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# AN ANALYSIS OF THE INTERNATIONAL DIMENSION OF MICHIGAN PUBLIC COMMUNITY COLLEGE EDUCATION

By

Frederick Thornton Fink

# A THESIS

## Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

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# Department of Administration and Higher Education

### ABSTRACT

# AN ANALYSIS OF THE INTERNATIONAL DIMENSION OF MICHIGAN PUBLIC COMMUNITY COLLEGE EDUCATION

By

# Frederick Thornton Fink

During the past twenty years both power and responsibility came to the United States before either the government or the people were prepared for it. There has also been a tendency to view education as a closed system with no relation to the political, social, economic or world context in which education operates. The ability to develop a rational strategy for increasing the international dimension of community college education depends on a coherent analysis of current international activities.

Twenty-four environmental variables and twenty leadership variables were identified which were perceived to reflect an international bias. Each variable was measured for each of the ten community colleges in the sample. The environmental variables were transformed to standard scores and the leadership variables were assigned a double weight to insure similar distribution standard deviations. A series of correlations were computed to test the hypotheses. The results of the correlations led to the following conclusions: (1) foreign student enrollment has not progressed rationally in Michigan public community colleges; (2) library resources have been developed as the colleges have increased their international emphasis; (3) institutional conditions which foster international activities in four-year colleges and universities are equally important to the international dimension of community college education; and (4) some of the environmental and leadership variables are good predictors of the total international dimension of the institutions studied.

The environmental variables which had significant correlations with the total international dimension include: (1) the percentage of former Peace Corp volunteers on the faculty; (2) the number of courses listed in the community college catalog which include references to international programs, activities or institutions; and (3) the international dimension of the curriculum.

The leadership variables with significant correlations included: (1) attitudes of responsibility and obligation to foreign students; and (2) the ability and resources to handle the unique problems of foreign students.

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Each community college in the sample was assigned a particular cell on a matrix designed to compare the institutions with reference to the degree that the international dimension had become institutionalized. The matrix cells reflect the intersection of favorable and unfavorable leadership and environment. Favorable leadership denotes leadership committed to the innovations being attempted and favorable environment denotes an environment which is change prone and contains forces available for mobilization in favor of proposed innovations.

The results obtained indicate that leadership and environment apparently develop simultaneously. In every case but one these two variables shared the same cell.

Results of analyzing the international dimension of the community colleges studied clearly indicates that some colleges are much more vigorous than others in their attempts to increase their international dimension. The presence of foreign students on the community college campus is neither a necessary nor a sufficient condition for concluding that the international dimension of that college is large. If a community college desires to increase its international dimension there are alternatives open which do not require a large foreign student enrollment.

Questions concerned with the optimum involvement of the community college in international activities are outside the scope of this paper. Additional research is essential to the investigation of questions of that type.

Additional research on a national scale is also indicated prior to generalizing about the international dimension of community college education nationwide. The results of this study may be generalized to the population of Michigan public community colleges only.

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### CHAPTER I

THE PROBLEM

### Need

Since the end of World War II the United States has become increasingly involved in world affairs. During the nineteen sixties, American universities and colleges have taken a close look at both the opportunities and the responsibilities in world affairs which they share with other American institutions. It is no longer true that the diplomat and the military man hold world affairs in their private domain. A growing concern for the course of world affairs and the place of this nation in international activities has prompted a number of studies which relate education to the world at large. Table 1.1 lists, in chornological order, some of the major studies of the past ten years. None of the studies listed directly applies to the community college.<sup>1</sup>

The passage of the International Education Act of 1966 provided for strengthening the international dimension of American education. The main thrust of the Act, at the undergraduate level, is to provide a

<sup>&</sup>lt;sup>1</sup>The term "community college" will be used to designate community and/or junior colleges.

| Year | Study   | Study Director                             | Study Sponsor  |
|------|---|--|--|
| 1960 | The University and World<br>Affairs   | J. C. Morrill                              | Ford Foundation and U.S.<br>Department of State                      |
| 1963 | The College and World Affairs   | John W. Nason                              | Edward W. Hazen Foundation   |
| 1964 | Non-Western Studies in the<br>Liberal Arts College  | F. L. Wormald                              | Association of American<br>Colleges (AAC)                            |
| 1965 | The University Looks Abroad:<br>Approaches to World Affairs at<br>Six American Universities | William W. Marvel                          | Education and World<br>Affairs, Inc. (EWA)                           |
| 1966 | International Education in the<br>Developing State Colleges and<br>Universities             | Fred Harcleroad<br>and<br>Alfred Kilmartin | Association of State<br>Colleges and Universities<br>(ASCU)          |
| 1967 | The Professional School and<br>World Affairs  | Irwin T. Sanders                           | Education and World<br>Affairs, Inc.                                 |
| 1967 | Baseline  | Harold Taylor                              | American Association of<br>Colleges for Teacher<br>Education (AACTE) |
| 1968 | Higher Education and World<br>Affairs   | Allen A. Michie                            | Education and World<br>Affairs, Inc.                                 |
| 1968 | The Teacher and the World   | Harold Taylor                              | American Association of<br>Colleges for Teacher<br>Education         |

TABLE 1.1.--Chronological summary of studies which relate education and world affairs\*

\* Chronological summary of nine studies which relate education to world affairs.

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wide segment of students a chance to learn more about the world and the cultures, customs, and values of other countries.

Hearings were held by committees of the House and Senate prior to the passage of the International Education Act. Evidence furnished at the hearings shows that the international dimension of American education is inadequate. The committees found that: (1) only 50% of the 191 state colleges and universities surveyed in 1966 offered a course in non-Western studies; (2) less than one-half of one per cent of the 1500 universities and four year colleges in the United States require candidates for the baccalaureate to take even a single course dealing primarily with non-Western areas; (3) less than 10% of the students who attend four year colleges and universities offering non-Western courses took such courses.

During the past twenty years both power and responsibility came to the United States before either the government or the people were prepared for it. This society and the educational system of the society could be fairly characterized as parochial in its preoccupation with the heritage of Western civilization. Steadily increasing responsibility in international affairs since World War II has not had much effect on the U.S. educational system. There has been a tendency in this country

to view education as a closed system with no relation to the political, social, economic or world context in which education operates. If the United States is to exercise meaningful leadership in the international arena it is essential that the people of the United States become more internationally oriented by removing the blinders of parochialism through a conscious effort at internationalizing the curriculum.

