sanitation Committee formally established a subcommittee of the Safety and Sanitation Committee to get the survey of the Michigan State University waste disposal problem off the ground. The charge to this committee was as follows:

1. Draw up specifications outlining the area and scope of a preliminary study of Michigan State University waste disposal programs. This would include working with concerned community governments, such as East Lansing and Meridian Township.

2. When this is completed, seek quotations from reputable firms or individuals.

3. Present a final recommendation to the Safety and Sanitation Committee to submit to the Secretary for Board approval.

4. Designate an individual or individuals to work with the chosen firm in making the study.

5. Submit any final recommendations of the study to the Secretary for final Board action.

At its November 26, 1969, meeting, the Safety and Sanitation Committee recommended to the Board of Trustees that the engineering consultant firm of Ryckman, Edgerley, Tomlinson and Associates be employed to conduct the proposed study of the University's waste material problems, and that the sum of $50,000 be made available, which would include the salary of the campus director plus contingencies. The campus director would investigate the possibility of obtaining state and federal funds to finance this program. The Safety and Sanitation Committee, in its recommendation to the Board, would stress the imperative nature of the need for this study and implementation of the recommendations that would be forthcoming.

On June 9, 1970, the Safety and Sanitation Committee met to hear the presentation of the Waste Disposal Study being conducted by the consulting engineers. Included in their presentation were the results of various surveys, data collection, and consultation with Michigan State University officials. The firm reviewed the recommendations and conclusions of its study; a motion to request funding and implementation of the recommendations outlined in the study was supported and carried. The motion to recommend establishment of a coordinating agency for more effective use of existing waste handling methods by all

campus units was also supported and carried. In July, 1970, the study was taken to the Board of Trustees for their approval; they approved the study.

At its November 20, 1970, meeting, the Board of Trustees authorized the establishment of a central Waste Control Authority as soon as possible. Five days later, the University began to make plans for such an agency. The President of Michigan State University established the Waste Control Authority, and named nine members of the committee. His initial charge to the group was:

> In addition to reviewing the work of the consultants and carrying out their recommendations, I hope the Authority will assume the responsibility of identifying and recommending to me candidates for the director's position.

The Waste Control Authority was invited to meet with the Trustees on March 18, 1971.

On March 11, 1971, the Waste Control Authority met for the first time. The chairman reviewed the background of the establishment of the Authority and the purpose of the original waste disposal study prepared by the consulting firm. Much of the discussion was related to the duties and responsibilities of the Waste Control Authority. Several questions arose regarding administrative relationships, particularly the matter of an operating budget. The group agreed that all questions must be answered by the administration before policies and programs could be established.

Five days later, the Authority met again. The chairman reported on his meeting with the President of the University regarding questions Authority members had raised at their previous meeting. These questions included:

1. What is expected of the Authority?
2. What is the administrative function of the Authority--is it advisory only or will it have decision-making power?
3. Will funds be made available to carry out the Authority's work?

The President suggested that these questions might be asked of the Trustees at their March 18 meeting. Members felt that in addition to the above questions the job of the Director should be clarified and defined. Further discussion emphasized the need for a Director and a minimal staff as soon as possible.

The feeling of the group was that the Waste Control Authority must go beyond the problem-solving measures on the campus, as noted in the report. They felt these measures were important and should be implemented as soon as possible, but that the major effort of the Authority should be the coordination of the total University resources to provide leadership and direction for solving environmental problems. There was no mention of nor realization that education and academic programs could be developed from such an Authority. The Safety and Sanitation Committee had remarked earlier, "Since these problems were not usually directly academic, the Committee might more properly

report to some administrative officer other than the Provost." Thus the dichotomy is clearly evident between academic and nonacademic functions.

Administrative Organization and Guideline Development

Authority members are appointed by the President of the University for three-year terms. They include academic chairmen, assistant deans, staff people in high supervisory capacities, and a student member. In the fall of 1971, members of the Waste Control Authority met to establish qualifications for a full-time director. A number of candidates were interviewed, and a director was appointed effective January, 1972.

On January 15, 1972, the Waste Control Authority office began operations. The office is related to the Business Service elements of the University through the administration of the Executive Vice-President. The following section analyzes the perceptions of organizational responsibility as viewed first by administrators and second by members of the Waste Control Authority themselves.

For an administrative commission to function when it has been given only vague duties and responsibilities is extremely debilitating. Accordingly, the Director of the Waste Control Authority drafted a series of preliminary guidelines for Authority consideration.

The first guideline draft proposed the subcommittee structure and stated:

> The subcommittee level is where data is accumulated and alternatives discussed. Meetings with the Waste Control Authority will be conducted at regular intervals to share policy decisions with the Authority as a whole. Recommendations shall be forwarded from the subcommittees to the Waste Control Authority for approval. The structure of the four (4) standing subcommittees includes the Solid Waste Subcommittee, Recycling Subcommittee, Animal Waste Subcommittee, and Chemical Waste Subcommittee. The appointments to the subcommittees shall be made by the chairman of the Waste Control Authority. At least two members of the Waste Control Authority shall serve on each subcommittee, in addition to individual members of the University community who are not members of the Waste Control Authority. These additional members will provide areas of expertise and interest and will broaden the scope of the committee members. The chairman of the Waste Control Authority will designate one member of each subcommittee as the subcommittee chairman. Each subcommittee shall establish its own list of priorities, hold hearings, develop recommendations for the Waste Control Authority, and request the director and his staff to provide pertinent background information.

The intent of development subcommittees was to maximize membership input in areas of interest and background while reducing their time commitment as much as possible. All Authority members have conflicting administrative responsibilities as a function of their University position and must judge their involvement accordingly. The guidelines were adopted essentially without any changes.

The director perceived the responsibility of the Waste Control Authority as: (a) developing long-range alternatives to currently unsatisfactory waste disposal practices at Michigan State University; (b) assuming

responsibility for all aspects of solid waste, pollution abatement, and environmental protection; and (c) making recommendations with proper priorities and funding requests in problem areas of waste control for the administration. These responsibilities closely followed the Safety and Sanitation Committee's resolution and the consulting firm's document.

In October, 1972, the Waste Control Authority amended these responsibilities as follows:

> The Waste Control Authority represents environmental action. This dovetails with the efforts of the Center for Environmental Quality which is to encourage environmental education. Environmental action and education are necessary for long-range development of new programs.

In an attempt to strengthen the role of the Waste Control Authority, the director inserted a paragraph stating:

> Pollution abatement will require strong, regulatory activities for the Authority. To improve environmental quality and eliminate waste problems, extensive planning for the future is necessary. Broad discretionary powers to implement policies must be delegated to the Waste Control Authority.

In reviewing the initial draft, the Authority asked the director to rewrite the guidlines. It seemed important that his position be clearly defined and strengthened. Thus, in November, 1972, the responsibilities of the director were delineated as follows:

> A. The director serves as an ex-officio member of the Waste Control Authority. It is his responsibility to develop background information on problems confronting

the University and to implement decisions of the Authority as a whole.

B. It is the responsibility of the director to coordinate (with adequate funding and authority) the total waste disposal activities and to investigate the quantitative nature of the problems confronting the University.

C. The director will review construction plans and proposals for campus improvements to determine potential waste handling problems in conformance with appropriate regulations.

D. The director takes responsibility for day-by-day operations of the office and is primarily responsible for the development of studies and data analyses by his staff.

The guidelines were accepted by the Waste Control Authority in December, 1972, and sent to the Executive Vice-President; in January, 1973, he formally accepted them.

The development of the Waste Control Authority guidelines solved a problem for the Authority; that is, it defined the roles, responsibilities, and duties of the Authority and the areas with which they would be concerned. However, in developing these guidelines, the Authority severely diluted its powers and responsibilities, as originally conceived by both the University Safety and Sanitation Committee and the consulting firm. Words such as coordinate, recommend, and consideration used throughout this document are not words of control or authority.

Educational Case Study

Nonacademic administration has largely been ignored as an educational tool. As mentioned before, the original consideration of the Waste Control Authority did not in

any way conceive educational potentials as a facet of the Authority's power or direction. To discuss the possibilities of educational potentials throughout a university, it is necessary to undertake an in-depth case study. The relationship between students and the director of the Authority originally came about as an attempt to expand the staff functions of the Authority.

The first student came to the Waste Control Authority with the objective of taking a senior year independent study project to fulfill graduation requirements. The study had two objectives. The first pertained to broad-based pollution--looking not only at the forms of pollution that exist, but also their sources. The purpose of this objective was to acquaint the student with present solutions to pollution problems.[1]

The second objective focused on the legislative-historical perspectives of pollution; for example, the 1899 Refuse Act and the development of the laws dealing with pollution. The student indicated interest in examining the role of the Waste Control Authority: "What part should Michigan State University play in the scheme of environmental quality and waste disposal, and what are its responsibilities to the community in the State of Michigan?" Thus the first broad student relationship with the Waste Control Authority was initiated. It is interesting that the original contact was made by the student interested in taking

this outside course. All subsequent contacts have been of a joint nature, perhaps suggested by staff personnel, but in all cases instituted by the students.

The second nonformal educational project developed as an offshoot program for some of the student employees of the Waste Control Authority. Specifically, a student interested in a management program prepared "An Evaluation of Michigan State University's Waste Control Authority Recycling Program." The introduction of this 35-page report stated:

> This evaluation will be concerned with the operation aspects of the Michigan State University Waste Control Authority's Recycling Program. The Recycling Program's success in meeting two of its goals will be the primary focus. Those goals are firstly, to provide additional jobs for students attending the University; and secondly, to increase the collection of solid waste which can be recycled at a cost no greater than the revenue generated from the sale of this material. Primary emphasis is to be on the solid waste available at M.S.U. Particular strategies for the achievement of the above goals will be evaluated, for example, the amount of labor (man-hours) required to collect a ton of the various materials over a time frame.[2]

In conducting this study, the student gained knowledge both of recycling and of the Waste Control Authority in general. The Authority, through this evaluation, gained some insight into the problems facing the recycling program.

In the spring of 1974, a student in landscape architecture prepared a paper entitled "Solid Waste Management at M.S.U., Past and Future."[3] He looked at solid waste management at the University from the past, including

the history of the solid waste management program, on through a discussion of the existing landfill programs. He also proposed some changes in which the waste management operation of the various departments on campus could be consolidated under an administrative unit. In this case, the student recommended that the Assistant Vice-President for Finance serve as the key administrator, so that certain duplications in accounting and operations would be eliminated. The new unit would be responsible for all operational aspects of waste control; waste would be picked up from various containers strategically placed around the campus to accommodate very specialized types of refuse. The Waste Control Authority, in conjunction with safety services, would function as a watchdog agency to insure that the operations of the unit were maintained safely by using the latest available technology.

In summary, the student said his proposal would

> . . . probably not generate any great amounts of revenue and is not designed for that. It is designed rather to make more efficient use of resources. It is designed to continue intensifying the ethic which was a major influence during the formative years of the University. It will help the University minimize its direct waste disposal costs, increase the efficiency of material use, and help the University to be recognized as a source of information for a problem that is increasing in scope and magnitude. The proposal also presents an innovative approach to help the University toward a solution of a problem that is increasing on campus. By using effective management techniques and understanding the problem completely, the solution appears closer on the horizon than any time before.

The third independent study was done by a student in advertising. The scope of the study was to plan an extensive public relations task for the M.S.U. Waste Control Authority. This provided an opportunity for the student to learn about public relations work through practical experience.[4]

The first task was to prepare a monthly newsletter for distribution to the administrators and staff at Michigan State University. The purpose was to inform a large number of University administrators about the Waste Control Authority and the services it provided. Many who had heard of the organization believed it was merely a garbage collection operation or that it was a student organization; they did not realize the broad scope of the W.C.A.'s operation. The student conceived a monthly newsletter as a means of changing the level of recognition of the Waste Control Authority among administrators and thus eliciting support for the program. The newsletter was to serve three purposes: one, disseminate information; two, produce action; and three, allow feedback. The newsletter has proved very successful, both for the student who initiated the project, and in fulfilling the three aforementioned purposes.

The second task of this independent study project was for the student to represent Michigan State University at a solid waste management conference and develop

a brochure to distribute there. In both tasks, the student derived a definite educational value and the Waste Control Authority office experienced a pragmatic opportunity. In summation, the purpose of the independent study had been to gain practical experience by executing public relations tasks. The student felt that this goal had been accomplished and that it had been a worthwhile project. She commented:

> I have learned to put together a newsletter for an organization. In doing so, I have become a more confidant, competent writer and learned how to condense large amounts of information into a few short paragraphs.
>
> I have also learned how to make a brochure. This includes organizing, selecting, and condensing information as well as making it look attractive.
>
> Taking part in the conference was also a meaningful experience. Here I was able to gain confidence in talking with people and in selling ideas in a person-to-person setting.

Nine students in Justin Morrill College undertook a field study project on paper recycling; they were to submit a report of current waste disposal practices on the M.S.U. campus and proposals for alternate methods. In presenting their report, the students stated:

> One of the problems of environmental decay is the depletion of natural resources and the concomitant difficulties of disposing of the used materials. Because paper and paper products account for much of the proceedings, it is of importance to design alternate methods for recovering this important resource.
>
> This report has attempted to examine the current practice of paper disposal at the Michigan State University campus and suggest alternative methods. It is hoped the information obtained will provide an insight into an economically feasible and ecologically sound method of preserving our environment.[5]

The students planned a program that included the following objectives: (1) to measure attitudes toward resource recovery, (2) to measure the volume of paper purchased by the University, (3) to measure the volume of paper discarded on the campus, and (4) to undertake cost analysis of the present variety of buyers who would be interested in purchasing paper for recycling or contact them for telephone and/or personal interviews.

In conclusion, the students wrote:

> We think that considering the positive cooperative attitudes we received throughout campus, it would be advantageous to us all for the university to consider these results and attitudes and take positive action toward them. In the long run, it may prove economically and environmentally prosperous to M.S.U. and many other campuses throughout the nation. If a project for paper recycling is to be put into operation, alternative methods of collection must be initiated. This would involve the participation of the custodial staff and other employees of the Building and Grounds Department. Preliminary discussions with the union leaders were initiated to determine what their feelings would be. Although nothing concrete resulted, it would appear they would be willing to participate if the changes were clearly determined.

The learning experience for the students was particularly meaningful because most of their recommendations were adopted. Thus, the students felt they were not taking a sterile course and making futile suggestions to the administration, as had been the case with previous such courses. This is the one instance of a field study course in which action followed. As indicated earlier, in the spring of 1973 the Waste Control Authority at Michigan

State University initiated the first full-scale recycling program in the country.

As a result of these independent study projects, it readily became apparent that nonacademic education could be a very useful tool for an agency with limited funds, and that this concept could be expanded. Specifically, the assistantship program in various academic departments often requires these departments to place their students in off-campus situations, which has disadvantages in terms of commuting time and students' unfamiliarity with the tasks.

The first joint program between the W.C.A. and an academic department was undertaken with the Resource Development Department. Early in 1973 the Waste Control Authority initiated a chemical waste program. Investigations had shown that there was a major problem in the collection and disposal of potentially environmentally hazardous chemicals. Funds were not available to hire full-time staff people to investigate and solve this problem. It was suggested that perhaps a graduate student in a related department could be employed. The Resource Development Department was contacted and an interested student with a chemical engineering and chemistry background was found. Again, because of the extreme shortage of funds, various departments including the College of Agriculture, the College of Engineering, and the Department

of Chemistry were canvassed for funds. Finally, the Resource Development Department offered a quarter-time assistantship if matching funds were made available by the Waste Control Authority. Thus, early in 1974, the W.C.A. employed the first student graduate assistant, a master's degree candidate in Resource Development. The academic advising and course work took place in the Department of Resource Development, and work experience and practical supervision occurred in the Waste Control office.

As a result of this first successful attempt to develop a relationship between an academic department and an administrative service department, several additional programs were initiated. In the spring of 1974, the student was invited, along with the Director of the Waste Control Authority, to speak at a meeting of the American College Health Association. Following this, the director and the graduate assistant submitted a paper entitled "A Comprehensive Overview of Waste Control" to the Journal of the American Health Association; it was accepted for publication.[6] At the end of spring, 1974, the student accepted a full-time position with the Water Basin Commission in Ann Arbor, Michigan, and left the employ of the Waste Control Authority.

In January, 1974, the recycling program had grown to such an extent that it was impossible to maintain adequate personnel functions, including interviewing, payroll,

policies, and procedures, with part-time personnel. Thus, the Student Employment Office at Michigan State University was contacted. Candidates for the position of personnel manager were interviewed. The final decision was made to hire, on a half-time basis, a graduate student in the Department of Management. His background was primarily in industrial management, and he was working toward an M.B.A. degree in personnel. This student began extensive work with the recycling program in the winter and spring quarters of 1974, and was subsequently employed on a full-time basis in the summer of 1974. It became evident that the amount of work and level of performance required of the personnel manager were such that funds to provide a salary commensurate with a graduate assistantship were unavailable.

After consultation with the student in question, it was decided that the Authority would try to initiate a joint program with the Department of Management. As mentioned previously, this program would provide quarter-time assistantship funds from the graduate department and academic counseling therein. Matching funds would be made available from the budget of the recycling program. Following the precedent of the Resource Development Department, the Department of Management extended its wholehearted cooperation and encouragement.

The department chairman was able to see inherent advantages in this program of allowing his students practical experience in their chosen academic area while providing a model system at close range. This program has had excellent consequences. The student was able to go back to his department and consult with his professors about some of the problems facing the Waste Control Authority's recycling program, and in particular some of its personnel needs. To continue the program, it is anticipated that other potential graduate assistants will be identified. As one student finishes the program, he will, in turn, recruit other students. The Department of Management has supported this concept.

The following case study of this graduate student's course work illustrates the educational opportunities that have arisen from the program, which combine the structure of a learning experience with a work experience. The first class was a graduate-level psychology course, for which the student submitted a paper entitled "An Application of the Scanlon Plan to the Recycling Program W.C.A.; The Preliminary Study." His introduction reached the very heart of nonacademic administration:

> The Michigan State University description of Psychology 859 reads as follows: The psychological principles and methods in the training and development of personnel at all levels of supervision and leadership. Within this broad framework, students have the freedom to investigate in-depth a subject of particular interest to them using the principles

> brought out in both class discussions and in the books and articles reviewed.
>
> In this light, I have chosen to study the application of the Scanlon Plan to the Michigan State University Waste Control Authority Recycling Program. The first part of this study will give the reader necessary background on the Waste Control Authority as an organization and its recycling operation methods. After a brief review of the Scanlon Plan and its underlying principles, a tentative proposal for application of the plan to the recycling program will be formulated. This paper is the first effort of such an endeavor, and as such, the plans presented will undergo revision before their implementation. . . .
>
> The study presented here is in the first stage of the project. The objective behind it is to show the possible benefits of the Scanlon Plan to the Waste Control Authority. . . . As Personnel Director of the recycling program, I sincerely hope the project reaches implementation.[7]

The report described in detail the organization, structure, function, make-up, and economic prospects of the recycling program. The student went on to discuss the Scanlon Plan,[8] and concluded by listing some of the benefits the recycling program could realize by adopting this plan. These benefits include: (1) a better return, in that more material will be handled more efficiently; (2) reduction in complaints because unsatisfactory work results in loss to workers as well as to the organization; (3) management-labor cooperation improved by increased knowledge of the total organization given to all its members; (4) efforts of employees better coordinated, that is, working together and sharing both the good and the bad times; (5) controlled production on the part of the employees alleviated; and (6) teamwork effectiveness in handling crisis situations.

Finally, the student had to decide whether or not the plan could work for the recycling program. This he did with a general explanation of the procedures involved without getting tied to the specific mechanics. He concluded: "At this time, I feel the Scanlon Plan system can be effectively applied to the recycling program of the Waste Control Authority."

The same graduate student conducted a second study for an advanced management course, and presented a report entitled "An Application of Manpower Planning to the Recycling Program of the Michigan State University Waste Control Authority. . . The Preliminary Study." He introduced this particular study by mentioning that objectives of the course were to (1) develop an understanding of the staff functions of personnel administration and the interrelations of those functions with the operations of the entire organization and (2) to examine some current and emerging issues of personnel administration. He continued: "In this light, I have chosen to study Manpower Planning--its overall philosophy and its techniques as applied to the recycling program at M.S.U."[9]

The first part of the study gave the necessary background on the organization and its methodology. After a review of manpower planning and its underlying principles and examination of current manpower practices, the program was presented and recommendations for improvement were made.

The basic questions were to examine the role of manpower planning and its effect on the recycling program.

The report went on to discuss a general overview of manpower planning. A broad definition was established so that its value to an organization could readily be seen without specific methodology. Clues reached in this preliminary study of manpower planning in regard to the recycling program show the potential benefits to be gained by improving the current manpower policies and planning techniques used by the program. Two major benefits resulted from this preliminary study: A thorough definition of the recycling program was formulated, and job descriptions were also formulated. In regard to manpower planning, it is apparent that the recycling program needs to be improved in order to manage more effectively its complex and changing environment.

It is also interesting that this graduate assistant wrote a comprehensive employee handbook, which is the first known handbook for student employees to provide meaningful assistance on the job.

The last example of this particular graduate assistant's program is a study he and four other students presented for a management course; their report was entitled "Student Employee Needs . . . What Are They? Are They Being Met?"

The paper began:

> Today students provide a substantial labor pool in many colleges and universities. Michigan State University is one such university employing approximately 7,000 students. In this university, student labor is utilized in many areas including the residence halls, the libraries, the physical plant, the grounds department, and the recycling program of the Waste Control Authority.
>
> In most cases the type of work the students are involved in is different from the student's academic major or professional commitment. Since the position the student holds is somewhat temporary, existing only while the student is in college, we designed the study to (1) assess the needs of student employees and (2) determine whether these needs are being fulfilled in the student's present job. The study presented here is an example of the kinds of research that should be performed to help the university better understand this segment of its work force.[10]

The students went on to discuss various concepts inherent in job theory. Specifically, a job model was formulated to survey student employment needs. In this model a set of maintenance needs--that is, hygiene factors and motivational needs--was established. The study was to indicate which set, if any, is more important to student workers and whether or not these factors are currently fulfilled. Maintenance needs are those peripheral to the job--wages, seniority, work rules, physical environment; motivation needs are those that allow for feelings of achievement, responsibility, and growth. The absence of motivators may cause motivation seekers to behave like their work environments.

The research for this project started with a profile of the total student employee population on the M.S.U.

campus. The data provided by the Student Employment Office indicated that approximately 7,000 students were employed. It was decided to develop a weighted questionnaire that would reflect some of the major employers on campus. The students participating in the survey would be composed of: 50 percent workers employed in the dormitories as food service workers, desk receptionists, or on maintenance crews; 20 percent were student janitors employed by the physical plant facilities; 15 percent were employed by M.S.U. Libraries; and the remaining 15 percent were divided evenly between the Grounds Department and the Waste Control Authority. It should be noted that these percentages do not reflect the actual distribution among departments.

One hundred students participated in the study; participants were stratified by sex, class, and length of time on the job. A questionnaire was formulated to examine what an employee looks for in a student job. The various needs were designated as economic, physical, social, growth, achievement, recognition, security, status, responsibility, and orientation. It was felt these ten areas were significant to the student employees. Of the ten areas, the students were asked to rank each need according to the following criteria: most important received a score of 4, second important received a score of 3, third important received a score of 2, and least important received a score of 1. The students were also asked to

answer ten questions concerning their present job situation, i.e., "Personally, I am reasonably compensated for the work I perform--agree, somewhat agree, or disagree."

The results of the survey showed that of the ten need factors, growth and achievement seemed to be the most important in all stratifications except for those in the job over six months. For these students, responsibility came first, with growth and achievement second. This could be because supervisors grant more responsibility to students who have worked at their jobs for a longer period of time.

The recycling crew ranked communication, responsibility, status, and recognition higher than did the other two groups, that is, dormitory and library employees. These high rankings may reflect the environmental value associated with the Waste Control Authority. It is also interesting that even though all groups ranked growth and achievement most important, the recycling crew's mean score was the highest. This again may possibly be a result of the nature of the organization. The recycling program does not fulfill economic and physical needs because the work environment is not as pleasant as that of the other two groups, nor are the economic incentive and work effort compatible. Social and communication needs fulfillment is low because of the isolation of many different work areas. The security need fulfillment in the recycling program is

low because it has recently been faced with economic problems (price cuts for the paper it sells). Thus, many employees received cuts in their work hours. The writers concluded:

> The major finding to be drawn from this study is that the university must be aware of the student employee needs to provide for increased job satisfaction in this segment of its work force. As noted, growth and achievement are the most important needs yet are the ones least fulfilled in the student's present job. Increasing certain maintenance needs, e.g., economic, will not provide for increased motivation and job satisfaction because maintenance needs are not viewed as that important to the student worker.
>
> With the student employee union in the current spotlight, it is apparent that not only the university and its student employing department can benefit from a study of this nature. In fact, our group has been approached by representatives from the student union and our results may prove helpful in their campaign.

What is very interesting in terms of this particular student's work was the comment made by the professor at the conclusion of the study. He praised the report and went on to say, "Your study would give the union a good basis for deciding what needs to pitch their campaign toward. The economic need seems to be relatively well satisfied. There would probably be better response if the pitch were aimed at the lack of growth and recognition opportunities in these jobs. This is a very impressive survey and well analyzed."

Only two of the five students who conducted the preceding study worked for the W.C.A. As a result of interviews and discussions with these two student employees, the recycling program derived several benefits, including

better communication between the students who are serving in an administrative and supervisory role and the students working on the crews. The second benefit, of course, was that the students in this course were better able to perform their personnel functions within the Waste Control Authority.

Methods have been developed with academic departments whereby to initiate directly sponsored and funded programs and assistantships. To date, the results of this joint venture have been excellent. Students have come to the W.C.A. from at least seven departments encompassing four colleges. Three students have received quarter-time assistantships provided by their departments and matched by equivalent funds from the W.C.A. Labor Account. The advantages to the W.C.A. are as follows: The students provide the manpower necessary to develop programs that would otherwise be overlooked or put off because of staff limitations. Second, the W.C.A. enjoys some contact with academic departments, thus assuring that students in their departments are familiar with its activities. Of particular note are the Resource Development, Fisheries and Wildlife, Forestry, and other departments in the College of Natural Resources. These departments are vitally interested in the effects of recycling, and many of their volunteers have come to the W.C.A. to participate in the annual spring River-Cleanup Project. Another advantage to the Authority is that the program

provides an inexpensive way of obtaining expertise in needed areas. For instance, one of the graduate assistantships obtained was through the Department of Management, which provided a student who was working toward a master's degree in Personnel. Since the W.C.A. grew from a recycling program that employed two students to one that employs more than 85 students, the responsibility of the personnel department within the Authority has greatly enlarged. No funds were available to hire a full-time personnel director but, on the basis of a matching quarter-time assistantship, an excellent relationship has developed.

The advantages to the academic department are as follows: First, the students are placed in an actual working situation during the time they are enrolled in school. Second, students do not have to travel to receive this experience. This allows them more time in the actual work experience. Third, the W.C.A. is so small that students receive immediate training and are thrust into a work situation rather than serving an apprenticeship, as is common in an already functioning operation. Thus, they avoid the "fetch" syndrome, in which they are provided very few functions or responsibilities. Finally, many departments are interested in demonstrating to the administration the various services they perform for the University. They want this service function recognized for

political reasons which could later justify funding or personnel requests made of the central administration.

The advantages to the students are equally significant. It is difficult to receive a relevant work experience while still attending college. The primary problem results from the student's class schedule. Very often it is difficult to reserve an entire morning or entire afternoon for five consecutive week days. Hence a student is limited in obtaining experience in a business operation. The recycling program, on the other hand, is coordinated around student labor providing the majority of the work force. Thus, the graduate assistants have the flexibility of working variable hours without diminishing their effectiveness or disrupting the program's schedules. The recycling program operates from 8:00 a.m. until 10:00 p.m., four days a week; on Friday from 8:00 a.m. until 5:00 p.m.; and on Sunday afternoons. Thus, there is ample time to fulfill the graduate assistant requirement of 20 hours per week.

The concept of nonacademic education implies that there is a learning or training period of employment. Since most of the graduating students expect to obtain employment, they are able to use the recommendations of the Authority to provide them with better jobs. Finally, these students are able to make valuable contacts within

the business community, which may help them in the future. So many students are working on a part-time basis that the employer stresses self-reliance, self-initiative, and self-starting. The emphasis of the Authority's recycling program is on self-reliance and goal orientation. Students quickly learn to act as professional employees and not like student workers.

In the past, seminars have been held on alternate Fridays to provide staff employees of the Waste Control Authority more substantive knowledge of the paper industry. In effect, this seminar represents a graduate education program without the formality of specific course requirements or college credit. On a rotation basis, the staff members prepare information, questions, problems, and studies for the edification of the entire group. On the Thursday preceding the seminar, an outline is distributed to all members of the staff, so that they may have sufficient time to look over the proposed topics for the next day. Outside speakers from various cognate departments are invited to the Waste Control Authority to present their viewpoints and information at these seminars. Thus, there is continual communication between the academic departments and the Authority. This has led to further recruiting of staff and graduate assistants by the members of these departments who are thus informed of the needs and requirements of the recycling program.

People often ask how students are attracted to the Waste Control Authority office. Originally, as indicated earlier, students were recruited by the Director of the Authority. In time, this procedure became unnecessary as the program expanded and the educational opportunities became known. Students who originally came merely for part-time employment became interested in the concept of job training for post-graduate employment. They, in turn, have attracted other students who are concerned about environmental issues and career development. The Authority office also maintains a library related to the recycling and environmental programs. This library is open to any student without charge; visitors may, in normal business hours, come into the office and use the materials on hand. This library has also helped attract students to the program.

In addition to word-of-mouth recruiting, the W.C.A. has also received extensive publicity in the student and local newspapers, on radio, and on campus television. When it has become necessary to purchase advertising space, a cooperative arrangement with the media has usually been possible. Thus, the Authority has received preferential rates and, in a few instances, has been able to share the expense with the newspaper as a public service gesture.

Staff members went to the dormitories, fraternities, sororities, and other groups to show a prepared slide presentation and lecture. These various organizations were interested in learning about the paper recycling group and its ramifications and implications for the student body.

Finally, an organization of students interested in recycling was formed. These meetings usually attracted between 30 and 50 students. In the early stages these were the student volunteers in each dormitory, but later the paid workers attended and brought along interested friends.

Slowly but steadily, communication has improved and it has become known that students who are interested in this particular area of environmental quality or are interested in business or advertising can not only seek employment, but also an applied educational opportunity. A close working relationship has been cultivated with the Student Employment Office at Michigan State University. The Director was invited to lunch and later attended a briefing at the Waste Control Authority office. As a result, the Student Employment Office began to send over more qualified candidates. The entire prescreening process was conducted by their office, thereby saving the Authority's personnel many hours of work.

From these sources many students were attracted to the Waste Control Authority office and requested independent study courses. The motivation to accept academic credit for independent studies or to write required term papers on the various activities associated with the Authority is not surprising. Recycling, resource recovery, pollution, and environmental control are all very popular issues today. Furthermore, the information is so new that the majority of textbooks do not contain facts or information in these areas. Thus, a student can very quickly develop the information for a study or term paper without repeating ground that has already been thoroughly covered. In Appendix A is a list of the courses and disciplines from which students have applied for either independent studies, term papers, graduate assistantships, or other activities. This covers a wide range of disciplines and departments.

At the present time, the Department of Industrial and Labor Relations has approved a graduate assistant to work with the Waste Control Authority program. This student applied to the academic department for matching funds to enable a half-time assistantship to be formulated. This brings to six the number of graduate student assistantships organized by the Waste Control Authority in two years.

Summary

Chapter III has examined the history and development of the Waste Control Authority. Included in this chapter were sections on the formation of guidelines and the educational development of the program. To enable the reader to appreciate the exportability of the program, it was necessary to provide a detailed orientation emphasizing the lack of consideration by administrators and faculty for the educational potential involved. Several examples of the development of educational opportunities were examined, as were the opinions and surveys of students.

Footnotes--Chapter III

[1]Susan Carter to author, personal communication, May 1972.

[2]James Keinath, "An Evaluation of Michigan State University's Waste Control Authority Recycling Program" (term paper, Michigan State University, February 1974).

[3]Norman Schleif, "Solid Waste Management at M.S.U. Past and Future" (term paper, Michigan State University, Spring 1974).

[4]Joan M. Wolnewitz, Independent Study Paper, Michigan State University, Spring 1974.

[5]Ronald Wilson and Fred Moore, Field Study Project on Paper Recycling, Michigan State University, Fall 1972.

[6]Mark E. Rosenhaft and C. Schafer, "A Comprehensive Overview of Waste Control," Journal of the American Health Association 23 (1975): 333-339.

[7]Michael DeRogeris, "An Application of the Scanlon Plan to the Recycling Program W.C.A.; The Preliminary Study" (term paper, Michigan State University, Fall 1974).

[8]The Scanlon Plan is a formula for management-worker cooperation; suggestions for improvement of work procedures are submitted by worker teams to screening committees consisting of both management and workers. The economic gains resulting from improvements in economic performance are distributed equally among the workers in the form of a bonus that is usually a predetermined ratio of the overall savings. Under the plan, workers can see the immediate connection between their own efforts and the economic rewards they attain as a group. In a typical suggestion plan, most individuals will not submit key suggestions because they do not wish to be singled out from their group, and because they recognize that ideas are the joint products of many. In the typical profit-sharing plan, the worker rarely sees how his bonus is related to his own efforts. The worker teams and joint management-worker committees not only provide their members with immediate gratification of social needs but also lead to improved communication and greater worker involvement in urbanizational activities and goals. They become more motivated and are capable not only of increased production, but also of innovations that reduce costs.