If it is in the best interests of the American people to educate our youth to meet the requirements of a changing world, then a major change must take place within the educational system.

Because of its commitment to innovation the community college is more susceptible to change than many four year colleges and universities. As the international commitments of the government increase it seems only natural that community colleges develop a service function extending to a "community" beyond the borders of its local constituency, even beyond the borders of the State and Nation.

A recent issue of the <u>Junior College Journal</u> included an article devoted to the dilemma of foreign student admissions.<sup>2</sup> At least part of the dilemma is the result

artist in the

<sup>&</sup>lt;sup>2</sup>F. George Elliott, "The Dilemma of Foreign Student Admissions," <u>Junior College Journal</u>, Vol. 40, No. 2 (October, 1969), 17-20.

of a failure on the part of some community college boards and administrators to extend the definition of "community."

Community colleges have the opportunity to move forward in internationalizing their curricula.

The 1,000 plus two-year colleges in the United States can make a singular contribution to world understanding by strengthening their international education dimensions and by building this emphasis into their general education programs. As last resorts for formal education or as sources of continuing education for thousands of youths and adults, community colleges maintain a unique position to help Americans know more about their fellow earthlings and their own places in the sun.3

What kinds of activities are appropriate for community colleges in the area of international education? The Morrill Report points out a number of activities which are pertinent to colleges and universities. Recommendations of the Committee on the University and World Affairs which have relevance to the community college include the following.

1. All American institutions of higher learning should make studies of world affairs an important and permanent dimension of their undergraduate programs.

2. Most universities and colleges have students and scholars from other countries. These institutions need to develop special educational programs fitting the needs of their foreign guests.

<sup>3</sup>William G. Shannon, "The Story is Beginning to Unfold," <u>Junior College Journal</u>, Vol. 40, No. 2 (October, 1969), 9-11.

3. Many universities and colleges would benefit from undertaking cooperative activities with educational institutions in other countries. A few should undertake programs of assistance to educational institutions overseas.

4. Universities that undertake a wide range of programs in world affairs, at home and abroad, face complex problems of management. Their faculties, and administration alike need to develop long range priorities and plans in order to make possible the balanced, yet flexible, growth of the total university educational program.<sup>4</sup>

Research has progressed in universities and four year colleges directed toward these recommendations. The aim of this thesis is to investigate these recommendations and other dimensions of international activities on the community college campus. The international concerns of community colleges have not been systematically studied for the purpose of providing community college administrators with the tools necessary to assess the current status of international education within a particular community college.

In the words of one community college administrator:

. . . two year colleges are on the threshold, during the next decade, of a potential explosion from foreign student sources that will be one of the most dramatic and significant challenges to higher education, nationally and internationally, since the establishment in the United States of land-grant colleges over 100 years ago and the

<sup>4</sup>J. L. Morrill, <u>The University and World Affairs</u> (New York: The Ford Foundation, 1960), pp. 4-5.

G.I. student wave immediately following World War II.5

### Purpose

The purpose of this study is to develop a technique for measuring the international dimension of community college education in Michigan and to analyze the current status of international education in community colleges. The international dimension of community college education is defined as the aggregate of the community college contribution to world understanding. This includes foreign students and foreign scholar programs, international course orientation and all other activities with an international character.

Specifically, this study will be concerned with the following variables which are perceived to reflect an international dimension.

- 1. The number of foreign students enrolled in each community college studies.
- 2. The extent of library materials primarily applicable to international courses, or segments of courses.
- 3. A tabulation of course descriptions measured on criteria designed to evaluate international content.

<sup>5</sup>Douglas E. Matthewson, Jr., <u>A National Survey of</u> <u>International Students and Programs in Community Junior</u> <u>Colleges in the United States</u>, National Association of Foreign Student Affairs (Washington, D. C.: The Association, 1968), p. 1.

- Extra-curricular activities of international 4. consequence.
- Administrative statements and policies which 5. reflect an attitude toward internationalizing the curriculum.
- Community college membership in associations 6. primarily geared to activities of an international nature.

These variables will be correlated with the community college attribute factors described by Richards, Rand, and Rand<sup>6</sup> and with the other variables of the study which are designed to measure environment or leadership.

Five specific institutional conditions for international education will be weighed as these apply to each community college in the sample. These conditions include:

- 1. Leadership.
- Commitment. 2.
- 3. Competence.
- 4. Budget.
- Feedback.7 5.

Finally, the concept of institution building will be used as a model for comparing the community colleges

<sup>6</sup>James M. Richards, Jr., Lorreine Rand, and Leonard Rand, "Description of Junior Colleges," <u>Journal</u> <u>of Educational Psychology</u>, Vol. 57, No. 4 (1966).

<sup>7</sup>Allen A. Michie, <u>Higher Education and World</u> Affairs (New York: Education and World Affairs, Inc., 1968), pp. 32-34.

in the sample with each other on the dimensions of environment and leadership.

### Hypotheses

A number of assumptions have been made concerning the development of an interantional dimension in Michigan public community colleges. The organization of this section will include statements of assumptions and a series of broadly conceived hypotheses which will be refined to test the assumptions.

It is assumed that the coherent development of an international dimension will include the admission of some students from foreign countries, possibly just a few to begin with. Where long range planning has been developed and a commitment to the internationalization of the curriculum exists, it seems reasonable to expect The the percentage of foreign students to increase. Matthewson study, reviewed in Chapter II, suggests a 3% foreign student enrollment as optimum. Further, as the community college matures a higher priority will be placed on foreign student admissions to reflect the continued growth of an international commitment, at least until the percentage of foreign students reaches 3%. The following hypotheses are suggested based on these assumptions.

<u>Hypothesis 1</u>. There is no positive relationship between the percentage of foreign students enrolled and the age of the community college.

<u>Hypothesis 2</u>. There is no positive relationship between the percentage of foreign students enrolled and the size of the community college.

The minimum conditions for effective institutional involvement in international education reflect the experience of major universities and a small number of liberal arts colleges. An assumption is made that these conditions will be equally essential as the community college develops its international dimmension.

<u>Hypothesis</u> 3. A high positive relationship exists between the international dimension of community college programs and the institutional conditions described by Michie.

It is assumed that there will be differences in the international dimension of the community colleges studied. Some will be more active than others. Some will have developed course-segments or entire courses to stress the importance of world affairs. The development of these courses or course-segments will require additional library resources to provide students with necessary study materials. A large library is not a prerequisite for the addition of internationally oriented courses but adequate course materials are essential. These assumptions lead to the next hypothesis.