[9]Michael DeRogeris, "An Application of Manpower Planning to the Recycling Program of the Michigan State University Waste Control Authority . . . The Preliminary Study" (term paper, Michigan State University, Winter 1975).

[10]Michael DeRogeris, "Student Employee Needs . . . What Are They? Are They Being Met?" (term paper, Michigan State University, Winter 1975).

CHAPTER IV

PROGRAMS IN EDUCATIONAL INNOVATION IN ADMINISTRATIVE DEPARTMENTS AT OTHER UNIVERSITIES

Introduction

Nonformal educational opportunities, as suggested by the preceding case study description, have begun to develop in other universities. The intent of this chapter is to examine similar programs conducted in the Big Ten universities as well as an outside case, that of Washington State University. The advantage of looking at these so-called nonacademic functions for academic purposes is to broaden the impact of the potential for innovation and education.

The major example of a comparable program was developed at the University of Michigan. Their initial contacts resulted from Michigan State University programs and the effects on the students' interest in environmental issues. As a result of this interest, a full-scale effort, lasting over a year, was undertaken. The effort and conclusions are presented in this chapter, as well as parallel approaches of other universities.

The University of Michigan

Through its student organizations, the University of Michigan in early 1973 became aware of the educational potential in the Waste Control Authority program at Michigan State University. Several students visited Michigan State University and talked with members of the Waste Control Authority office, initially concerning a recycling program. This later developed into a broader, more expanded effort to bring environmenal education through administrative service elements to the University of Michigan.

The University of Michigan students were members of an environmental group called ENACT. This organization had sponsored independent study reports on some of the environmental problems of the University. The students initially felt

> Many people in organizations at the University have become increasingly involved in environmental problems evidenced, in part, by expanding enrollments in the School of Natural Resources, formation of the Institute for Environmental Quality, ENACT, the Environmental Law Society, and so forth. As a large community (about 60,000), the University of Michigan generates a tremendous amount of waste. Wise management demands that the University concern itself internally on a day-to-day basis with its impact on the environment, i.e. to practice the principles it teaches. A variety of existing University offices deal with environmental programs and waste disposal. However, many of the problems cut across different areas of responsibility and demand a broad base of experience and expertise. There is a need to bring together these people and organizations, staff, students, and faculty, knowledgeable in environmental

> problems to provide a centralized thrust to environmental protection efforts yet with everyone continuing to do his part. [See Appendix B for a complete copy of the report.]

The report went on to state that the responsibility of the Waste Control Authority at Michigan State University is environmental action and coordination of the total waste disposal activities in the University. Adapting and styling the Authority to the needs of the University of Michigan would be necessary. The basic structure and concept appeared to offer what could be a very viable approach to facilitating university-wide environmental and educational efforts. The report and the concept of a Waste Control Authority were discussed with a number of people inside and outside the University of Michigan to collect information and to obtain feedback. Administrators at the University of Michigan who were responsible for waste disposal were contacted, as were a number of faculty members from Natural Resources and Engineering.

As a result, the student group felt that the University of Michigan should have a broad-based, interdisciplinary committee of those staff, faculty, and students most directly involved in or knowledgeable about environmental education. The committee would provide the expertise, whereas a full-time director would be responsible for developing background information and data collection,

implementing the decisions of the Waste Control Authority. He would maintain contact with city, state, and federal agencies and coordinate the efforts of interested individuals and organizations in structural research and service aspects of environmental education. He, or his office, would be available for information or referral on a daily basis and would be free to travel when necessary.

Based on guidelines for the Michigan State University Waste Control Authority and discussions with a number of individuals at the University of Michigan, the major advantages and responsibilities of a Waste Control Authority would be: (1) centralizing information collection and dissemination on environmental programs both inside and outside the University; (2) maintaining a long-range perspective; (3) data collection; (4) potential for regional systems development; and (5) strong involvement from faculty and students to provide more feedback between application and research. Individual students or student groups like ENACT would help significantly in the areas of environmental action and awareness, research studies, monitoring of pollution problems, and facilitating implementation of programs to increase the effectiveness of the Waste Control Authority. Courses or sections could be organized to research a particular problem or issue. For example, the Residential College or Natural Resources and the Waste Control Authority could review these proposals to provide

input from students, staff, and faculty. (Here again the reader will note the vague capabilities of providing educational opportunities essentially from a nonacademic viewpoint.) University of Michigan personnel, based upon conversations and an examination of the case study at Michigan State University, realized that a significant educational opportunity could exist and could be preplanned by their University. As a result of these preliminary student reports, a formal request was made to the University of Michigan administration for administrative support of the concept, establishment of a preliminary committee to plan for a Waste Control Authority, and funding for one person to work full time or part time with the above committee. Included in the request was:

1. The formal affirmation of support from the university executive offices for the concept--a direct link between the Waste Control Authority and the top administration is essential to the success of the program.

2. Appointment by the executive office of the University or the president of people with extensive experience and expertise to sit on a preliminary committee whose responsibility it would be to review and establish a Waste Control Authority. The preliminary committee would identify needs, goals and responsibilities, consider further background information, set a structure adapted to the University of Michigan, evaluate costs and benefits,

secure formal approval of the final proposal, recommend appointments, and search for a director.

3. The funding for one person to work full time with the committee for the duration of a single term necessary to study the problems.

4. To look for the possibility of career opportunities through the application of environmental education or natural resources courses in areas of concern to the Waste Control Authority.

The students who had recommended this report were specifically interested in providing job opportunities for other students as well as educational opportunities therein.

The University of Michigan did establish a waste control committee. On November 30, 1973, the committee met; it was composed of 15 members, including faculty, staff, students, and City of Ann Arbor representatives. At that meeting, the committee discussed the need for other people in areas that should be included on the committee. There was a general discussion on the need for a committee such as this and a coordinator was appointed. The committee decided to meet twice a month until such time as a report could be prepared.

On February 6, 1974, the Chairman of the Waste Control Committee at the University of Michigan contacted the Director of the Waste Control Authority at Michigan State University. The committee had several questions:

(1) How did the Waste Control Authority come into existence? (2) What was the power initially given to perform operations? (3) How are operations defined? (4) How were the subcommittees established? How were the subcommittees constituted? What was the nature of their operation? (5) What kind of budgetary constraints are there on the operation? (6) How does the Waste Control Authority establish priorities? (7) What types of problems does the W.C.A. encounter in trying to accomplish the things it feels need to be done; that is, what others want? How are these conflicts resolved? (8) What are the current issues confronting the W.C.A.? (9) What opportunities have been secured to students to develop job-related skills or course-related programs? (10) What types of problems do you think the University of Michigan might encounter in developing the type of program Michigan State University has into their administrative structure? (11) What structure is available for liaison between the academic community and this nonacademic service educational program?

The Director of the M.S.U. Waste Control Authority answered these questions at a meeting in Ann Arbor in March of 1974. A lively discussion followed, with particular emphasis upon the techniques of using cooperative graduate assistantships between academic departments and a newly formed Waste Control Authority. There was the

usual split on this committee between the academicians and the nonacademic administrators. The student involvement was superficial at first, but as they realized the impact of this proposal, they became enthusiastic and supportive.

The Waste Control Authority at the University of Michigan brought together many of the existing University offices then dealing with environmental problems, waste disposal, and, in some ways, environmental education. Representatives from the Civil Engineering Department, Planned Operations Department, School of Public Health, the University Hospital, and the Environmental Education Department served on the committee. Also included were the Directors of Public Works for Ann Arbor and Washtenaw Counties, as well as representatives for the Ecology Center and the Environmental Bureau of the City of Ann Arbor. Student representatives completed the committee cross-section. By cutting across different areas of responsibility and concern, the Waste Control Authority committee provided a base of experience and expertise to work out the diverse problems confronting the University in relation to pollution problems and stressed the need for an educational parameter beyond the classroom.

As a result of the interview with the preliminary committee at the University of Michigan and their later committee meetings, the group in April, 1974, issued a

report stating their findings. The report was entitled "Pollution Problems at the University of Michigan: Recommendations for Change," and included a general statement of the problem, a proposal for the formation of an ongoing pollution control task force, and reports on various topics concerning solid waste, recycling, chemical waste, and other related subjects. Of particular significance to the present study is the section on environmental education, which is discussed later in this chapter.

In the preamble of their report, the committee stated (see Appendix C for complete report):

> Of social institutions like the University of Michigan, much is expected. Both internally and externally the University is encouraged to assume its share of the responsibility of researching the nature and extent of our environmental problems and to adequately train people to respond to these problems. In this respect, the University has begun a vigorous response. This is not enough. The University is also being asked to practice what it teaches in the terms of values and mechanics of maintaining a quality environment. It is also being asked to develop a more pragmatic approach to environmental education and work experiences relative to this need. Insistence that this education be provided is not only from an enlightened perspective but also from the clearcut reality of the need for alternative forms of education.

As a result of their three-month study, the committee proposed the formation of an ongoing pollution control task force. They went on to make the following recommendations:

> Below is our recommendation for what an ongoing pollution task force would look like. We spent the last year reviewing and attempting to evaluate

> various pollution control approaches of other universities and organizations in size similar to the University of Michigan. Perhaps the most helpful contact we made was with the Waste Control Authority at Michigan State University. Its Director talked with us at length about the nature of their Waste Control Authority--its size, responsibility, effectiveness, and appropriateness in University context. They've had the benefit of several years experience and appear to have developed a viable and exciting program. It should be pointed out that the characteristics and problems at Michigan State University are not necessarily those of the University of Michigan. The physical layout of the University, the decision making process, many of the specific environmental problems of the University and so on are quite different from those here at the University of Michigan. However, it is important to note that the approach taken by the Waste Control Authority at Michigan State vis-a-vis the need for nonacademic education and specific job opportunities for students is worthy of mention.
>
> Actual decision making and lines of authority within the University would not be changed by the arrival of a Pollution Control Task Force. Rather, decision making would be enhanced by the information and recommendations that could be provided by the task force. The task force would not be taking away any responsibility from any existing departments or administrative units but would be simply assisting them in an advisory capacity. For the Pollution Control Task Force to be truly successful it is important that the University itself foresees the need for establishing different priorities and faces the need for even greater environmental responsibility.

On May 2, 1974, the Director of the Waste Control Authority of Michigan State University received a letter from the Pollution Control Task Force Coordinator at the University of Michigan. He wrote:

> As you can see, in the Waste Control Committee Report, the ongoing task force that we propose to form is almost a carbon copy of the Michigan State University Waste Control Authority. It seemed very foolish not to try and capitalize on your experience. If it works at M.S.U., it should work down here.
>
> Right now our University Executive Committee is reviewing the report. . . .

Subsequent conversations with personnel at the University of Michigan indicated that the position of coordinator was never funded on a full-time basis. No decision was forthcoming from the executive or administrative group to press the program. Funding priorities apparently shunted this program aside.

Interestingly, earlier comments made about the Waste Control Authority at Michigan State University indicated that what was required for implementation of this program was the very strong backing of one key administrator. At Michigan State University this key administrator has been the Executive Vice-President. It is apparent that the University of Michigan received support for development of this program at a mid-management level, but was unable to develop a firm supporter at the executive vice-presidential level. Thus the recommendations by the Pollution Task Force at the University of Michigan have not yet been implemented.

The University of Minnesota

The University of Minnesota has one of the most comprehensive departments of environmental health and safety in the nation. The Michigan State University Waste Control Authority first contacted officials of this department in Feburary, 1972. At that time the M.S.U. Authority was talking about the need for a Big Ten conference in

the areas of chemical waste and recycling. In May, 1972, the Director of the Waste Control Authority visited the University of Minnesota campus. At that time he was introduced to Robert Reed, Environmental Engineer in the Physical Plant at the University of Minnesota. After this meeting a dialog began concerning recycling activities at the University of Minnesota and particularly the environmental education opportunities. At that time, Reed was in a nonacademic administrative position and was concerned with the development of academic activities through his office. He was in complete agreement that educational activities should not be limited to academic departments, particularly in these applied research areas. In June of 1972 the University of Minnesota again contacted Michigan State University about a mutual problem--chemical waste disposal. The University of Minnesota has serious disposal problems and was at that time using a facility at a federal site near Rosemont, Minnesota. This solution was unacceptable because of the probability of ground water contamination. Their personnel suggested that a joint meeting or correspondence be begun to discuss alternatives. The information for the University of Minnesota was distributed to various administrative agencies at Michigan State University. Of particular note was a response by the Department of Public Safety:

> It would make sense if Michigan State University [in an appropriate academic program] would institute an early research study of what we are doing with waste chemicals. The material you sent, and which is attached, indicates that there is a method for proceeding.

Once again there was the problem of nonacademic administrative departments being unwilling or reticent about accepting the possibility of academic cooperation. In effect, what they had been saying was it was not their concern to undertake any kind of research activities.

The University of Minnesota had established a consortium for the study of solid waste management--recycling options. The members of this consortium came from the Center for the Study of Physical Environment and academic departments such as Agriculture-Engineering, Civil and Mineral Engineering, Mechanical Engineering, Soil Science, Chemistry, and Geology and Geophysics. The non-academic members included students from a campus group (MPIRG), the Environmental Health and Safety Division of the University Health Service, a Solid Waste Director, Metropolitan Council for St. Paul, Minnesota, and the Director of the Physical Plant. The purpose of this consortium was to develop alternatives in solid waste management that would look at the current technology, sources, quantities, and composition of solid waste of urban, agricultural, industrial, and mineral origin. Some of the groups established included the Urban Waste, Agricultural

Waste, Industrial Waste, and Mineral Waste committees. This consortium met in the evening for dinner and a seminar-type presentation. Students were invited and the program was generally chaired by nonacademic personnel from the environmental health branch. Some of the speakers at the seminars came from off campus to look at the solid waste management program from a consultant's viewpoint, the university viewpoint, the Environmental Protection Agency viewpoint, and others. To supplement the seminar series and to help the members of the consortium establish a more common base of discussion, it was proposed that papers be prepared that would summarize the proceedings. The original impetus for the program came from the nonacademic sector. As the consortium developed in the area of solid waste management, the Physical Plant employed graduate students to organize the seminar presentation.

Other Big Ten Universities

In December, 1972, the following universities were contacted by letter to determine if they were involved with nonacademic programming similar to that at Michigan State University, or had a mutual interest in such education. Responses from these universities were as follows:

Ohio State University--Response from the Campus Planner indicated they do not have a similar program but would appreciate further information.

Purdue University--Response from the Physical Plant indicated they have not, as a university, taken any steps in respect to recycling materials.

University of Wisconsin--Response from the Director, Physical Plant Division, indicated they have not developed a program to equal or surpass M.S.U.'s environmental action project. They did request further information.

University of Iowa--The Business Office answered as follows: "The University of Iowa has set up an Environmental Studies Planning Project to investigate much the same problems as your Waste Control Authority. That is, (1) campus impact, (2) education of students, faculty and staff, and (3) the development of grant support for demonstration projects and research." The letters that followed showed great interest on the University of Iowa's part in arranging a meeting of Big Ten universities to discuss the M.S.U. Waste Control Authority and how this educational experience would be implemented.

Indiana University--Response from the Assistant Dean, Division of Student Personnel, indicated they have a volunteer-operated recycling program but no formal education program to use nonacademic instruction.

University of Illinois--Response from the Director, Physical Plant, indicated the University of Illinois conducts a small program in environmental action programs.

There is no organized use of students in an educational program in conjunction with the nonacademic community.

Northwestern University--No response.

In summary, of the Big Ten universities, Michigan State University, the University of Michigan, and the University of Minnesota have investigated comprehensive programs that provide nonacademic education through an administrative organization. The University of Iowa has undertaken a preliminary program in this area. The remaining Big Ten universities have not as yet undertaken nonacademic programs in administrative organization areas.

Washington State University

Students at Washington State University in Pullman, Washington, organized a paper recycling program in the spring of 1972. Their report stated:

> After initial discussions between Environmental Research Center, Pullman Recycling Center (a nonprofit community recycling operation comprised largely of students), and Washington State University administrative personnel, a recycling committee was established to study and recommend a course of action for W.S.U. involvement in recycling. The committee, comprised of representatives from several colleges, the student body and Physical Plant, in November 1972 recommended that (1) a paper recycling pilot project be undertaken spring semester 1973, (2) a course on recycling and resource recovery be taught, and (3) research in recycling and resource recovery be encouraged through publication of a bibliography. All three recommendations were accomplished in modified form spring semester 1973.
>
> A temporary part-time position of recycling coordinator was established in the Physical Plant to administer the paper recycling pilot project. It was the recycling coordinator's job to draft the publicity,

> hire student help, see that the appropriate data were collected, and evaluate the project at the end of the semester. Pullman Recycling Center personnel initially comprised a majority of the workers under the project.
>
> In early March 1973, a memorandum from the Executive Vice President of Washington State University was sent to all departments urging them to participate in the project according to an attached instruction sheet. . . . Both the W.S.U. Bulletin and the Daily Evergreen cooperated in publicizing the project thoroughly. Several weeks after this initial salvo of information, students working for the project visited departmental offices to further explain the instructions and to show office personnel acceptable and unacceptable paper types.