<u>Hypothesis 4</u>. The extent of library materials primarily applicable to international courses or course-segments will not have a high positive relationship with overall library size. Community colleges which have developed international courses or revised existing courses to include more international emphasis will concurrently develop library resources to strengthen these courses. Hypotheses 5 and 6 are designed to examine this assumption.

<u>Hypothesis 5</u>. There is a high positive relationship between the size of the international library and the number of international courses offered.

<u>Hypothesis 6.</u> There is a high positive relationship between the size of the international library and the total environment variable.

It is assumed that community colleges which have added or revised courses to reflect a concern for world affairs will be inclined to join other community colleges or four-year institutions in association to promote their common international interests.

> Hypothesis 7. A high positive relationship exists between the international dimension of the curriculum and affiliation with internationally oriented consortia.

The two main variables, environment and leadership, are assumed to be independent predictors of the total international dimension.

<u>Hypothesis 8.</u> There is no relationship between the environmental and leadership variables.

It is assumed that returned Peace Corps volunteers on the community college faculty will have an impact on the environment. The kinds of concern which persuaded these individuals to join the Peace Corps will have a positive effect on their activities as faculty members. <u>Hypothesis 9</u>. There is a relationship between the percentage of Peace Corps volunteers on the community college faculty and the environmental variable.

Finally, it is assumed that some of the sub-variables will be good predictors of the main variables and of the total international dimension of the colleges in the study. The development of an expeditious technique for measuring the total international dimension requires the identification of such highly predictive variables.

<u>Hypothesis 10</u>. Some of the sub-variables of environment and of leaderhsip will be highly predictive of the main variables of environment and leadership.

<u>Hypothesis 11</u>. Some of the sub-variables will be highly predictive of the total international dimension of the colleges studied.

#### Theory

The Richards, Rand, and Rand study identified 36 variables which reflect community college environmental characteristics. Thirteen of these variables have been used to compare the community colleges in this study. A list of the 36 variables appears in Appendix A.

Conclusions reached by Richards indicated that there is no congruence between community college environmental characteristics and the environmental characteristics of four year colleges and universities. Some of the variables used in Richards' study were deliberately chosen to correspond with variables used by Astin and Holland in their "Environmental Assessment Technique."<sup>8</sup> The scoring system used by Astin and Holland was also used in the Richards study and in this study.

Astin and Holland developed the Environmental Assessment Technique to assess the environment in terms of eight characteristics of the student body: its size. average intelligence, and six "personal orientations" --Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic--based on the proportion of students in each of six classes of major field. The college environment was viewed as a set of potential stimuli, or observable characteristics which are capable of changing the attitude of students attending the college. Unlike other environmental attributes the Michie institutional conditions are perceived to apply equally to the community college and the senior college.

Briefly, Michie defines the minimal conditions for effective institutional involvement in international education as:

1. <u>Leadership</u> involving long-range planning, assessment of the institution's goals and objectives, and decisions based on priorities assigned to international

<sup>&</sup>lt;sup>8</sup>A. W. Astin and J. L. Holland, "The Environmental Assessment Technique: A Way to Measure College Environments," Journal of Educational Psychology (1961).

education. "The role of the leadership is to make it continually clear--inward to the university community, outward to the public--that the international dimension is a permanent, integral part of the university's total educational mission."<sup>9</sup>

2. <u>Commitment</u> must be visible. It is crucial that institutional commitment extend from the president, trustees, deans, and involved faculty throughout the college. The single restriction on commitment is that it should be commensurate with the institution's strengths and resources.

3. <u>Competence</u> must be weighed prior to the initiation of complex projects or programs. It is essential that the expertise of the individual faculty member not be overextended. The capabilities of some large universities have been severely stretched by some particularly complex technical assistance projects.

4. <u>Budget</u> problems must be considered before new programs are started. Plans must be made to absorb into the institution's own budget the costs of the new programs. Collaboration with other institutions in meeting budget commitments might be indicated.

5. <u>Feedback</u> must be purposely worked at, it does not happen by itself. The analysis of international

<sup>9</sup>Michie, <u>op. cit.</u>, p. 32.

experiences, evaluation of the results of various projects and an internal communications system which is operative are essentials of the feedback process.

Finally, the concept of institution building as this has been described by Esman and Blaise will be used as it applies to the institutionalizing of international programs in community colleges. The Esman-Blaise concept may briefly be characterized as

. . . the planful establishment of new organizations to serve purposes which are thought to require administrative intervention and linkages to the larger social system different from those which can be provided by an already existing administrative unit.10

Institution building research is focussed on the variables of change that are part of any innovative program intended to have an impact on already existing institutions. There are two crucial variables in institution building. These variables are included in the matrix of Figure 1.1.

Numerals 1 through 4 indicate types of cases, type 1 being the easiest for institutionalization and type 4 the most difficult. Favorable leadership denotes leadership committed to the innovations being attempted. A favorable environment is one which is change prone and

<sup>&</sup>lt;sup>10</sup>Milton J. Esman and Hans C. Blaise, <u>Institution</u> <u>Building Research: The Guiding Concepts</u> (Pittsburgh: University of Pittsburgh Graduate School of Public and International Affairs, 1967), p. 2.

| Leadership<br>Environment | L<br>Favorable | L<br>Unfavorable |
|---------------------------|----------------|------------------|
| E<br>Favorable            | 1              | 3                |
| E<br>Unfavorable          | 2              | 4                |

Figure 1.1--Matrix of institutionality.

and contains forces available for mobilization in favor of proposed innovations.

The institutional conditions which have been described by Michie seem to fit this matrix very well. The conditions of commitment, competence, budget, and feedback are clearly part of the environmental variable while the condition of leadership is also clearly part of the leadership variable.

In summary, this study will use the Richards, Rand and Rand survey as a vehicle for comparing the community colleges which are part of the study. The Esman-Blaise concept of institution building will be used in conjunction with the Michie institutional conditions to characterize each of the community colleges studied in terms of the viability of their international dimension.

### <u>Overview</u>

In Chapter II a selection of the literature pertinent to this study is reviewed. In Chapter III a detailed discussion of the study is presented and in Chapter IV the results of the study are analyzed. Additional information concerning the sample, the general design and the measures used for each variable are included in Chapter III.