The concept was similar to early undertakings of the Michigan State University case study. However, the educational portion of the program was ineffective because of the lack of coordination. When it was pointed out to the people at Washington State University that students could contribute a great deal more to the program beyond hourly pay for manual labor, they agreed to implement a trial program. Two student coordinators would be given authority to recruit and manage the day-to-day operation in conjunction with academic advisors. College credit would be offered for this experience. Since the program is still in the planning stage, it has not yet been evaluated.

Exportability of the Case Study Program to Other Universities

The following comments may serve to indicate how the Waste Control Authority program at Michigan State University could be transposed to other university settings.

1. Problem of focus. If citizens and community leaders expect to play an effective role in solving the environmental problems of the urban and nonurban environment, it is imperative that all institutions of higher learning provide environmentally sound learning and research opportunities and use pollution-control methods that reflect a concern for the promotion of a higher quality environment.

2. Definition. The opportunity exists on the M.S.U. campus to provide an organized effort to collect and disseminate environmental information on pollution control and to promote further research in this vital field. It is also important that the learning environment be reinforced by University policies and practices that reflect a community-wide commitment to a high-quality physical environment. It seems clear that environmental problems associated with pollution control could be reduced through vigorous, University-wide environmental education. If the programs prove successful they would serve as a viable model for other universities across our nation.

3. Current situation. At present there is no such department providing centralized environmental information through the university and community. The Center for Environmental Quality performs part but not all of these services. A number of university staff, students, and faculty are committed to research and education in the field of

pollution control. However, there is a dire need for an organization capable of further research and education in the field of pollution control management and promotion of further activities. A pollution control task force with a firm financial commitment could help to further sound education research, university policies and practices in an effort to provide a high-quality learning and physical environment.

In many ways, since the pollution control task force would have a full-time nonacademic coordinator, much of the responsibility for organizing such an environmental education program would in effect be a nonacademic responsibility.

4. Recommendations. Establish an education subcommittee as an arm of the Pollution Control Task Force to promote educational programs aimed at everyone within the University and to do research in the field of pollution control. Some major functions of the committee would be as follows:

a. Establish a centralized information collection and dissemination system on pollution control available to staff, faculty, students, and the community at large. This system would include information on current legislation, new developments in environmental technology, special projects, relevant data, and sources for additional information on pollution control. The information would eventually be computerized to provide for quick retrieval.

b. Establish a legislative subcommittee to keep the Pollution Control Task Force abreast of current legislative developments that affect University operations. With the staff involved in day-to-day operations, it is often difficult to be alert to new and pending legislation affecting the various phases of pollution control that relate to the University.

c. Assist faculty members who offer courses related to pollution control by making presentations, providing information sheets, identifying potential research projects, and providing visual aids.

d. Develop a special environmental program aimed at the staff of the University to create a greater environmental awareness in terms of the nature and impact of their job-related activity.

Summary

This dissertation has used as a cornerstone the premise that financial pressure will force universities to re-examine how they can continue to develop educational innovations. The unique approach of this dissertation has been to show that Michigan State University is not alone in developing the role of the administrative service departments as an educational adjunct. As discussed in this chapter, nonacademic education has also been applied, with varying degrees of success, at other Big Ten universities.

CHAPTER V

CRITIQUE, RECOMMENDATION, AND A MODEL

Introduction

The narrative approach was used in detailing specific case studies and examples of educational innovation in nonacademic departments. This was of necessity a very crude and preliminary report. The analogy of a botanist who discovers an improved species of corn by accident and then attempts to propagate this particular specimen seems appropriate. To continue, it is by good fortune that his initial discovery is made; he has no preconceptions or models to work from. The real value of his discovery comes later, when the "new species" is hybridized with older established producers. In this manner the advantages of the new strain are crossed with the advantages of proven theory.

In the same manner, the case study with the Michigan State University Waste Control Authority developed as an adjunct educational program. The Waste Control Authority was merely a vehicle to observe the concept. Later, as has been detailed, other universities picked up this concept, albeit in the area of environmental education

relative to waste reduction programs and recycling projects. In this chapter the emphasis is placed on other administrative agencies, that are perhaps more suited to develop an academic role or function.

Critique

It would be a terrible mistake to consider this dissertation entirely in terms of waste control programs for the following reasons. First of all, knowledge and experience gathered here need not be limited to just one narrow field. Rather, with appropriate modifications the concepts can be applied to a wider range of administrative service departments throughout the university. Second, the initial case study program has a flaw that precludes any ultimate success. Administrative theory requires acceptance and support of any bureaucratic structure from the top down. This support to a great extent must include sufficient financial assistance to assure the continuity of personnel and projects. In this case study, the necessary executive administrators have not been sympathetic to the potential or educational advantages, and the academic community jealously guards curriculum and instruction as its exclusive domain. Future programs must be organized and sponsored in cooperation with faculty who see the potential of applied learning and who are willing to demand that a work experience prior to job entry can be beneficial to students as well as to administrative departments. It should be

clear by this time that the writer regards work experience gained while learning within the university program as a broadened view of what education ought to accomplish.

Before proceeding with a more detailed analysis and recommendations, it seems appropriate to look at the university from the perspective of the forces pressuring for change. Dressel, in The Confidence Crisis, pointed out:

> One persuasive element found in institution studies was a sense of change. The transition was a simple, day-to-day, locally orientated operation to a more complex pattern with a gradual and continuing adjustment to a mutual commitment to competition in the national and international scene.[1]

He went on to say:

> Administrators seemed generally favorable to service and applied research programs because these place the university in a favorable position in the public eye. Since faculty have traditionally been somewhat less interested in these matters continuing education and then outwardly orientated programs have been set up quite independent of academic departments and their faculty.[2]

The general conclusions of Dressel's study were that universities and their included departments were out of control. He wrote:

> Administrators and faculties too readily interpret their own aspirations as meeting or transcending the educational needs of the clientele which they serve. In seeking support to fulfill these aspirations, they engage in half-truths and reluctantly acquiesce to requests for data which are so selected, manipulated, and presented to support their case. . . . Departments and other units within the university must be brought under control

> so that their resources are alleviated and used in accord with priorities set for the university by the university in cooperation with those who support it. This can be done only if more detailed information [is available]. . . . In all likelihood, some reorganization of the present confused university structure will also be required. It is to be expected that departments and faculties will strongly resist any reorganization or any system which permits review and control of their activities and administrators will be powerless to effect such alterations until public pressure makes continuing support contingent upon full revelation and upon adherence to priorities on which the support is predicated.[3]

Based on the preceding arguments, there appears to be a need for educational innovation, as recounted earlier in this dissertation. The question of "how to" is not as easily resolved. In all likelihood, through a natural evolution of financial pressures, institutions will be forced at least to consider alternative education sources. These sources may not provide substantial income to the university, but will be welcome for their cost savings, duality of staff operation functions, and as a job training grounds.

There have been many attempts to establish work-study programs in baccalaureate institutions. Such cooperative combinations of working while attending school originally started from the belief that education would be enriched by applying to a job the concepts and theory learned in the classroom. By alternating classroom attendance and full-time work experience on a weekly,

monthly, or semester basis, students gained job experience in business, industrial, and service organizations.

Federal support under the 1970 Labor-Health, Education and Welfare Appropriations Act made funds available for college and universities to develop these cooperative education programs. The hope was that students could relate theory to practice and find greater meaning in their particular areas of study.* A few major criticisms of these programs include the criteria for eligibility for the work-study program based on financial need rather than scholarships or merits, the inability of students to find significant work experience for short time periods, and the use of students in areas that are menial and unrelated to their fields of study--as gardeners, trash collectors, file clerks, and in maintenance positions, to name a few. The more significant professional work-study placements were in the community in business and industry and, unfortunately, not on the campus. Also, as might be expected, it is more difficult to obtain significant work experience for liberal arts students than for those in the applied fields of science, engineering, and business.

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*Note: For a more complete review of these values, see Wilson and Lyons, discussion in the literature review section of this dissertation.

A notable exception is the intern program or so-called student teaching required of education majors. This is a time-tested and effective way to develop work experience and provide job entry for teaching candidates. The cost of establishing a similar program in other disciplines is enormous, and conflicts with the financial pressures of colleges and universities today.

The preceding comments set the stage for criticism of the case study program. Any educational program originally arrived at by a series of trials to achieve pragmatic solutions suffers from a lack of definitive preplanning and conceptualization. As a result, the early attempts were incohesive and random. The great fear early in the undertaking was that the administrator perched in a line position of authority would be unimpressed and unsupportive of such a concept. As the program solidified and gained a tenuous measure of acceptance, it became easier to attract students. The real problem occurred when it became evident that the recycling program, initially organized as a self-sustaining financial entity, was devastated by a rapid and unexpected decline in paper prices. Thus, the recycling program which gave immediate opportunities for student work experience, was vulnerable to economic strangulation.

The administrative structure at Michigan State University is organized similarly to that of the armed

forces. There is a line organization of authority from the President to the Administrative Vice-President for matters of administration, service, and nonacademic functions. The provost shares co-equal status with the Administrative Vice-President in the line authority. His authority is, of course, in the domain of the academic, educational parameters. The Waste Control Authority reports to the Administrative Vice President. The Authority and particularly the Waste Control Authority office was indeed fortunate at first to be afforded such high-level status. It gave access to levels of authority necessary to function independently of day-to-day control. As a staff support service, this was a vital organizational concept. However, from an educational standpoint, it is indeed unfortunate that some administrative direction does not come from the Provost directly.

Most innovative ideas can usually be referred to other ideas that are currently in practice. Michigan State University maintains a federally funded program involving presidential fellows. These men and women observe the administrative operations of the University and attend meetings and policy sessions. It is entirely possible that they do spend at least a portion of their time with nonacademic administrators and are thus exposed to the administrative service departments on campus. In

a limited way, this is identical to the experience gained by the graduate assistants in the case study department.

The other example can be found in the Department of Intercollegiate Athletics, which sponsors an intern program for students who are interested in becoming athletic directors or assistant athletic directors. It seems reasonable to consider intercollegiate athletics in a classification divorced from the academic sector and its relationship to the aforementioned examples of educational opportunities for post-graduate employment.

It is unclear whether the lack of supervision on day-to-day matters or the lack of financial support to undertake significant Authority programs caused the initial idea of using students to fulfill tasks and roles normally within the responsibility of full-time support staff. In any case, the extension of the Waste Control Authority programs into environmental action, chemical waste education, recycling, and other areas was accomplished by providing undergraduate and graduate students an opportunity to run these programs.

The idea of students performing leadership tasks, supervising, and operating was somewhat alarming at first because the bureaucratic set-up of a large university employing thousands of workers tends to codify and procedurize almost everything. It was not sufficient to allow students access to work situations if they were

thwarted in their attempts to apply classroom theory to a real-life situation.

The question arises again and again: What if the administrative leadership did not place a high priority on such a program or feel it was important? The answer in this particualr case study is that such a situation did indeed exist. It was necessary to enlist the aid of the academic community and of the students to circumvent this problem. Much of the early strategy involved an extensive public relations campaign to introduce the University to the program and communicate to the faculty the potential involvement. As a result of this publicity campaign, the Director received several invitations to guest lecture in various college classes throughout the University. As a strategic concept to enlist outside support, it became evident that there was a need to provide publicity without really publicizing. In the first place, funds were not available to provide for paid advertisements to attract students and faculty; also, the political realities of the university administration dictated a low-profile approach. By and large, the bureaucratic career administrators considered the student newspaper as a threat to their decision-making powers and were hesitant to grant interviews or volunteer information.

There was the handicap of administrative displeasure for publicly speaking out on issues or trying to influence decisions through public support. So the concept of publicity without publicizing came about. Essentially, what was involved was promoting newsworthy projects such as the "ski hill from garbage," river clean-up project, anti-litter project, and others to attract attention. When media attention was focused on a particular highlight, it was possible to insert the less newsworthy items. For example, it was recognized that the administration would consider environmental programs of low spending priority. Thus programs were first announced, the necessary support from students was obtained, and finally the administration was approached for funding.

This exposure was excellent because when a more organized, planned approach was instigated to provide educational opportunities in this nonacademic department, it was the very same professors and their students who had become interested in the environmental action programs who most actively supported the concept. Indeed, it was these faculty members who arranged for cooperative programs in conjunction with their academic departments. Since these cooperative graduate assistantships required a financial investment on the Waste Control Authority's part, it became increasingly difficult, with declining support, to maintain these commitments, let alone increase them.

The ultimate evaluation of this case study rests with the students involved in the program. An informal survey of five graduate students who have been involved with the recycling program revealed that they felt their experience was invaluable in obtaining their ultimate jobs. Their main criticism was the lack of cooperation they obtained from other administrative service departments.

Recommendations

From what has been learned through using this case study and the other examples discussed earlier, certain general recommendations can be made. First of all, this particular case study should be played down as a true example of educational innovation. By this is meant that the case study is merely a vehicle, an example, of the rudimentary origins and capabilities of such a program. The following is a list of departments at Michigan State University that might be potential sponsors for similar educational work experiences. Equivalent departments at other universities might have different names, but in general they have similar functions.

Business and Finance
Campus Park & Planning
Comptroller
Credit Union
Custodial Services
Concessions
Dormitories
Food Services
General Stores
Grounds Maintenance
Married Housing
Personnel
Physical Plant
Purchasing
University Services Division
Intercollegiate Athletics

The list is not all inclusive, but does give some examples of administrative service departments that could participate in academic educational programs. Undoubtedly the reader will comment that these departments employ students. The fact is that employment in specific functional positions does not constitute work experience consistent with post-graduate employment.

Second, as has been mentioned previously, the support for programs of this nature must come from the top as well as from students and concerned faculty. It would be ideal to suppose that equivalent reactions of administrators and educators would occur, but in reality, their sympathies are divergent. This has been shown to be true both for the case study and for the University of Michigan example.

There is precedent for programs that transcend the department. Of growing popularity are the "area studies" that tend to focus on issues or groups rather than specific areas of discipline. The recommendation here would be to support this concept but apply it in the sector of the existing administrative department for consumption by the students as a functioning experience.

Third, to facilitate an understanding of this potential, it would be helpful to pull together the experiences of the case study program as well as the experiences of other previously discussed universities and establish a

working model. The justification for this model would be to look at the ideal situation for the future while maintaining the limitations and control of practicability as established by realistic experience.

Support for the development of a model comes from three sources. First of all, such a model is not unique but has been developed in other areas. Of note are the two major developmental model areas in Administration and Higher Education, namely, organizational models and decision-making models. In building this model, extensive use of existing models was considered. For instance, Philips[4] felt that internships in administrative departments were advantageous to provide insights about how the institution functions and what is actually required for effective job relations. This suggestion is incorporated into the model.

Second, the extensive year-long effort by a committee at the University of Michigan was in effect a model. They had the example of the Michigan State University Waste Control Authority and tried to adapt that experience to their circumstances. The model department described herein is taken in part from the deliberations and recommendations of this Committee (see Appendix C).

Finally, included herein are the comments of Paul Dressel, who reviewed the model in its infancy as

part of a required course in Administration and Higher Education. He commented that,

> Relating work experiences and study on campus has been the ideal of many educators. It's worked with some colleges. However, what many students can do is not very educational to them and when they must be educated as they work, efficiency suffers. In the present climate of faculty and student unions this concept may become possible. [In light of the budgetary crisis of the 1970's the combining of existing administrative programs with academic functions] is an interesting possibility but planning and coordination will be difficult.[5]

At the outset, it should be clear that this model is for discussion purposes only and is not intended to be statistically evaluated by a test of null hypothesis. Rather, the model illustrates the potential of educational innovation in the nonacademic department in areas unrelated to the present case study. Furthermore, the model is constructed from experience gathered in the case study, and thus has the advantage of eliminating the series of trial-and-error steps used in the case study.

Model

According to Deutsch,[6] a model must be organized to include various elements. These elements, when combined, yield the components of the model. Prior to these elements are the conditions or limits of the models which set the "ground rules" for development. Finally, after the elements are promulgated comes the procedure and evaluation. For a

more detailed analysis of model structure see the appropriate section in the survey of the literature.

Assumptions

Precondition.--The department to be constructed, hereinafter referred to as the "model department," is in the administrative service section of the university. The director reports directly to the administrative vice-president. The vice-president is committed to developing an academic function within this nonacademic department because he is aware of the constrained fiscal picture as well as the potential for student growth and placement. He is aware that the need to provide the administrative services for which the department was formed may be in conflict with the proposed academic responsibilities.

Secondly, there is perceived a need for more emphasis on academic aspects and administrative agencies used for academic purposes. Furthermore, it should be clearly stated that existing budgets are to be used to establish this program. Next, the model department will use the case study department as a guideline for implementation. There must be a need for services of this administrative department that are in an expansion area. By this is meant that the services offered by the model department are growing and manpower is needed.