A great number of books, pamphlets and journal articles have appeared over the past ten years which are concerned with the international character of American education. A detailed review of some of these is included in Chapter II.

### CHAPTER II

### REVIEW OF LITERATURE

There has been a growing awareness on the part of some American educators that the international dimensions of education are not getting sufficient high level attention. Most of the studies which have directed attention to the relationship between education and world affairs have been focused on the four year college and university.

This chapter will review some of the studies of four year colleges and universities with the primary goal of relating the sections which have to do with undergraduate education to the community college.

The Richards, Rand, and Rand study which will be used in Chapter III, Design of the Study, will be reviewed with an eye to the use of common variables.

A study of foreign students on community college campuses was conducted by Douglas E. Matthewson, Jr. for the National Association for Foreign Student Affairs. This study surveys international programs and aspirations and will be reviewed in relationship to this thesis.

Finally, a brief review of the process of institution building as this is defined by Esman and Blaise and the use of the concept of institution building as a tool to

characterize the community colleges of this study will be included.

In 1959 the Ford Foundation and the United States Department of State created a committee chaired by J. L. Morrill and designated as the "Committee on the University and World Affairs." The report of this committee was published by the Ford Foundation in December of 1960. In the words of the Morrill report the university ". . . is challenged to meet the needs of our own people for a far better knowledge and understanding of others."2 While at the same time the University must ". . . help meet the needs of emerging nations for the creating and rapid improvement of their educational systems."<sup>3</sup> It is essential that more foreign students from those countries which are building up their own educational systems to meet the needs of nationhood should be recruited for American universities.

American universities have traditionally regarded foreign students as no different from American students. Curricular offerings must be redesigned to meet the special needs of foreign students and of the nations from which they come. "A high priority should be given to measures which improve the quality of the educational experience

> <sup>1</sup>Morrill, <u>op. cit</u>. <sup>2</sup><u>Ibid</u>., p. 1. <sup>3</sup><u>Ibid</u>., p. 2.

of foreign students."<sup>4</sup> To meet the challenges of greater international emphasis the American university must ". . transcend the traditionally domestic and Western orientation of scholarship and training, in universities and colleges, and the limited aims of 'technical assistance' and 'national defense', in government."<sup>5</sup>

An education for American students in the second half of the twentieth century must include an effective international component. It is not sufficient to simply add a course or two which might reflect an international flavor. "Appropriate materials also must be incorporated into regular course work, especially in the heavy-traffic courses taken by most freshmen and sophomores in the social sciences and humanities."<sup>6</sup> All too many difficulties in university programs in world affairs have ". . . arisen from the fact that many programs have been sporadic, ad hoc, and inadequately related to one another."<sup>7</sup> Cooperation from within the college or university and cooperation among institutions to achieve the ends of international development must be realized.

One of the community colleges which is a part of the sample used in this study has recently been awarded a

> <sup>4</sup><u>Ibid</u>., p. 30. <sup>5</sup><u>Ibid</u>., p. 3. <sup>6</sup><u>Ibid</u>., p. 17. <sup>7</sup><u>Ibid</u>., p. 34.

a federal grant to join with three other community colleges in bringing an expert in foreign studies to their campuses. This type of arrangement is probably the most efficient way that community colleges have for attracting expert assistance.

The undergraduate program in universities has a close parallel in the community college transfer program. It should be clearly understood however, that the main thrust of this study is toward the community college in total, not just to transfer education. It is just possible that the community college might make its greatest contribution to a disadvantaged country by introducing and developing the comprehensive community college as an integral part of the nation's educational system. Such considerations are outside the scope of this paper which focuses on current community college programs.

In 1963 the Edward W. Hazen Foundation formed a committee which was chaired by John W. Nason, to study the college and world affairs. The report of this committee, released in February 1964 was designated <u>The</u> <u>College and World Affairs</u><sup>8</sup> and was distributed by the Hazen Foundation and Education and World Affairs, Incorporated. The Nason committee reviewed the international character of liberal education in the American college.

<sup>8</sup>John W. Nason, <u>The College and World Affairs</u> (New York: Education and World Affairs, Inc., 1963).

Knowledge of the changing world was deemed essential to liberal learning. The most valuable section of the Nason report for the purposes of this study is the discussion of a number of strategies which might strengthen the faculty and teaching resources of the college. These strategies seem as appropriate to the community college as they do for four year colleges and universities. The strategies include:

- I. On-campus faculty seminars in international education.
- 2. Teaching, research and study abroad by faculty members.
- 3. Visiting foreign faculty members.
- 4. Foreign students as resources for teaching.
- 5. Expanding the library.
- 6. Development of international teaching materials.
- 7. Cooperative approaches through consortia for
- sharing expenses of study and research in international education.

Questions concerning some of these points have been incorporated in the variables of this study.

To guard against excessive course proliferation, the Nason committee recommends that any college which is planning to add to the international dimension of its curriculum, should first make a searching examination of the relationship between the existing courses and the

curriculum in general. The faculty might ". . . redesign existing courses by utilizing new and different materials and by introducing new approaches, especially comparative analysis."<sup>9</sup>

The faculty might also add new courses and programs concerned specifically with non-Western areas. Courses which analyze the processes of cultural interaction help students to develop the ability to see cultural traits in perspective and to judge them with some objectivity.

The Association of American Colleges (AAC) conducted Non-Western Studies in the Liberal Arts a survey of College<sup>10</sup> in 1964. The AAC study involved 685 institutions, of which 79 were publicly controlled. Almost onethird of the AAC institutions which were surveyed offered no work in non-Western studies in the curriculum. Just 32 of the 685 institutions surveyed reported adequate library holdings in non-Western fields. The study also found that over 35 per cent of the 685 institutions claimed plans for expanding or introducing non-Western This compares with the 17 per cent response by studies. community colleges which is detailed in the Matthewson Twenty of the 685 institutions offered as many as study. 25 non-Western courses throughout their entire curriculum.

<sup>9</sup><u>Ibid</u>., p. 32.

<sup>10</sup>F. L. Wormald, <u>Non-Western Studies in the Liberal</u> <u>Arts Colleges</u> (Washington, D. C.; <u>Association of American</u> Colleges, 1964).

Considering that this figure included all courses which dealt with the geography, politics, government, culture, literature, language, or history of any country, region, or continent outside of the Western world, it is obvious that offerings were very limited.