Finally, the "model" department must have as its director someone who will have the ability to coordinate

these diverse functions and who will want to become involved in the development of same.

Conditions.--As was indicated earlier, the model has constraints or conditions as follows: First of all, this model is applicable to universities and colleges that are of sufficient size to have academic courses of study comprehensive enough to meet the administrative departments' needs. Second, there has to be a large enough administrative service element to warrant the placement of students in responsible job situations. A small college would be unsuitable for this purpose because of space and time restrictions.

Third, the university administration must perceive a need for this innovative curriculum and fully support and implement the program. It would be absurd to force an academic program leading to job placement on a nonacademic department without previous acceptance and cooperation. Finally, candidates would be restricted to upperclassmen (preferably juniors in a specific course of study) or beginning graduate students.

Hypotheses

Given these assumptions, it must follow that the ideal department would be one that performs a service that students perceive is desirable and worthwhile. An entrenched bureaucratic agency with standardized, rigid policies would

be far more difficult than a flexible, less rigid department. It is also hypothesized that it must be true that the model department can function effectively in other universities and other kinds of administrative departments than in the area of waste control exclusively.

Structural Elements

A model is constructed as a combination of elements. The elements of this model include:

1. An existing Administrative Service Department as the target or "model" department to implement an academic function.

2. Steering Committee. Composed of the Provost (or his representative), the Dean of Continuing Education, the Director of Placement, the Director of the Model Department, faculty and student representation.

3. Faculty that are interested in this program.

4. Students that are going to work in the program including their recruitment, selection, evaluation, and placement.

5. Academic credit given to course work in conjunction with the program.

6. An Advisory Committee composed of industry, government and business to provide job placement assistance.

7. Funding and reallocation of resources within the University.

8. Publicity.

9. Inter-Departmental Organization for more comprehensive programming.

10. Inter-University Consortium to provide liaison between universities engaged in the program.

Procedure

The procedures in this model are step-wise and may be concurrent to some degree, depending upon the time frame established. It is possible that more than one step might be expanded or reduced as appropriate:

1. The University Administrative Vice-President and the Provost appoint the steering committee. Its mission is to initially explore the organization of the program, its cost, a time frame for implementation and the effect on the university community.

2. A training program is established and organized for administrators, deans, and department chairmen to become aware of the mechanisms of the program.

3. The advisory committee composed of industry, government, and business is selected and organized so the job placement function is established.

4. The "model department" is chosen by the steering committee and it prepares to expand its staff and workforce by using students. The model department provides office space, secretarial services, and supplies as needed.

5. The steering committee drafts a charter and guidelines that enumerate the goals, scope of involvement, decision-making process, and methods of evaluating the project.

6. A directive is sent to academic departments that are perceived to have allied interests with the model

department's needs, asking them to establish a liaison faculty member. The steering committee also requires a list of potential job market skills that might be suitable for the model department's needs.

7. A list of needs within the model department is formulated and job descriptions are written for individuals to fill these needs. The committee seeks to initially select the appropriate department where students would fit the desired need through their training and academic programs.

For example, if the model department required large numbers of student employees to carry out these new functions, a student personnel manager would be hired. Contact with the College of Business and the departments that offer personnel training would be initiated. A faculty member would serve as the academic advisor, in conjunction with the director of the model department. By using the services of the academic departments as well as the Student Employment Office and adequate public announcements, interested and qualified students could be recruited and one selected to serve as the personnel manager. The student could thus adjust his curriculum to develop the skills required for such a position.

8. Once a student personnel manager was employed, equivalent positions would be enumerated, articulated, and staffed within a framework of the expansion needs of the model department. The interaction of academic personnel

with those within the model department would result in increased cooperation and mutual goal orientation. The students involved in the program would provide necessary feedback through surveys, interviews, and suggestions, which would serve to alter and improve the program. It has been found that it is most difficult for students to apply theoretical concepts.

9. The next stage for the model department is to coordinate the academic curriculum with the programs in a closer alliance. For instance, refinements in the academic curriculum can be made as the academic advisors see the effect on the model department's progress and graduates. The goal is to achieve a balance between teaching solely for a particular vocational job skill and the noncoordinated or outdated course of study.

10. Students would be encouraged to provide tangible results of their service, which would help in acquiring permanent employment. For example, students in personnel might develop a student handbook, those in advertising might construct a brochure, and students in a technical area would be encouraged to write papers or articles for journals or periodicals.

11. As the model department proves successful in this approach, a secondary phase is initiated, which would entail a more comprehensive administrative regard for the work experience concept of education. Work-while-learning

experience gives a broader view of what education can provide to meet the needs of society. To accomplish expansion of the program, the model department would be linked with other departments that offer work-while-learning experience. It is necessary to categorize students into homogeneous groups and to expand faculty cooperation.

12. The concept of publicity without really publicizing needs to be explored. As explained earlier, this concept is most useful in recruiting students and faculty. Of greater importance is the benefit of public support and favorable community relations that develops. The model department must use the publicity tool extensively to promote itself. In the university community it is necessary to be competitive in the generation and allocation of funds. Competitiveness is a step in the procedure that might occur concurrently with earlier steps in the methodology.

By a carefully planned, executed, and coordinated approach the media can be contacted. The reasoning is clear: advertising costs money; news stories, radio and TV news coverage is free. The model department must increase its publicity tempo to provide the necessary expansion. In a sense the established administrative offices will be perceived as in opposition to the model department. It takes considerable newspaper support to overcome the opposition. The theory of creating innovative education opportunity by using administrative service elements is basically secured

by the belief that opportunity can be provided within existing budgets. If the theory is true, a reallocation of funds is necessary. In phase two, the model department aggressively seeks to force a redistribution of funds to support the educational program. When a coordinated program enlists student, faculty, and community and press assistance, the opposition is put on the defensive. It is just as important to use this grass-root support effectively as it is to provide a quality educational work experience for the students.

13. The work of the job placement advisory committee now becomes evident. The students who have been working in the program have learned and experienced and are now ready to graduate. The success of these students in obtaining employment is monitored.

14. The steering committee, administrators of the model department, and advisory committee meet in a workshop to evaluate the program. Based on comments of employers, past employees, academic personnel, administrative personnel and cost effectiveness, changes and revisions are made. Since the academic calendar is followed, this review should take place in April or May for implementation the following September. Certainly, course work revisions are protracted affairs, but within the model department changes should be possible in a shorter period of time as the mechanism of change is built into the program from the outset.

Conclusion

The population of colleges is changing. More and more students are older than the traditional 18 to 21 years. They are more mature and have more extensive experience; hence they take a more pragmatic view of education. The Carnegie Commission on Higher Education pointed out:

> [There are now] more chances for re-entry by adults into formal higher education, more short term programs leading to certificates, and generally, more stress on lifelong learning. We oppose the sharp distinctions now made among full-time students, part-time students, and adult students. Education should become more a part of all life, not just an isolated part of life.[7]

The model department can offer this amalgamation between a college education and the need for career education. In the writer's opinion, the measurement of student credit hours to judge accountability (and, by association, educational efficiency) is nonsense! A more fitting approach might be to concentrate on the outputs of the educational system and examine the effect on society.

For example, a recent article in the Chronicle of Higher Education quoted Robert Leo, director of special services for the Dallas County College District in Texas. In the article, which talked about community colleges being unhappy with university training and dissatisfied with the job graduate schools are doing in training teachers for the community colleges, he stated:

> Universities were turning out people who were too theoretical, faculty who knew English but didn't know how to teach it. That was where the critical need really

> appeared. You have to take a look at the province of the university, which is to develop a base of knowledge for the individual. We look at that as some kind of base to start. The community colleges' responsibility is to make sure practical training does take place. If you get practitioners teaching, they can show how things people have learned in the universities can be applied.[8]

Academic training in administrative service elements of the university can be an effective interphase between the needs and responsibilities of developing a base of knowledge and the application of the learning. In other words, the model department can help both liberal arts and career education to flourish. The choice of bemoaning the financial plight of universities or seeking more efficient and innovative means to deal with these crises is fast approaching. No one solution will serve as a panacea. It is time that the inherent bias of departmental roles be abolished. The alternative suggested in the dissertation can be refined and improved upon but the time for radical surgery has arrived.

Summary

The reader will recall that in Chapter I the following objectives were proposed:

To create a structural format for using nonformal education potential within an existing formal university structure. This dissertation has shown that many of the methods and goals of continuing education can be applied

internally within the university and to the so-called traditional college students. The creation of an educational auxiliary within an existing administrative department not usually associated with academics is suggested.

To examine how administrative service elements can be an educational resource when used in a systematic manner to provide educational learning opportunities. The major emphasis of the case study department was detailed in Chapter III. It was shown that it is possible to provide relevant educational experience, as documented by the learners as well as the faculty involved.

To identify student objectives and evaluate student performance, i.e. learning, in regard to relevant experiences obtained with the administrative case study. The reader will recall that the objectives of each of the independent studies were clearly articulated in Chapter III. The students were asked to establish the goals of the projects as well as personally to evaluate the findings. Furthermore, the actual suggestions and recommendations the learners made were actually put into practice. In many instances the students involved in the independent studies, required courses, and/or graduate assistantships actually were the ones responsible for implementation. Administrative theory and models were used in the student evaluations. The students were asked

to become familiar with Oberg's performance appraisal techniques.[8] Collectively they chose an essay appraisal as the most satisfactory means of evaluating objectives.

To provide a case study for other departments, colleges, and universities that might be interested in developing similar educational programs. This endeavor was quite thoroughly documented in sections of Chapter III, all of Chapter IV, and part of Chapter V. The writer feels it is important to maintain as close a relationship as possible with application, as it is necessary in developing new theory. A keystone of this dissertation is that the theory developed through actual observation and practice is the formation of the case study department. Examples of other universities that have developed similar or unique programs were recounted. Finally, the experience of this operation, coupled with administrative theory and models from the literature, resulted in the development of a model department that embodies the best of the theoretical and practical functions.

Footnotes--Chapter V

[1]Paul L. Dressel, F. Craig Johnson, and Philip M. Marcus, The Confidence Crisis (San Francisco: Jossey-Bass, 1971), p. 213.

[2]Ibid.

[3]Ibid.

[4]Ellis L. Phillips, Jr., A New Approach to Academic Administration (New York: Teachers College Press, 1969), p. 25.

[5]Paul Dressel to author, May 1975.

[6]Karl Deutsch, "The Evaluation of Models," in Management Systems, ed. Peter B. Schoderbeck (New York: John Wiley and Sons, 1968).

[7]Carnegie Commission on Higher Education, Less Time, More Options: Education Beyond the High School (Hightstown, New Jersey: McGraw-Hill, 1971).

[8]Philip W. Semas, "The Explosive Growth of 'Faculty Development,'" Chronicle of Higher Education 11 (1975): 3.

[9]Winston Oberg, "Make Performance Appraisal Relevant," Harvard Business Review, January-February 1972, pp. 61-67.

APPENDICES

APPENDIX A

CASE STUDY DEPARTMENT EDUCATIONAL CONTACTS

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CASE STUDY DEPARTMENT EDUCATIONAL CONTACTS

Department	College	Student Status	Type of Project
Resource Development	Agriculture	Undergraduate	Independent Study
Political Science	Social Science	Graduate Student	Course Requirement
Landscape Architect	Urban Planning	Undergraduate	Course Requirement
Advertising	Communications	Undergraduate	Independent Study
Natural Science	Justin Morrill	Undergraduate	Independent Study
Resource Development	Agriculture	Graduate Assistant	Independent Study
Management	Business	Graduate Assistant	Independent Study
Psychology	Social Science	Graduate Assistant	Required Course
Management	Business	Graduate Assistant	Required Course
Labor-Industrial Relations	Social Science	Graduate Assistant	Independent Study

APPENDIX B

PROPOSAL TO AUTHORIZE A PRELIMINARY COMMITTEE TO REVIEW AND ESTABLISH A WASTE CONTROL AUTHORITY AT THE UNIVERSITY OF MICHIGAN

APPENDIX B

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Background

Many people and organizations at the University have become increasingly involved in environmental problems evidenced, in part, by expanding enrollments in the School of Natural Resources, formation of the Institute for Environmental Quality, ENACT, the Environmental Law Society, and so forth. The energy crisis at the University this winter focused attention on the reality of the limits to growth. As a large community (about 60,000), the University generates a tremendous amount of waste. Wise management demands that the University concern itself internally on a day-to-day basis with its impact on the environment, i.e. to practice the principles it teaches. A variety of existing University offices deal with environmental problems and waste disposal. However, many of the problems cut across different areas of responsibility and demand a broad base of experience and expertise. There is a need to bring together these people and organizations--staff, student, and faculty--knowledgeable in environmental problems to provide a centralized thrust to environmental protection efforts, yet with everyone continuing to do his part.

Recognizing this need, ENACT has been struggling for the last few years trying to help fill this void through such demonstration efforts as its recycling program, computer project, and campus transportation projects.* However, while student input is vital to such a program (rapid mobilization, high motivation, fresh outlooks,

*see "Operation: ENACT" proposal to the University, June, 1972, and ENACT independent study report, December, 1972, for more information on these and other projects and philosophy (excerpts in Appendix C).

etc.), experience has shown that a student group is probably not in the best position to co-ordinate the sweeping areas of responsibility inherent in a comprehensive waste control program. Most students are in Ann Arbor only eight months of the year, are periodically otherwise fully committed (exams, etc.) and operate from a low-power position. Furthermore, there is always a frequent turnover in membership making it hard to maintain a long-range coherent program.

ENACT's involvement has been a valuable learning experience for the persons participating, and some meaningful demonstration projects have been carried out. However, there is a tremendous gap between the very real potential for change toward environmental improvement through a comprehensive University program and the limited demonstration projects which have been initiated. The frustration resulting from this gap led me and others to search for viable alternatives.

A couple months ago (mid-February), I was given some information about a Waste Control Authority at Michigan State University, "a committee composed of individuals members who have a wide range of experience and background in dealing with the responsibilities of waste, pollution, and environmental degradation." Its responsibility at MSU is co-ordination of the total waste disposal activities of the University and environmental action. Though adaptations styling it to the University of Michigan would be necessary, in basic structure and concept it appeared to offer what could be a very viable approach toward facilitating University-wide environmental protection efforts.

During the period from February 28, 1973, to April 17, 1973, I discussed the concept of a waste control authority (see pp. 4-7) with a number of people inside and outside the University to build

information and to get feedback on the idea (list in Appendix A). All of the people at the U of M responsible for significant waste disposal were contacted as were the director of the MSU Waste Control Authority--Mark Rosenhaft, a number of faculty members from natural resources and engineering, and students in ENACT. John Richter, former ENACT director, has also been deeply involved in the project. His efforts in gathering information, formulating ideas, and generating support have been invaluable. The overall impression from these conversations was that there was indeed a need for such an organization, and it should be promoted.

(Hereafter, "Waste Control Authority" (WCA) will refer to the concept and not to a particular organization, unless otherwise specified. If such a department is organized at the U of M, another name would be more appropriate, one which did not imply a top-down power structure, and one not <u>necessarily</u> limited to waste control only.)

Expected Outcome--Concept of a Waste Control Authority

The people at the U of M operationally responsible for waste disposal are environmentally conscious and concerned. They tend to be enthusiastic about new procedures which could reduce the University's impact on the environment and, as much as time permits, actively try to search out relevant information. However, because just day-to-day operations are so time consuming, inadequate time and resources are available to deal comprehensively with such important things as information collection and dessimination, regional systems development, or consideration of proposals from students, faculty, staff, or others. A suggested structure will be more fully outlined below, but in essence the WCA would be a broad-based, interdisciplinary committee of those staff, faculty, and students most directly involved or knowledgeable about environmental problems related to the University of Michigan campus. The committee would provide the expertise while a full-time director would be responsible for developing background information and data collection, implementing the decisions of the WCA as a whole, maintaining contact with city, state, and federal agencies, investigating long-range alternatives to bring to the attention of the WCA, and co-ordinating the efforts of interested individuals and organizations in instructional, research, and service aspects of environmental problems. He or his office would be available for information or referral on a daily basis, and he would be free to travel when necessary.

Based on the guidelines for the MSU Waste Control Authority and on discussions with a number of individuals at the U of M (Appendix A) the major advantages and responsibilities of a WCA as now perceived are outlined in detail below:

Major Advantages and Responsibilities of a WCA

1. Centralized information collection and dessimination on environmental problems both inside and outside the University. Current issues, legislation, new developments in environmental technology, special projects, relevant data, and sources of further information would be made available. These services could prove invaluable to staff, faculty, students, the community at large, and other universities and cities. Sometime in the future, computerization of the information might be called for to speed retrieval (potential for greater and faster information-exchange between universities, for example).