In 1966 the Association of State Colleges and Universities (ASCU) conducted a survey similar to the AAC survey of 1964. The ASCU study was called <u>Inter-</u> <u>national Education in the Developing State Colleges and</u> <u>Univercities.<sup>11</sup> The study involved 191 member institu-</u> tions all of which were publicly controlled. Ninetysix of the 191 institutions reported non-Western courses being offered exclusive of languages. Just 17 of the colleges and universities surveyed considered their library holdings in non-Western fields adequate. Thirty per cent of the institutions reported plans to expand non-Western studies throughout the curriculum.

Education and World Affairs, Inc. completed a study of <u>The Professional School and World Affairs<sup>12</sup></u> in 1967. The EWA study committee formed task forces to investigate the international dimension of the following professional schools.

<sup>11</sup>Fred Harcleroad and Alfred Kilmartin, <u>International</u> <u>Education in the Developing State Colleges and Univer-</u> <u>sities (Washington, D. C.: ASCU, 1966).</u>

<sup>12</sup>Irwin T. Sanders, <u>The Professional School and</u> <u>World Affairs</u> (New York: <u>Education and World Affairs</u>, Inc., 1967).

- 1. Business Administration and Public Administration
- 2. Agriculture and Engineering
- 3. Law
- 4. Medicine and Public Health

5. Education.

Generally, all of the professional schools were found wanting in their international dimension. Fewer than 20 per cent of the professional schools studied offered special courses introducing students to problems outside the United States.

One of the most pressing needs identified by the task forces is the preparation of teachers with adequate knowledge and background in world affairs education. The preparation of such teachers demands ". . . a major effort by teacher education institutions to provide guidelines related to cross-cultural student experiences."<sup>13</sup> In 1962 a test was given in 175 colleges and universities to 1,958 seniors. The test was designed to reflect knowledge in the field of foreign affairs. Prospective teachers ranked lowest of all the groups tested. They also ranked at the bottom in the number of courses taken in foreign affairs.<sup>14</sup>

<sup>14</sup>Percy W. Bidwell, <u>Undergraduate Education in</u> Foreign Affairs (New York: King's Crown Press, 1962), p. 149.

<sup>&</sup>lt;sup>13</sup><u>Ibid</u>., p. 312.

Without teachers, the other professional schools have little hope of increasing the international dimension of their programs. Several proposals were made by the task force on education which were designed to increase the competence of prospective teachers. "Attention should be given to the undergraduate course requirements of prospective teachers to see that some study of a non-Western culture is included."<sup>15</sup>

The task force on education also strongly recommended that ". . . every school preparing teachers should initiate some research on selected aspects of the U. S. citizens' knowledge, opinions, and attitudes about the rest of the world."<sup>16</sup> Such research is within the capacity of every school of education in the United States. Possibly the cry for relevance which echos through so many ivy covered halls may lead some colleges of education toward such research.

In 1968 Education and World Affairs, Inc. published <u>Higher Education and World Affairs</u>.<sup>17</sup> According to Michie "at the undergraduate level the growth of courses with an international content has been unsystematic and heavily Western-oriented."<sup>18</sup> American educators have not

> <sup>15</sup>Sanders, <u>op. cit</u>., p. 315. <sup>16</sup><u>Ibid</u>., p. 335. <sup>17</sup>Michie, <u>op. cit</u>. <sup>18</sup><u>Ibid</u>., p. 18.

been sufficiently aware of the value of foreign students on U. S. campuses. Foreign students are ". . . too often regarded as problems, novelties, exotic evidences of internationalism, or treated as no different from U. S. students."<sup>19</sup>

In the academic year 1967-68, 110,315 foreign students were studying at U.S. institutions. One of the few plans which take advantage of the foreign student in the United States is the Ogontz Plan which operates in Philadelphia. Basically the plan is identified by a dual purpose. First to promote international understanding by sharing educational experiences with students from foreign countries and secondly, to teach the sameness of people while explaining the different values that are the product of varied environments. The Ogontz plan makes use of selected students from foreign countries as teachers in American primary and secondary The primary aim is to encourage American students schools. to take a more active interest in the rest of the world through their interaction with individuals from other countries.

Harold Taylor in <u>The World as Teacher</u><sup>20</sup> used the Ogontz plan as a model for reform in teacher education

<sup>19</sup><u>Ibid</u>., p. 25.

<sup>20</sup>Harold Taylor, <u>The World As Teacher</u> (New York: Doubleday and Co., 1969).
with a world affairs emphasis. Taylor believes that

we should be thinking, in our cultural and educational policies for internationalism, not of a few students here and a few teachers there, but of 25,000 to 50,000 student-teachers sent abroad each year for cooperative learning with their foreign counterparts, thousands of fellowships for volunteers to the teaching profession.<sup>21</sup>

Taylor's book is clearly an indictment of current practice in teacher education. In Taylor's words:

Study and action having to do with the educational problems of the developing countries leads directly to a more sensitive awareness of the character and scope of similar problems in this country, or, conversely, research and action in the areas of educational and social change in the United States has direct bearing on the development of educational ideas and attitudes within the wider context of a world system of education.<sup>22</sup>

In the modern world, there are no social problems, only human problems shared by all societies.

In their "Description of Junior Colleges"<sup>23</sup> Richards, Rand and Rand identified 36 major attributes which were intercorrelated. The purpose of the study was to ascertain whether the junior college environmental characteristics were identical with environmental characteristics of the four year college and university. The conclusion of the Richards study was that there was no

<sup>21</sup><u>Ibid</u>., p. 35.
<sup>22</sup><u>Ibid</u>., p. 53.
<sup>23</sup>Richards, and Rand and Rank, <u>op. cit</u>.

congruence between the senior and junior college environmental attributes. The 36 institutional variables used in the Richards study were selected to include some data for all methods which are currently used in characterizing institutions and also to include as many variables as possible which were common to the Astin study of senior colleges and universities. The 36 variables, the scoring system, and the number of community colleges responding to each may be found in Appendix A.

Thirteen of the variables which were used by Richards were also used to characterize the environment for each of the community colleges in the sample used for this study. In addition, eleven other environmental factors with a strong relationship to the international dimensions of the community colleges were identified and measured.