2. Maintaining a long-range perspective:
   a. "to develop long-range alternatives to solid waste and pollution control; commitment to 5-year plans."
   b. experimentation with new systems which may be valuable improvements on current practices and may be adaptable to cities and universities elsewhere; provide research opportunities for students and faculty; good public relations for the University.
   c. keep up-to-date on future developments legislatively; reduce possible embarrassment to the University in the future from non-compliance with state and federal standards in pollution control.
   d. people involved on a day-to-day basis at the University now (e.g. Ken Wanty, Bill Joy) are very concerned about long-range solutions but do not have the time or resources to cope with them as effectively as they would like--importance of having a full-time director for the WCA.

3. Data collection, quantification of waste at the University--must know the dimensions of a problem before it can be effectively dealt with.

4. Potential for regional systems development (e.g. chemical waste**)

5. Strong involvement from faculty and students--need more feedback between research and application:

Individual students or student groups like ENACT could help significantly in the areas of environmental action and awareness, research studies, monitering of pollution problems, and facilitating implementation of programs to increase the effectiveness of the WCA. Courses or sections could be organized to research a problem or issue (e.g. Course Mart, Residential College, Natural Resources, etc.). The WCA could review proposals from students, staff, faculty, city, etc. for alternative systems of waste disposal and other environmental concerns.

Areas of responsibility for the WCA include, but are not limited to, solid waste, chemical waste, radioactive waste, resource recovery, and environmental action. Except in the environmental action area, it is not an operating unit, but a co-ordinating one--a catalyst for action. Cost would be minimal to the University, especially consi-

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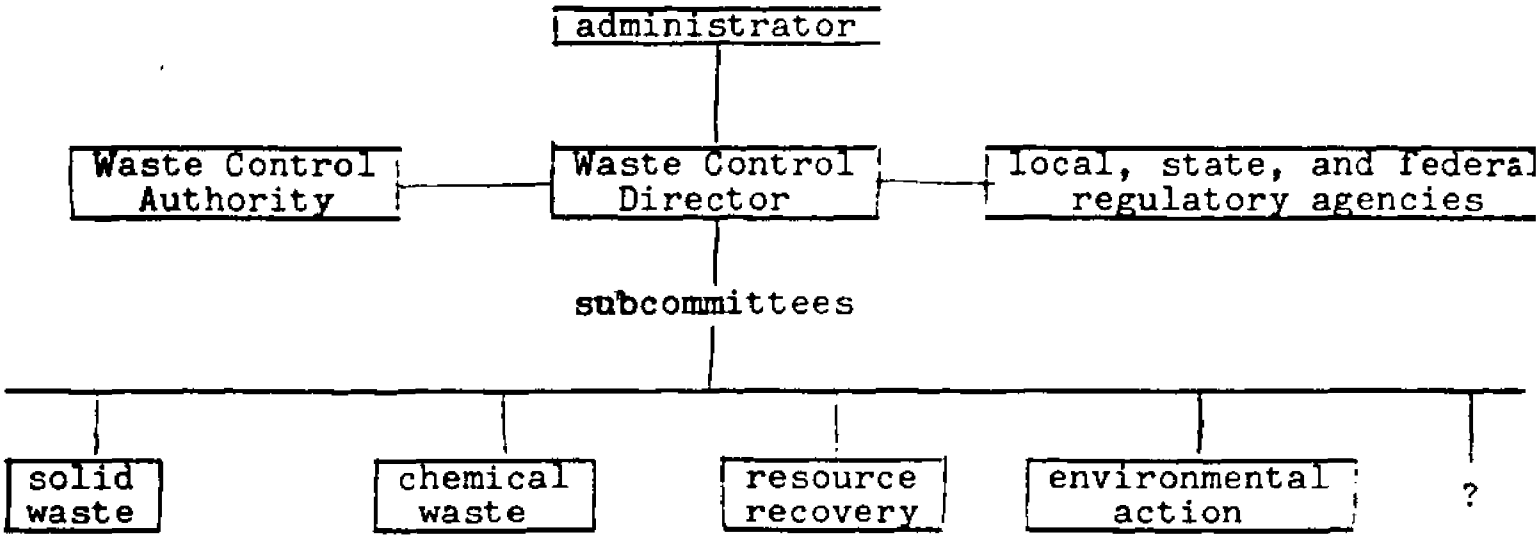
**Based on a conversation with Bill Joy, director of Environmental Health and Safety at the U of M, chemical waste from universities is a major problem because small quantities of thousands of different types of chemical (about 3000 here) must be disposed of. Because of the small quantities, they must now be incinerated mixed together which causes pollution. However, if there are large quantities of only one kind of chemical, it is technologically feasible to dispose of it virtually pollution free. It is too expensive for any one university to build the necessary storage and incinerating facilities to handle chemical waste this way (about $250,000), but a regional plant funded jointly by and servicing a number of universities and colleges (e.g. EMU, WMU, MSU, UM, Wayne, U of D, Oakland, Central Mich., etc.) is financially and technologically feasible. What is needed is (1) a study to determine the best system of waste disposal and how much it would cost, and (2) to approach each University for financial support for its share of such a facility.

dering the benefits. The only necessary funding would probably be for a director, a secretary, and office expenses. Money would be sought through grants or foundations for projects, but many programs could be self-supporting (e.g. recycling). MSU hired an engineering firm for $50,000 to do an impact study, but that is an unnecessary expense: money could be saved by relying on "in-house personnel for such data collection and evaluation.

Possible Structure of a Waste Control Authority (based primarily on the experience of MSU):



individual members are to serve on subcommittees related to area of expertise, to provide information to the WCA, to weigh alternatives, and to develop priorities

subcommittees accumulate data, discuss alternatives, develop recommendations for consideration by the WCA, etc. Meet with the WCA at regular intervals to share policy decisions. At least two members of the WCA and one or more members of the University community should serve on each subcommittee.

director--see text, p. 4.

(for details on the above individuals and groups, please refer to the "Memorandum" in Appendix D)

The director or appropriate subcommittee may propose a recommendation, clearly defined, given a priority by the WCA, and forwarded to the appropriate administrator. The WCA will be notified of administrative decisions.

Members of the WCA should include staff, faculty, students, and one representative from the city government.

The waste control authority should be designed to "self-destruct" in two (or three) years to allow for a period of self-analysis--perhaps for a couple months--to determine its effectiveness and consider changes which could be made. It it has warrented the time, money, etc. it has consumed, reinstate it; otherwise, permanently disband.

II. Procedural Steps in the Establishment of a Waste Control Authority

On the basis of favorable responses from conversations with persons involved in waste disposal at the University or knowledgeable in environmental problems (see p. 2-3, and Appendix A), I am now submitting requests--more fully outlined below--for administration support of the concept, administration appointments of people to a preliminary committee to review and establish a Waste Control Authority, and funding for one person to work full- or part-time with the above committee. If approved, it would go into effect fall term, 1973, when faculty and students return to the University. It is expected that students in ENACT will be working closely with the preliminary committee and with the Waste Control Authority once established. The preliminary committee will be free to alter the recommendations outlined in this paper as they desire. For the Waste Control Authority to be truly successful, it is important that the University itself perceive a need for establishing different priorities and face the need for environmental responsibility. Success in this planning stage depends on the enthusiasm of the administration, interest and commitment of the committee members, and student involvement.

Requests:

1. formal affirmation of support from the University executive officers for the concept of a waste control authority. A direct link of the waste control authority with the top administration is essential to the success of the program.

Requests, continued:

2. appointment by the executive officers of the University or the President of people broadly based in experience and expertise to a preliminary committee who would make it their responsibility to review and establish a waste control authority.*** The preliminary committee would:
   a. identify needs, goals, and responsibilities
   b. consider further background information
   c. set a structure adapted to the University of Michigan
   d. evaluate costs and benefits
   e. secure formal approval of the final proposal
   f. recommend appointments to a waste control authority
   g. search for a director

3. funding for one person to work full- or half-time with the above committee for the duration of the fall term, 1973, to help get the waste control authority established in a way that it will be maximally effective, and to gather background information.**** Specifically, he would be responsible for:
   a. reviewing pertinent documents
   b. talking to people inside and outside the University
   c. scheduling meetings
   d. gathering materials for meetings
   e. writing up minutes
   f. following through on committee requests
   g. preparing the final document (note: all of the persons on the committee other than the co-ordinator here described already have full-time commitments; preparation of the proposal will be very time consuming and should not be the responsibility of a person with full-time commitments elsewhere)

(see comments on following page)

***recommended committee members:

Ken Wanty	Univ. Landscape Architect and Grounds Manager
Bill Joy	Director, Environmental Health and Safety
Jack Weidenbach	Director of Physical Properties
William Stapp	Chairman of Environmental Education, SNR
Jim Crowfoot	Assoc. Prof. in Environmental Advocacy, SNR
Don Gray	Assoc. Prof. of Civil Engr. and former IEQ director
Dan Montgomery	Environmental Bureau Director, Ann Arbor
Morton Hilbert	Chr. and Assoc. Dir., Environmental Health & Safety
Eugene Glysson	Assoc. Prof. of Civil Engineering (solid waste)
Doug Scales	ENACT
Louise Magoon	ENACT

Drs. Stapp, Crowfoot, and Glysson have expressed an interest and willingness to participate on such a committee, as have Louise Magoon and Doug Scales of ENACT. The others have not yet been contacted in regards to the preliminary committee.

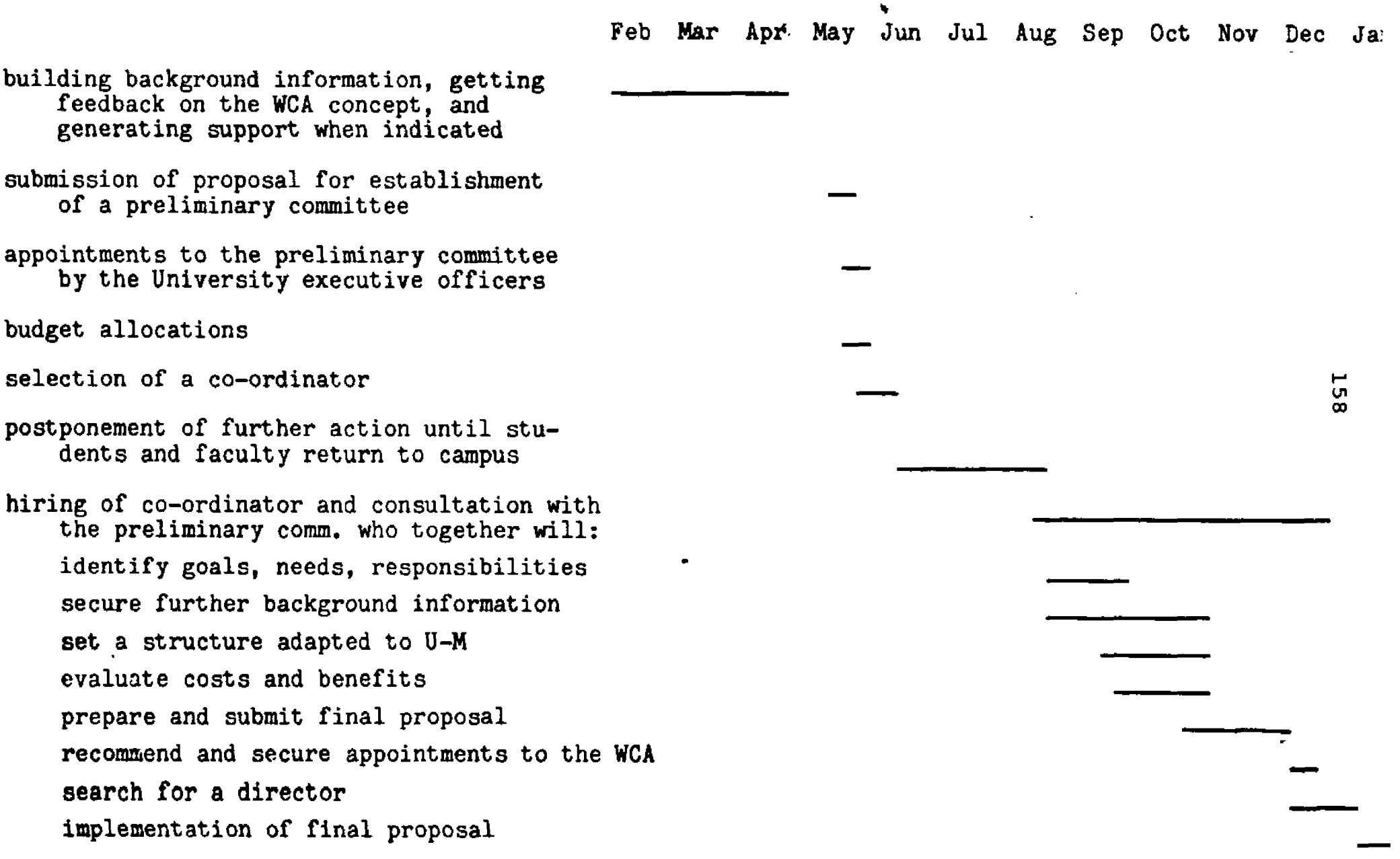
****John Richter has expressed an interest in acting as co-ordinator in the fall. He would be well qualified for the position considering his experience as past director of ENACT, his familiarity with the concepts behind a comprehensive Waste Control Authority, his experience in proposal writing ("Operation: ENACT," June, 1972), and a good established working relationship with many of the above persons.

Budget Requests:

	costs
salary for one co-ordinator, late Aug.-late Dec. ..... (a salary comparable to that of a teaching fellow working 20 hours per week for a term)	$1900.
operational costs (e.g. xerox, phone, etc.).....	150
Total requested	$2050

The resources of the ENACT office--typewriter, phone, access to xerox, office supplies, etc.--could be made available to the co-ordinator and the committee.

Time Line, Feb. 1973 to Jan. 1974



APPENDICES

A. list of persons personally contacted

B. contact list for a WCA

C. "Operation: ENACT," June, 1972 (excerpt), and Dec., 1972, ENACT Independent Study Report

D. information on the MSU Waste Control Authority

APPENDIX C

POLLUTION PROBLEMS AT THE UNIVERSITY OF MICHIGAN: RECOMMENDATIONS FOR CHANGE

APPENDIX C

TABLE OF CONTENTS

INTRODUCTION

In the spring of 1973 some concerned students from ENACT, a student environmental group on campus, submitted a proposal to the executive officers of the University to form the present committee. Its focus was to be the review of waste control problems within the University. The proposal was approved and funded for the academic year 1973-74. In September the chairperson, Bill Manning, was employed and regular meetings began in November.

Included in the proposal was a list of possible committee members. The list was designed to be broad, yet comprehensive. Additional people, representing various areas of responsibility and expertise were added at various times as a continuing systematic assessment of the committee's needs indicated that this was desirable.

The Waste Control Committee brings together many of the existing University offices now dealing with environmental problems and waste disposal. Representatives from the Civil Engineering Department, the Plant Operations Department, the School of Public Health, the Hospital, and the Environmental Education Department are on the Committee. Also included are the Directors of Public Works for Ann Arbor and Washtenaw County, as well as representatives from the Ecology Center and from the Environmental Bureau of the City of Ann Arbor. Student representatives complete the cross-section. By cutting across different areas of responsibility and concern, the Waste Control Committee provides a broad base of experience and expertise to work out the diverse problems confronting the University in relation to pollution problems.

In the past several years there has been an ever growing concern on the part of people in our society around the impact our constantly expanding social, economic and technological systems are having on the natural environment. This concern has been manifested in terms of a general fear that the quality of life for most people has stopped improving and, indeed, is deteriorating. One measure of this for many people has been the degree to which they feel their surrounding physical environment has been fouled -- through increasing air pollution, water pollution, etc.

The reactions we in our society have had to these and other challenges to our sense of well being have been many and varied. Of particular concern here are those that relate to the improvement of the general nature of our physical environment. One aspect of this has been the proliferation of individual and collective group action around environmental issues. There is much less tolerance and willingness today on the part of individuals or groups in our society to let other individuals, collective corporations, or the general social institutions of our culture to unduly befoul the surrounding natural environment, for whatever reason.

Pressure is being brought to bear on recalcitrant individuals and groups in many different ways that include, but are not limited to, court action, reinterpretation of old laws and a proliferation of new more stringent local, state, and federal environmental legislation, a new and stronger emphasis in our educational system on a greater ecological awareness and lifestyle, and so on. Essentially, there is a strong concern that organizations develop adequate proble solving methods and procedures that are capable of responding to current problems and issues.

Among the old, the middleaged, and the young of our society, our values are changing. We are attaching much higher priority to the quest to improve the quality of our environment. And, as is the tenor of our times, many of us are demanding, not asking that our educational, political, and other social institutions be more responsive and promote and protect environmental improvement

Of social institutions like the University of Michigan, much is expected. Both internally and externally the University is being encouraged to assume its share of the responsibility for researching the nature and extent of our environmental problems and to adequately train people to respond to those problems. And in this respect, the University has begun a vigorous response. But this is not enough. The University is also being asked to practice what it teaches

in terms of the values and the mechanics of maintaining a quality environment. And the insistence on this is coming not only from a moral perspective, but also from the hard, clear cut reality of tougher and tougher local, state and federal environmental legislation and regulations.

Then too, these are times when our societies control of and use of a disproportionate share of the worlds available resources, which we feel we need to maintain and improve our standard of living, is being challenged. And in many instances our access to a variety of strategic resources is being drastically reduced, eliminated or threatened in some fashion. And for the University of Michigan this will mean greater difficulty of access to those resources needed to maintain, not to mention expand University operations. This situation has made it essential for the University to be especially sensitive to the wise and effective management of those resources that do come into its control. There is less margin for waste now than ever before. This year has seen the University hit, but not severely damaged by, the energy crisis -- both directly and indirectly -- and shortages of and spiraling costs of products essential to University operations. And it seems unlikely the University has seen the last of this kind of situation. Indeed, available signs seem to indicate that the University, as well as the rest of society, will have to make do with less, and in some instances, without certain commonly accepted resources and products in the future. Thus, it seems imperative that the University not unnecessarily waste those resources it does have. There is growing pressure both within the University and outside of it in the larger Ann Arbor community and beyond that University resources be wisely managed and waste minimized.

The people at the University of Michigan operationally responsible for environmental control are generally environmentally conscious and concerned. They tend to be enthusiastic about new procedures which could reduce the University's impact on the environment and, as much as time permits, actively try to search out relevant information. However, because just day-to-day operations are so time consuming, inadequate time and resources are available to deal efficiently and systematically with University environmental problems. Moreover, given the decentralized nature of the University of Michigan, a variety of existing University offices deal with environmental problems and waste disposal. However, many of the problems cut across different areas of responsibility and demand a broad base of experience and expertise. There is a need

to bring together these people and organizations -- staff, student, and faculty - who are knowledgeable in environmental problems to provide a centralized thrust to environmental protection efforts here at the University.

The following sections contain a discussion of specific environmental/ waste control problem areas here at the University of Michigan.

PROPOSAL FOR THE FORMATION OF AN ON GOING POLLUTION CONTROL TASK FORCE

Our Committee work has led us to the conclusion that there are broad and complex environmental problems peculiar to the University of Michigan. Much work has been done to resolve these problems, but much more remains to be done. It is the belief of this Committee that an efficient and effective catalyst for infusing new vigor in the continuing struggle to solve University of Michigan pollution problems would be the formation of an on going Pollution Control Task Force. It is further felt that work on the list of summary recommendations contained below would be very effectively handled within the context of a Pollution Control Task Force.

Below is our recommendation for what an on going Pollution Task Force would look like. We have spent the last year reviewing and attempting to evaluate various pollution control approaches of other Universities and organizations of a size similar to the U. of M. Perhaps the most helpful contact we made was with the Waste Control Authority at Michigan State University. Its Director, Mark Rosenhaft*, talked with us at length about the nature of their Waste Control Authority -- its size, responsibilities, effectiveness and appropriateness in a University context. They have had the benefit of several years experience, and appear to have developed a viable and exciting program. It should be pointed out that the characteristics and problems of MSU are not necessarily those of the U. of M. The physical layout of the University, the decision making process, many of the specific environmental problems of that University and so on are quite different from those here at the University of Michigan.

In terms of the University of Michigan, the Pollution Control Task Force, as we envision it, would be a broad-based interdisciplinary committee of those staff, faculty, and students most directly involved or knowledgeable about environmental problems related to the University of Michigan campus. The Committee would provide the expertise while a full time coordinator would be responsible for developing background information and data collection,

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* Mark's position is a staff position rather than an aligned position which means that the Waste Control Authority is not an operating unit but rather a resource group to provide information and expertise to solve environmental problems for the various University departments. Often they provide inexpensive pilot programs or projects for the various departments to evaluate first before any final decisions are made as far as equipment or money. In addition, they plan for long range development and try to look at least five years ahead.

following through on the decisions of the Pollution Control Task Force as a whole, maintaining contact with city, state and federal agencies, exploring long-range alternatives to bring to the attention of the Pollution Control Task Force, and coordinating the efforts of interested individuals and organizations in instructional, research, and service aspects of environmental problem solving.

Actual decision making and lines of authority within the University would not be changed by the arrival of a pollution control task force, but would rather be enhanced by the information and recommendations that could be provided by the Task Force. The Task Force would not be taking away any responsibility from existing departments or administrative units but would simply be assisting them in an advisory capacity.

For the Pollution Control Task Force to be truly successful, it is important that the University itself perceive a need for establishing different priorities and face the need for even greater environmental responsibility.

THE POLLUTION CONTROL TASK FORCE

FUNCTION:

The primary function of the Pollution Control Task Force is to identify any pollution that exists on our campus, and any future pollution problems that can be foreseen. Once the problem is identified, the Pollution Control Task Force, working with the operating unit responsibile for the problem will take the necessary steps to promote the solution to the problem. Problem solving would include the definition of a particular pollution problem, review of current pollution control procedures with the particular operating unit responsible for handling the problem, and the delineation of specific recommendations for change. Recommendations would reflect substantive change and would take into consideration legal, practical, and economic constraints.

The Pollution Control Task Force also acts in the capacity of information collection and dissemination. Information sheets on specific environmental problems are to be made available as well as a cross reference bibliography. Current issues, new developments in environmental technology, and special projects are brought to light by the Pollution Task Force. These services may prove invaluable to staff, faculty, students and the community at large.

Another equally important function of the Pollution Control Task Force is to cooperate with student groups on campus that are concerned with the important questions about the quality of our environment, especially those questions that are directly related to the University of Michigan itself.

In conclusion, the Pollution Control Task Force does not desire to be isolated as a staff operation from the student body and the University faculty. In fact, its effectiveness depends on student and faculty participation with staff people in the implementation of pollution abatement programs and in the monitoring of pollution problems on campus.

ENVIRONMENTAL PROBLEMS OF CONCERN TO THE POLLUTION CONTROL TASK FORCE:

1. Air-borne pollution
2. Water-borne pollution
3. Solid wastes
4. Chemical wastes
5. Pathogenic wastes
6. Radioactive wastes
7. Animal wastes
8. Hospital wastes
9. Recycling programs
10. Environmental education
11. Landuse, transportation
12. Better U-M/City/County relations on environmental issues

GENERAL RESPONSIBILITY OF THE TASK FORCE DEFINED:

A. Responsibility is defined here as, "influence that creates respect and confidence, a source of correct information and wise advise, and an expert on some subject." Responsibility in this case is not synonymous with control, but with expertise. The Pollution Control Task Force is, in reality, a committee composed of individual members who have a wide range of experience and background in dealing with the responsibilities of waste. pollution, and environmental degredation.

B. Ultimate responsibility for operational aspects of Pollution control rests with the units of the University that generate the problem. In specific instances where no one department or administrative unit is solely responsible for the pollution problem, the Task Force should be given powers by the President to recommend solutions to critical situations.

C. The Pollution Control Task Force will help to coordinate total pollution control activities of the University including (but not limited to) the eleven problem areas listed above.

D. The Pollution Control Task Force strives for environmental action.

SPECIFIC RESPONSIBILITIES OF THE POLLUTION CONTROL TASK FORCE

A. The Task Force is responsible for recommendations to the administration for all aspects of pollution abatement and environmental protection. Proper priorities and funding requests shall accompany such recommendations.

B. It is the responsibility of the Pollution Control Task Force to develop long-range alternatives to Pollution Control practices currently unsatisfactory at the University of Michigan and promote their implementation.

C. It is the responsibility of the Task Force to safeguard the people by protecting the University of Michigan environment from degradation and to improve the quality of life consistent with the goals of our University, community, state, and nation.

RESPONSIBILITIES OF THE COORDINATOR

A. The coordinator serves as an ex-officio member of the Pollution Control Task Force. It is the coordinator's responsibility to develop background information on problems confronting the University and to follow through with the decisions of the Task Force as a whole.

B. It is the responsibility of the coordinator to coordinate (with adequate funding and authority) the total Pollution Control activities and to investigate the quantitative nature of the problems confronting the University.

C. The coordinator will direct Task Force development of guidelines for campus improvements that assure building design plans consistent with pollution control criteria.

D. The coordinator takes responsibility for day-by-day opeations of the office and is primarily responsible for the development of studies and data analyses by his staff.

CHAIRPERSON OF THE POLLUTION CONTROL TASK FORCE

A. The chairperson of the Pollution Control Task Force will generally be appointed by the President of the University.

B. The chairperson presides at meetings and appoints Task Force members to subcommittees.

C. The chairperson shall perform appropriate tasks consistent with other committees of the University.

RESPONSIBILITIES OF INDIVIDUAL MEMBERS

A. It is each member's responsibility to serve on subcommittees as closely aligned with their area of expertise and/or interest as possible.

B. The individual members are also expected to provide information to the Task Force as a whole, to weigh alternative solutions to problems, and to help develop priorities for problem solving efforts.

SUBCOMMITTEES

A. The subcommittee level is where data are accumulated and alternatives discussed. Meetings with the Pollution Control Task Force will be conducted at irregular intervals to share policy decisions with the Task Force as a whole. Recommendations shall be forwarded from the subcommittees to the Task Force for consideration .

B. Structure:

1. The appointment to the subcommittees shall be made by the chairperson of the Task Force.

2. At least two members of the Task Force shall serve on each subcommittee. Additionally, individual members of the University community who are not members of the Pollution Control Task Force will be asked to serve. These subcommittee persons will provide areas of expertise and interest and will broaden the scope of the committee members.

3. The chairperson of the Task Force will designate one member of each subcommittee as the subcommittee chairperson.

Function: Each subcommittee shall hold hearings, develop recommendations for Task Force consideration, and request the director and his staff to provide pertinent background information.

PROCEDURES FOR IMPLEMENTATION OF TASK FORCE SPONSORED RECOMMENDATIONS

A. The coordinator and/or the appropriate subcommittee may propose a recommendation for the consideration of the Task Force. Any recommendation should be clearly defined, given a priority by the Task Force, and forwarded to the President's Office and the appropriate administrative unit having responsibility in that area. Either the president or the administrative unit should it be deemed necessary, will forward the recommendation to the University executive officers for consideration and appropriate action. The Task Force will be notified of any administrative decisions made.

B. Recommended University wide policies should be directed in like manner.

FUTURE GOALS:

It is true that the University of Michigan Pollution Control Task Force would be a new concept in waste control. For this reason, there are many innovative and experimental endeavors involved with the programs of the Task Force. This is good, because a final goal of the Task Force is to initiate new and practical waste control programs into society. Thus, the Pollution Control Task Force would serve as a blueprint to which other universities or communities in the country can turn to for guidance in setting up their own programs for waste control.

BUDGET RECOMMENDATIONS

I. Pollution Control Task Force Coordinator with a salary at $12,500 - $15,000 per year.

Necessary qualifications would include:

Administrative skills

Experience with environmental problem solving

Professional training

Knowledge of and ability to work within a University setting

Secretarial/clerical support

Office supplies

Office space

Telephone budget

It is not the intent of this recommendation to propose the establishment of another unit that would duplicate existing services provided by the different administrative units within the University. It is felt there is a significant need for a coordinator that could devote full time to bringing together existing resources, people, and operations within the University of Michigan to focus on pollution control.

II. Support for demonstration and pilot projects as proposed by the Pollution Control Task Force to test the viability of new pollution control measures. Some funds could come from existing budgets through matching fund cooperative agreements between the Pollution Control Task Force and a specific operating unit which had an interest in a project. Not all pilot projects could be funded in this fashion so there would be a need for funds for special needs.

SUMMARY OF RECOMMENDATIONS

Our Committee work has led us to the conclusion that there are broad and complex environmental problems peculiar to the University of Michigan. Much work has been done to resolve these problems, but much more remains to be done. It is the belief of this Committee that an efficient and effective catalyst for infusing new vigor in the continuing struggle to solve University of Michigan pollution problems would be the formation of an on-going Pollution Control Task Force. It is further felt that work on the list of summary recommendations contained below would be very effectively handled within the context of a Pollution Control Task Force as outlined earlier.

I. The formation of an on-going Pollution Control Task Force, with a full time coordinator. (see previous section for details)

II. University of Michigan/City of Ann Arbor/County of Washtenaw coordination and communication.

A. It is recommended that officials responsible for city public works and University facilities services meet on a mutually agreed upon schedule to identify waste control matters of mutual concern and to develop means of resolving problem areas.

B. It is also recommended that University-county communication and coordination continue, but that it be conducted by officials of each unit on the basis of policy and long range planning rather than problem solving. Communications of this sort obviously cannot be carried out successfully without city involvement and therefore a mutual three way participation should be implemented.

C. It is further recommended that a public information campaign be implemented in a systematic fashion so that the general public is more aware of University concern and action in the areas of pollution control. Such a campaign could not help but strengthen University-community relations. The campaign could be incorporated in the work of a Pollution Control Task Force.

III. Environmental Education - Establish an educational subcommittee as an arm of the Pollution Control Task Force to promote educational programs and research in the field of pollution control aimed at everyone within the University. Some major functions of the committee would be as follows:

A. Establish a centralized information collection and dissemination system on pollution control available to staff, faculty, students, and the community at large. The system would include information on current legislation, new developments in environmental technology, special projects, relevant data, and sources for additional information on pollution control. The information would eventually be computerized to provide for quick retrieval..

B. Establish a legislative subcommittee to keep the Pollution Control Task Force abreast with current legislative developments that affect University operations. It is frequently difficult for staff involved in day-to-day operations to be alert to new and pending legislation affecting the various phases of pollution control that relate to the University.

C. Assist faculty members that offer courses related to pollution control by making presentations, providing information sheets, identifying potential research projects, providing visual aids, etc.

D. Develop a special environmental program aimed at the staff of the University of Michigan to create a greater environmental awareness as to the nature and impact of their job related activities.

IV. Air Borne Waste Control -- In summary the University should do the following:

A. Survey the present laboratory hood system to determine the extent of possible problem areas.

B. Continue long-range fuel source planning and institute energy and heat saving measures.

C. Implement non-pesticide controls of harmful insects.

D. Work with surrounding governments, etc. to institute area-wide liquid chemical waste disposal.

E. 1) close the Public Health School incinerator.

2) ensure proper operation of the Medical Science incinerators and and install additional burners on the Department of Anatomy incinerator.

3) determine the reason for air pollution from the North Campus incinerator and make the changes necessary to eliminate this air pollution problem.

V. Solid Waste Control

A. Consider the possibility of recycling cans from the kitchens of

University-run facilities.

B. Establishment of a University-wide paper recycling operation.

C. A source oriented analysis of University waste should be done to determine the efficiency of paper use. The impact of such a study could substantially reduce the amount of paper consumed daily by eliminating waste at its source.

D. The University should examine the viability of purchasing recycled paper stock wherever feasible. Pilot projects on a University Publication such as the University Record could be done on trial basis.

E. Equip all beverage machines at the University with returnable glass bottles.

VI. Chemical Waste Control

A. Make waste disposal a necessary c-nsideration for University approval of research grants.

B. Require each department to establish a "safety committee" (may be part of the laboratory committee, which nearly every department already has appointed).

C. Purchase of chemicals in a variety of sizes of containers. Provisions for purchase of quantity required rather than that which is expedient.

D. Provision within each building of a convenient location, readily accessible, approved storage area and related collection and transportation equipment.

E. Provision of an adequate disposal facility or purchase of disposal service on a contract basis, if this is the selected option.

VII. Water Borne Waste

A. Available evidence indicates a problem does not exist insofar as pollution of the water in the Huron River with waste materials from the University. No recommendations are in order at this time.

VIII. Land use -- Grounds

A. Elimination of use of landfill as a site for disposal of waste chemicals.

B. Surfacing of landfill, removal of debris, etc.

C. Need to institute erosion and sediment control should be integral part of site plans and specifications.

D. Excessive run off generated by parking lots, etc. should be properly

handled and conducted to receiving drains.

E. Need better liason with other University units, better record keeping on location of burial grounds for various wastes.

IX. Pathogenic Waste Control

A. Human and animal waste

1. All animal waste currently being generated in small volumes at outlying, low volume, project areas be transported to existing facilities for disposal.

2. An after-burner be considered for installation on the human waste crematorium to reduce smoke and odor problems.

3. That every effort be made to utilize the existing incineration facilities at optimum efficiency without overloading the units during peak volume use periods -- that the units should be fired to the operating temperature before used.

B. Laboratory waste control

1. That departments examine their compliance with recognized and accepted disposal practices to assure that pathogenic waste is not being discarded in waste baskets or by other non-approved methods.

2. That adequate bags be made available to laboratory personnel for transporting waste either to the incinerator or autoclave -- frequently, suitable containers are not available.

3. That all autoclaves be placed on a routine cleaning and maintenance program.

4. That all autoclaves be checked periodically (monthly) to determine efficiency of operation using viable heat resistent spores.

C. Hospital Waste Control

1. An indepth analysis of hospital materials use and disposal policy and practice is recommended to determine if the spiraling volume of solid waste could be reduced in a manner consistent with the continuation of quality health care.