In April of 1968, Mr. Douglas Matthewson completed a survey of international students and programs in community colleges in the United States.<sup>24</sup> The Matthewson study consisted of a questionnaire on topics pertinent to foreign students and returned 410 replies from 850 community colleges. Matthewson found that (1) 67% of the American community colleges which replied have

<sup>24</sup>Matthewson, <u>op. cit</u>.

foreign students but few have special programs, office, or staff for them; (2) 24% required separate admissions procedures, 19% gave an English proficiency test, and 56% helped with housing problems; (3) 4% had admissions quotas for foreign students and 18% gave a special orientation course for foreign students.

Most community colleges which replied to the questionnaire indicated that they were willing to accept foreign students while many noted that the demand for their foreign technical graduates was dramatically increasing. Sixty-five per cent felt that foreign students were a campus asset. Seventeen per cent planned to extend their program for foreign students.

In Matthewson's words:

The need for community college leadership to become familiar with and influence United States participation in international education is mandatory. The magnitude of the educational vacuum, worldwide, is almost beyond comprehension.<sup>25</sup>

Approximately 70% of the people in the world receive little or no education while less than 10% of all those who are fortunate enough to enter secondary educational programs eventually enter a university.

There is one major difficulty with the survey findings of the Matthewson study. Matthewson assumes that

<sup>25</sup><u>Ibid</u>., p. 6.

. . . most institutions enrolling foreign students returned the questionnaire in completed form and the balance either returned the questionnaire without response, or did not return it at all because they may not have had foreign students enrolled.26

This seems an unwarranted assumption. The findings of the survey would have been strengthened if attention had been given to a careful analysis of those community colleges which did not return the questionnaire and an attempt made to assess the validity of the sample.

"The concept of institution is widely used to describe the more generalized or model aspect of an organization."<sup>27</sup> The use of the concept of institution is a convenient method to characterize the community colleges in this study.

Institutionalization can be measured by:

- 1. An organization's ability to survive.
- 2. The extent to which an innovative pattern in a new organization becomes normative for other social units in the larger social system.28

The "innovative pattern" which is under consideration in this study is the international dimension of community college education. In terms of the ability of such an innovation to survive, attention must first be directed

<sup>26</sup><u>Ibid</u>., p. 8.

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<sup>27</sup>Joseph W. Eaton, <u>The Inter-University Research</u> <u>Program in Institution Building</u> (Pittsburgh: University of Pittsburgh, 1968), p. 3.

<sup>28</sup>Jiri Nehnevajsa, <u>Institution Building: Elements</u> of a Research Orientation (Bloomington: Indiana University Press, 1968), pp. 3-5. to the four year college and university. Clearly, the international activities of these institutions have survived and prospered--albeit slowly. As indicated in the studies previously discussed 35% of the 685 colleges surveyed by Wormald indicated that they were planning to expand or introduce international studies. Thirty per cent of the state colleges and universities surveyed by Harcleroad and Kilmartin had the same intention. Seventeen per cent of the community junior colleges surveyed by Matthewson indicated a desire to extend the dimension of international education. If expansion is an index of survival, the international aspect of education is being institutionalized.

The question of whether the innovative patterns have become the norm for other social units is more difficult to answer. It is true that service clubs, churches, and other community organizations have begun to develop programs to encourage active participation of foreign students in community activities. Further, these same social units have started to offer scholarships to deserving foreign students to study in the United States. The question remains, however, of whether the community college is reacting to the social system or whether the social system is following the lead of the community college. As Esman has so cogently pointed out: "There is an inherent dilemma between (a) institutionalizing an

organization and (b) insuring its capacity to continue to innovate--its innovative thrust."<sup>29</sup> If it is necessary to reduce the innovative thrust of the institution to truly institutionalize its activities that seems a high price to pay. The community college is normally classified as one of the most innovative elements of the American educational system.

#### Summary

A number of studies of the four year colleges and universities have been reviewed in this section. Figure 2.1 is designed to illustrate the findings of these studies and to compare the studies with the aims of this survey.

The concept of institution building was reviewed for the purpose of using at least part of this concept to characterize the viability of community college programs with an international dimension.

<sup>&</sup>lt;sup>29</sup>Milton J. Esman, <u>The Institution Building Concept--</u> <u>An Interim Appraisal (Pittsburgh: University of Pitts-</u> <u>burgh Press, 1967), p. 63.</u>

| Study                                    | Item   | Percentage |                  |    |    |      |    |    |    |    |     |     |
|--|--|------------|------------------|----|----|------|----|----|----|----|-----|-----|
|  | 106m   | 0          | 10               | 20 | 30 | ) 40 | 50 | 60 | 70 | 80 | 90  | 100 |
|  | Courses offered<br>in non-Western<br>studies |            |                  |    |    |      |    |    |    |    |     |     |
| AAC<br>Ascu                              |  | E          |                  | _  |    |      |    |    |    |    |     |     |
| Prof. School &<br>World Affairs<br>NAFSA |  |            |                  |    |    | -    |    |    |    |    |     |     |
| <b>,</b> • ·                             | Planning to expand<br>non-western<br>studies |            |                  |    |    |      |    |    |    |    |     |     |
| AAC                                      |  |            |                  |    |    |      |    |    |    |    |     | ]   |
| ASCU                                     |  |            |                  |    |    | -    |    |    |    |    |     | ľ   |
| NAFSA                                    |  | -          |                  | •  |    |      | ļ  |    |    |    |     |     |
|  | Adequate Library                             |            |                  |    |    |      |    |    |    |    |     |     |
| AAC                                      |  | -          |                  |    |    |      |    |    |    |    |     |     |
| ASCU                                     |  | ┝          | +                | •  |    |      |    |    |    |    |     |     |
| Findings of Thi                          | s Study                                      |            |                  |    |    |      |    |    |    |    | 1   | 1   |
| Courses offered<br>Studies               | l in non-Western                             | -          | _ <del>_</del> _ | _  |    |      |    |    | -+ |    | - { |     |
| Planning to exp<br>Studies               | and non-Western                              |            |                  |    |    |      |    |    |    |    | _   |     |
| Adequate Librar                          | ٠y   |            |                  | •  |    |      |    |    |    |    |     |     |

Legend: AAC = Association of American Colleges ASCU = Association of State Colleges and Universities PSWA = The Professional School and World Affairs NAFSA = National Association for Foreign Student Affairs

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Figure 2.1 -- Comparison of the findings of some of the studies reviewed.

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### CHAPTER III

### DESIGN OF THE STUDY

This study has been designed to achieve two goals. First, to analyze the international dimension of Michigan public community college education and second, to devise an expeditious technique for this type of analysis based on the findings of the study.

Two main variables were identified which are perceived to be independent measures of an international dimension. These variables are environment and leadership. Measures of community college environment will be computed based on the scores of the colleges on 24 sub-Measures of leadership will also be computed variables. based on administrative responses to an opinionnaire which included 20 statements related to leadership. Α series of correlations will then be calculated between the sub-variables of environment and leadership and between all variables and the total international dimension. Hypotheses will be tested with reference to the correlations.

### Sample

The sample used in this study consists of ten of Michigan's 28 public community colleges. The sample was

randomly selected from the population excluding those community colleges that had been in existence for fewer than five years.

There are some difficulties inherent in working with such a small sample since correlations computed between the variables tend to be unstable. It should be noted, however, that a sample of size ten from a population of size 28 is quite different from a sample of the same size and a very large population. It is recognized that the correlations might tend to be unstable and every caution will be exercised in the interpretation of the results.

The process of selecting the random sample involved the use of a table of random numbers.<sup>1</sup>

Figure 3.1 shows the geographic location of the ten community colleges in the sample.

#### Measures

This study includes 24 variables which are perceived to reflect the environment of the community colleges. It also includes twenty variables which have been designed to measure the leadership variable.

Thirteen of the 24 environmental variables have been selected from the Richards study. A description of these

<sup>&</sup>lt;sup>1</sup>Sir Ronald A. Fisher and Frank Yates, <u>Statistical</u> <u>Tables for Biological, Agricultural and Medical Research</u> (New York: Hafner, 1963).



Figure 3.1--Geographic location of the ten community colleges in the sample.

variables and the system used to score each variable follows: 1, 2, 3, 5, 7, 8, 10, 11, 12, 15, 17, 18, and 20, are from the Richards' study.

# Variable 1: Liberal Arts Emphasis

Measured with reference to the descriptions of community college departments and majors available to prospective students. Colleges with no liberal arts program scored 0, colleges with liberal arts and other programs scores 1, colleges with liberal arts programs only scored 2.

### Variable 2: Teacher Training Emphasis

Measured with reference to the descriptions of community college departments and majors available to prospective students. If teacher training was not included as a possible major the college scores 0, if teacher training was included with other possible majors the college scored 1, and if teacher training was the only major available to students the college scored 2.

# Variable 3: Technical Training Emphasis

Community colleges which offered no technical training programs scored 0 on this variable. Colleges which offered technical programs along with other programs scored 1, and colleges which offered technical programs only scored 2.

### Variable 4: Tuition

District resident fees were used excluding special fees.

### Variable 5: Tuition

Michigan resident out of district fees were used excluding special fees.

### Variable 6: Tuition

Out of state fees or fees for foreign students were used, whichever was highest, excluding special fees.

#### Variable 7: Per Cent Males

The total number of on-campus students and the total number of on-campus males were used in computing this variable. Statistics were taken from the enrollment summary of 1 ichigan colleges and universities, Fall 1969.<sup>2</sup>

### Variable 8: Per Cent Foreign Students

Numbers of foreign students were obtained from the admissions departments of the community colleges in the study.

<sup>&</sup>lt;sup>2</sup>Michigan Association of Collegiate Registrars and Admissions Officers. Committee on Statistical Information and Research (mimeograph).

# Variable 9: Foreign Student Advisor

Community colleges with no foreign student advisor scored 0 on this variable. Colleges with at least one part-time foreign student advisor scored 1, colleges with a full time foreign student advisor scored 2.

#### Variable 10: Total Enrollment

The total number of on-campus students as reported in the enrollment summary of Michigan colleges and universities was used for this variable. The square root of the total number of students was used in order to obtain a more normal distribution. Enrollment figures were rounded to the nearest one-hundred.

#### Variable 11: Per Cent of Faculty with Doctorate

The total number of faculty with the doctorate and the total number of faculty were used to compute this variable. Both figures were taken from the college catalogs.

### Variable 12: Per Cent of Faculty with Masters

The total number of faculty with the masters degree was used with the total number of full-time faculty as reported in the college catalog.

# Variable 13: Per Cent of Foreign Educated Faculty

The number of full-time faculty who had received all or part of their formal education in a foreign country was used to compute this variable. This information was obtained from the college catalog.

# Variable 14: Per Cent of Peace Corps Volunteers on the Faculty

Information used to compute this variable was obtained from the college administration.

# Variable 15: Faculty-Student Ratio

Number of full-time faculty divided by the number of full-time students.

#### Variable 16: International Club

Colleges with no international club scored 0 on this variable, colleges with a single internationally oriented club scored 1 and colleges with two or more internationally oriented clubs scored 2.

#### Variable 17: Library Size

The number of books in the library (in thousands).

# <u>Variable 18: Relative</u> <u>Library Size</u>

Number of books in the library divided by the total enrollment.

## Variable 19: International Dimension of the Library

A random sample of 100 of the 838 titles in a bibliography was used to determine this variable.<sup>3</sup> The 838 books from which the selection was made were described by the publishers as "essential" to viable international programs. A list of the 100 titles use is included as Appendix B.

# Variable 20: Age of the Community College

Colleges founded since 1954 scored 0, colleges founded between 1945 and 1954 scored 1, colleges founded between 1930 and 1945 scored 2, colleges founded before 1930 scored 3.

### Variable 21: Number of Courses

The number of courses listed in the college catalog except physical education and technical division courses.

### Variable 22: Number of International Courses

A count of all the courses listed in the college catalog which included any reference to international institutions, programs, or activities.

<sup>3</sup>American Universities Field Staff, Inc., <u>A Select</u> <u>Bibliography: Asia, Africa, Eastern Europe, Latin</u> <u>America</u> (New York: Vance Weaver, Inc., 1960; with the 1961, 1963, 1965 and 1967 Supplements).

# Variable 23: Foreign Language Courses

A count of all of the foreign language courses listed in the college catalog.

# Variable 24: International Dimension of the Curriculum

Each course description which included an international dimension was rated on the following scale. Courses with no international references scored 0, courses with only incidental references to an international dimension scored 1, courses with references to descriptive international institutions or languages scored 2 and courses with comparative emphasis between, cultures, institutions, literature or other areas scored 3.

In addition to the variables which are common with the Richards study an additional eleven variables have been included in this study. These variables are as follows: 4, 6, 9, 13, 14, 16, 19, 21, 22, 23, 24.