2. It is also recommended that air samples be collected to the North Campus incinerator during operating hours and evaluated for densities of viable bacterial and viral particles. This would help to define the magnitude of risk as it is not presently known.

X. Radioactive Waste Control

A. Expansion of storage facilities for radioactive waste materials.

B. The development of better containter handling procedures.

C. The development of intensive educational programs for the users of radioactive materials to reduce negligent use and disposal of r.m.

D. The development of research projects aimed at improving handling and ultimate disposal of radioactive materials.

SUB GROUP REPORTS

UNIVERSITY OF MICHIGAN/CITY OF ANN ARBOR/WASHTENAW COUNTY COORDINATION AND COMMUNICATION

University/City

Presently, two coordinating committees, each with city and University representatives, meet or call to discuss broad areas of mutual concern.

These informal meetings, held about ten times per year include agenda items covering long term capital planning, police-fire safety, housing regulations and inspection, zoning, transportation and utilities. Problem solving is not attempted at these meetings, however, infrequently assignments are given to individual participants to conduct a joint review of a specific problem.

In addition, there are individual formal and informal city-University contacts at many levels of each organization covering all the areas of interface that result from the intermix of existing facilities, staff and programs.

Examples of departmental cooperation regarding waste control would include implementation of the decision to close the University landfill to solid waste disposal by allowing University solid waste disposal at the city landfill. In a more recent matter city officials have been fully informed of progress on a University feasibility study regarding the use of solid waste as a fuel.

However, due to the informal nature and broad scope of information considered by existing coordinating committees, a number of waste control activities affecting both the city and University have not been acted upon, and probably a number of potential problem areas have gone unidentified. A more structured channel of communication directed toward resolution of operating problems and planning activities would be beneficial.

University/County

Communications between the University and county are, for the most part, ad hoc. The county department of public works solid waste study and the University study to determine the feasibility of solid waste as a fuel is the most recent notable example of this relationship.

In recent months the County Health Department has expressed concern for methods employed by the University for chemical disposal and has raised some questions about the University incinerator.

Since the county department of public works performs primarily a service function, and in matters of waste control maintains a county wide observation through the individual municipalities, there would not be any advantage to

formalizing the communication effort between the county department of public works and University Physical Properties for review of routine procedures.

However, there is clearly an important interdependency of the City-county - and University in determining ultimate disposal sites, methods and transportation. Further, this interdependency will continue to increase as new, more restrictive regulatory measures are passed.

Recommendations

It is recommended that officials responsible for city public works and University facilities services meet on a mutually agreed upon schedule to identify waste control matters of mutual concern and to develop means of resolving problem areas.

It is recommended that University-county communication and coordination continue, but that it be conducted by officials of each unit on the basis of policy and long range planning rather than problem solving. Communications of this sort obviously cannot be carried out successfully without city involvement and therefore a mutual three way participation should be implemented.

It is further recommended that a public information campaign be implemented in a systematic fashion so that the general public is more aware of University concern and action in the areas of pollution control. Such a campaign could not help but strengthen University-community relations. The campaign could be incorporated in the work of a Pollution Control Task Force.

SOLID WASTE/RECYCLING

Definition of problem

In view of the present scarcity of resources and resulting piraling cost, it is imperative that the University of Michigan make every effort possible to conserve the amount of resources used and decrease the amount of waste produced. We can no longer enjoy a mentality of extravagance while our resources are being depleted faster than they can be replenished. Steps must be taken now to insure that the margin of waste is minimal, particularly because the University does consume so much.

Presently, the University generates approximately 55 tons of refuse per day in the course of its daily operations. Amongst that 55 tons is a high concentration of paper waste produced in staff and administrative offices as well as classrooms. There is little substantive effort on the part of the University to recycle this, particularly paper waste. The University of Michigan should seriously consider recycling in keeping with its other environmentally responsible practices. The U-M must continually re-evaluate its environmental policies in light of its social responsibilities as a model insitution and teacher of environmental consciousness.

Current situation

All solid waste is picked up daily and taken to the North Campus incinerator where it is burned. The cost for the pickup, burning, and disposal of this material amounts to approximately $7-10 per ton annually. The ashes from daily incineration of solid waste are disposed of through dumping at the city landfill.

This method is destructive and wasteful. Constructively speaking, there are dispersed minor efforts on the part of individuals to recycle paper, cans and glass in dorms. Aside from these efforts which are done on a voluntary basis, there has been no organized attempt to recycle at the University on a widespread scale.

Recycling of glass, and food wastes is not feasible at this time because it is either too costly, insufficient in amount, or not beneficial. However, paper recycling is indeed very feasible and perhaps profitable.

The recommendations below detail how such procedures could be established throughout the University. Also included are other suggestions that would improve the University's position as an ecologically responsible institution, while lessening its impact on our ever-decreasing resources.

Recommendations for the establishment of a University-wide paper recycling operation

Procedure:

1. Separation - Paper waste would have to be separated from other solid waste at the outset. This would require two separate receptacles in all halls, offices, and classrooms. One would be marked "for paper use only", and the other, "for non-paper waste."

2. Collection - Two separate collections of waste would be necessary. The paper waste would be transported from its source to a trailer designed for this purpose. The trailer and transportation from that point to the recycling center are provided by that company. The cost of paper collection would be defrayed by the money received from the recycled paper. The present price paid for recycled paper is $9-15 a ton. This sum surpasses the current expense of disposal. The market for recyclable paper is also readily available and very receptive. There is also the possibility of saving money because the amount of refuse waste would be considerably diminished.

3. Disposal - If the paper recycling operation can be fully implemented, there can also be an alternative disposal method for the remaining refuse waste. Instead of incinerating the non-paper waste, it could be out towards resource/energy recovery. A community resource recovery project could use it for heat recovery. If this is feasible, the North Campus incinerator would no longer be needed and could be closed down, thus saving the University the present cost for its maintenance and operation.

Recommendations for solid waste control

Procedure:

1. Equip all beverage machines at the University with returnable glass bottles.

2. Consider the possibility of recycling cans from the kitchens of University-run facilities. This would entail flattening of all metal cans and a separate container for storage until they are picked up and taken to a recycling center. An arrangement could be worked out similar to the recycling of paper whereas the company would provide the receptacles and the transportation at no cost. Although the market for metal isn't as in demand as for paper, it is definitely in the foreseeable future.

3. A source oriented analysis of University waste should be done to determine the efficiency of paper use. The impact of such a study could

substantially reduce the amount of paper consumed daily by eliminating waste at its source.

4. The University should examine the viability of purchasing recycled paper stock wherever feasible. Pilot projects on University publications such as the University Record could be done on a trial basis.

ENVIRONMENTAL EDUCATION

1. Problem Focus - If citizens and community leaders expected to play an effective role in dealing with environmental problems of the urban and non-urban envirnoments, it is imperative that all institutions of higher learning provide environmentally sound learning and research opportunities, and utilize pollution control methods that reflect a concern for the promotion of a high quality environment.

2. Definition - The opportunity exists on this campus to provide for an organized effort to collect and disseminate environmental information on pollution control and to promote further research in this vital field. It is also important that the learning environment be reinforced by University policies and practices that reflect a community-wide commitment to a high quality physical environment. It seems clear that environmental problems associated with pollution control could be reduced through a vigorous University-wide environmental education program. If the program proves successful, it could serve as a viable model for other universities across our nation.

3. Current Situation - At present there is no centralized organization responsible for systematically collecting and disseminating environmental information throughout the University and the community. The University has a number of staff, students, and faculty committed to research and education in the field of pollution control. However, there is a dire need for an organization capable of further research and education in the field of pollution control management and promoting further activities. A pollution control task force with a strong educational arm could help to further sound education, research, and University policies and practices in an effort to provide a high quality learning and physical environment.

4. Recommendations

a. Establish an educational subcommittee as an arm of the pollution control task force to promote educational programs aimed at everyone within the University and research in the field of pollution control. Some major functions of the committee would be as follows:

1. Establish a centralized information collection and dissemination system on pollution control available to staff, faculty, students and the community at large. They system would include information on current legislation, new developments in environmental technology

special projects, relevant data, and sources for additional information on pollution control. The information would eventually be computerized to provide for quick retrieval.

2. Establish a legislative subcommittee to keep the pollution control task force abreast with current legislative developments that affect University operations. It is frequently difficult for staff involved in the day-to-day operations to be alert to new and pending legislation affecting the various phases of pollution control that relate to the University.

3. Assist faculty members that offer courses related to pollution control by making presentations, providing information sheets, identifying potential research projects, providing visual aids, etc.

4. Develop a special enviornmental program aimed at the staff of the University to create a greater environmental awareness as to the nature and impact of their job related activities.

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BIBLIOGRAPHY

BIBLIOGRAPHY

Arbolino, Jack. "A Plan for External Degrees." New Teaching-New Learning; Current Issues in Higher Education. Edited by G. Kerry Smith. San Francisco: Jossey-Bass, 1971.

Astin, Alexander W., and Lee, Calvin B. T. "Current Practices in the Evaluation of College Teachers." Educational Record 47 (1966): 361-75.

Beard, R. M.; Healey, F. G.; and Holloway, P. J. Objectives in Higher Education. London, England: Society for Research Into Higher Education, Ltd., 1973.

Bell, Terrel H. "Should Colleges Teach Salable Skills?" Chronicle of Higher Education 10 (1975): 7.

Benson, Charles S. "The Effects of Federal Support on Allocation of Campus Resources." In Campus and Capitol. Edited by John Minter. Boulder, Colorado: WICHE, 1966.

Bergevin, Paul. A Philosophy for Adult Education. New York: Seaburg Press, 1967.

Birch, Michael, and McGrath, Earl J. Innovations in Liberal Arts Colleges. New York: Teachers College, Columbia University, 1969.

Bruner, Jerome S. The Process of Education. Cambridge, Mass.: Harvard University Press, 1966.

Cantelon, John E. In College Education and Campus Revolution. Philadelphia, Pennsylvania: Westminster Press, 1969.

Carnegie Commission. Less Time, More Options: Education Beyond the High School. Hightstown, New Jersey: McGraw-Hill, 1971.

Chin, Robert. "The Utility of System Models and Developmental Models for Practitioners." In The Planning of Change. Edited by Warren G. Bennis, Kenneth E. Benne, and Robert Chin. 2nd ed. New York: Holt, Rinehart and Winston, Inc., 1969.

Cochran, Leslie H. Innovative Programs in Industrial Education. Bloomington, Illinois: McKnight and McKnight Publishers, 1970.

Collier, K. G., ed. Innovations in Higher Education. Windsor, Canada: Society for Research Into Higher Education, 1974.

Commission on Non-Traditional Study, Samuel B. Gould, chairman. Diversity by Design. San Francisco: Jossey-Bass, 1973.

Cross, K. P. Beyond the Open Door: New Students to Higher Education. San Francisco: Jossey-Bass, 1971.

Cross, Patricia; Valley, John R.; and associates. Planning Non-Traditional Programs. San Francisco: Jossey-Bass, 1974.

Deutsch, Karl. "The Evaluation of Models." In Management Systems. Edited by Peter B. Schoderbeck. New York: John Wiley and Sons, 1968.

Dressel, Paul L. College and University Curriculum. 2nd ed. Berkeley, California: McCutchan Publishing Corporation, 1973.

_____. Undergraduate Curriculum in Higher Education. Washington, D.C.: The Center for Applied Research in Education, Inc., 1963.

_____; Johnson, F. Craig; and Marcus, Philip M. The Confidence Crisis. San Francisco: Jossey-Bass, 1971.

Faure, Edgar. Learning to Be. International Commission on the Development of Education. Paris: UNESCO, 1972.

"The Ford Foundation: A Drastic Cutback." Chronicle of Higher Education 10 (1975): 1.

Geeslin, Campbell, ed. "Less Money Available to Higher Education." College Management 6 (1971): 13-15.

Glenny, Lynman A. "Pressures on Higher Education." College and University Journal 12 (1973): 5-9.

Gould, Samuel B., and Cross, K. Patricia, eds. Explorations in Non-Traditional Study. San Francisco: Jossey-Bass, 1972.

Grant, William. "Value of Adult Education in Higher Education." The Lifetime University. Detroit Free Press, September 23, 1973.

Griffiths, Daniel B. The Decision Making Process in Administrative Theory. New York: Appleton-Century-Crofts, 1959.

Hallam, Kenneth J., ed. Towson Conference on Curricular and Instruction Innovations in State Colleges and Universities. Baltimore, Maryland: Towson State College, 1966.

Helsabeck, Robert E. The Compound System: A Conceptual Framework for Effective Decision Making in Colleges. Berkeley, California: Center for Research and Development in Higher Education, University of California, 1973.

Hesburgh, Theodore M.; Miller, Paul A.; and Wharton, Clifton R. Patterns for Lifelong Learning. San Francisco: Jossey-Bass, 1973.

Innovations and Experiments in University Teaching Methods. Proceedings of the Third Conference, University Teaching Methods Research Unit, Department of Higher Education, University of london. London, England, 1968.

Judy, R. W., and Levine, J. B. A New Tool for Educational Administrators. Toronto, Canada: University of Toronto Press, 1965.

Keeton, Monis T. Models and Mavericks. New York: McGraw-Hill, 1971.

Kerr, Clark. "Destiny Not So Manifest." New Teaching--New Learning. Edited by G. Kerry Smith. San Francisco: Jossey-Bass, 1971.

Kleis, Russel. An Area Approach to Continuing Education. East Lansing: Michigan State University, 1974.

Knowles, Malcolm. Modern Practice of Adult Education. New York: Association Press, 1970.

Koenig, H. E.; Keeney, M. G.; and Zemach, R. "A Systems Model for Management, Planning and Resource Allocation in Institutions of Higher Education." Final Report, National Science Foundation, C-518. East Lansing: Michigan State University, 1968.

Krachenberg, A. R. "Bringing the Concept of Marketing to Higher Education." Journal of Higher Education 43 (1972): 369-80.

Lehti, Robert E. Innovative College Management. San Francisco: Jossey-Bass, 1973.

Lynd, Hellen. Field Work College Education. New York: Columbia University Press, 1945.

Magarell, Jack. "Higher Education's Severest Slowdown." Chronicle of Higher Education 10 (1975): 7.

Mayhew, Louis B. Innovations in Collegiate Instruction. Atlanta, Georgia: Southern Regional Board, 1967.

McClatchy, N. In The College and the Student. Edited by Lawrence Dennis and Joseph Kauffman. Washington, D.C.: American Council on Education, 1966.

McKeachie, W. "Effective Teaching: The Relevance of the Curriculum." In The College and the Student. Edited by Lawrence Dennis and Joseph Kauffman. Washington, D.C.: American Council on Education, 1966.

_____, and Solomon, D. "Student Ratings of Instructors: A Validity Study." Journal of Education Research 51 (1958): 379-82.

Miles, Matthew B. Innovation in Education. New York: Teachers College, Columbia University, 1964.

Mood, Alexander M.; Bell, Colin; Bogard, Lawrence; Brownlee, Helen; and McCloskey, Joseph. Papers on Efficiency in the Management of Higher Education. Berkeley, California: Carnegie Commission on Higher Education, 1972.

Oberg, Winston. "Make Performance Appraisal Relevant." Harvard Business Review, January-February 1972, pp. 61-67.

Petersop, Marvin W. "Decision Type, Structure, and Process Evaluation: A Contingency Model." Higher Education 2 (1972): 91-93.

Phillips, Ellis L., Jr. A New Approach to Academic Administration. New York: Teachers College Press, 1969.

Priorities for Action: Final Report of the Carnegie Commission on Higher Education. New York: McGraw-Hill, 1973.

Robb, Felix C. Innovations in Education. College Park, Md.: University of Maryland Press, 1965.

Scully, Malcolm G. "A Glut of College Graduates?" Chronicle of Higher Education 10 (1975): 1.

Semas, Philip W. "The Explosive Growth of 'Faculty Development.'" Chronicle of Higher Education 11 (1975): 3.

Smart, John M. "Campus Crisis and Public Policy: The State Higher Education Agency." Journal of Higher Education 41 (1970): 365-76.

Smith, Kidd, and Alan, eds. Handbook of Adult Education in the United States. New York: New York Institute of Adult Education, Teachers College, Columbia University, 1972.

Task Force on Lifelong Education. The Lifelong University. East Lansing: Michigan State University, 1973.

Van Haden, Herbert Il, and King, J. M. Innovations in Education . . . Their Pros and Cons. Worthington, Ohio: Jones Publishing Company, 1971.

Wendell, Philip R. "Teaching and Learning: Whose Goals Are Important Around Here?" Whose Goals for American Higher Education. Washington, D.C.: American Council on Education, 1968.

Wilson, James A., and Lyons, Edward H. Work Study College Program Appraisal and Report in the Study of Cooperative Education. New York: Harper and Brothers, 1961.

Wurtele, Z. "Mathematical Models for Educational Planning." Report No. SP-3015. Santa Monica, California: Systems Development Corporation, 1967.