All of the environmental variables have been organized in tables which compare the community colleges in the sample with each other and with national norms when these are available. Table organization follows the environmental characteristics which each of the variables measure. Tables 3.1 to 3.6 compare the variables as they measure (1) curricular characteristics; (2) financial characteristics; (3) student characteristics; (4) faculty characteristics; (5) other characteristics; and (6) international characteristics.

Table 3.1 shows a comparison of curricular characteristics for each community college in the sample and also shows national means and standard deviations for the same characteristics as these were measured by Richards' study. There is a close relationship between the sample means and the means of the national study.

|  |                      | Variable                                       |   |  |  |  |  |
|--|----------------------|--|---|--|--|--|--|
| Colleges                                       | l<br>Liberal<br>Arts | 2<br>Teacher<br>Training                       | 3<br>Technical<br>Training                |  |  |  |  |
| A<br>B<br>C<br>D<br>E<br>F<br>O<br>H<br>J<br>K |                      | 1<br>0<br>0<br>1<br>1<br>0<br>0<br>1<br>0<br>1 | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 |  |  |  |  |
| Sample Means                                   | 1.0                  | 0.5  | 1.0                                       |  |  |  |  |
| Sample Standard<br>Deviations                  | 0.0<br>N=10          | 0.5<br>N#]0                                    | 0.0<br>N=10                               |  |  |  |  |
| National Means                                 | 0.75                 | 0.58   | 0.91                                      |  |  |  |  |
| National Standard<br>Deviations                | 0.47<br>N=574        | 0.49<br>N=574                                  | 0.38<br>N=574                             |  |  |  |  |

TABLE 3.1.--Comparison of curricular characteristics.

Table 3.2 compares the financial characteristics of each community college in the sample with each other and with national norms. The very large national standard deviation which appears under Variable 5 results from the inclusion of California in the national sample. No tuition charges are made in California. Variable 5 is a measure of tuition for residents of the state in which the community college is located.

Variable 6 will be given a negative weight in computing the total of the environmental variable.

|  |  | Variable   |  |
|--|--|--|--|
| Colleges                                       | 4<br>Tuition<br>(District)   | 5<br>Tuition<br>(Michigan)   | 6<br>Tuition<br>(Out State)  |
| A<br>B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>K | 279.0<br>387.0<br>270.0<br>300.0<br>240.0<br>300.0<br>270.0<br>300.0<br>366.0<br>270.0 | 396.0<br>495.0<br>360.0<br>450.0<br>400.0<br>540.0<br>540.0<br>540.0<br>462.0<br>540.0 | 396.0<br>531.0<br>510.0<br>600.0<br>450.0<br>540.0<br>750.0<br>540.0<br>702.0<br>540.0 |
| Sample Means                                   | 298.2  | 472.3  | 555.9  |
| Sample Standard<br>Deviations                  | 43.16<br>N=10  | 65.6<br>N=10   | 100.6<br>N=10  |
| National Mean                                  |  | 394.57   |  |
| National Standard<br>Deviation                 |  | 383.90<br>N = 533  |  |

TABLE 3.2.--Comparison of financial characteristics.

Table 3.3 compares the student characteristics of each community college in the sample. Sample means for Variable 7 and 8 are very close to the national means.

Questions concerning the calculation of means of percentages might arise. Each community college in the sample has been treated equally. The means which are computed on percentages insure that each college is given equal weight on these variables. Grave difficulties arise when total percentages are calculated for the sample based on calculations of mean percentages. The design of this study does not include the calculation of total sample percentages. Mean percentages have been used only to (1) facilitate the computation of standard scores and (2) to follow the pattern that was used in the Richards study.

The mean of Variable 10 (total enrollment) when compared to the national mean indicates that the sample of Michigan community colleges used in this study includes colleges with enrollments substantially larger than most community colleges. College K for example, is three standard deviations above the mean while only College C is smaller than the national mean.

|  | والمتحد والمتحد بأرجع المعروف  | فعبتها التشبية فسيند فبكرته مديور بتها فيهاكين                     | والمراجع المتقاف والمراجع والمحمول                          |   |  |  |  |
|--|--|--|---|---|--|--|--|
|  | Variable   |  |   |   |  |  |  |
| Colleges                                       | 7<br>Per Cent<br>Males   | -8<br>Per Cent<br>Foreign<br>Students                              | 9<br>Foreign<br>Student<br>Advisor                          | 10<br>Total<br>Enrollment   |  |  |  |
| A<br>B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>K | 68.0<br>59.0<br>48.0<br>59.0<br>56.0<br>58.0<br>65.0<br>53.0<br>70.0<br>82.0 | 0.5<br>0.8<br>0.6<br>0.5<br>0.3<br>0.4<br>0.1<br>0.4<br>0.9<br>0.4 | 0.0<br>1.0<br>0.0<br>1.0<br>1.0<br>1.0<br>1.0<br>1.0<br>1.0 | 84.26<br>38.73<br>22.40<br>54.77<br>51.96<br>72.10<br>90.55<br>71.41<br>60.83<br>109.54 |  |  |  |
| Sample Means<br>Sample Standard                | 62.8<br>8.77   | 0.5  | 0.8   | 65.6<br>24.27   |  |  |  |
| Deviations                                     | N=10   | N=10   | N=10  | N=10  |  |  |  |
| National Means                                 | 50.0<br>4 22 1   | U.O  |   | 30.10   |  |  |  |
| Deviations                                     | N=571  | N=578  |   | N=579   |  |  |  |

TABLE 3.3.--Comparison of student characteristics.

Table 3.4 shows the comparison of faculty characteristics. Sample means and national means are not substantially different.

|  | Variable   |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| Colleges                                       | ll<br>Per Cent<br>Faculty<br>Ph.D.                                 | 12<br>Per Cent<br>Faculty<br>Masters   | 13<br>Per Cent<br>Foreign<br>Faculty                               | 14<br>Per Cent<br>PCV on<br>Staff                                  | 15<br>Faculty<br>Student<br>Ratio  |  |  |  |  |
| A<br>B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>K | 7.0<br>1.0<br>7.0<br>1.0<br>6.0<br>5.0<br>8.0<br>3.0<br>3.0<br>5.0 | 65.0<br>81.0<br>72.0<br>74.0<br>74.0<br>71.0<br>76.0<br>81.0<br>74.0<br>80.0 | 2.0<br>4.0<br>2.0<br>1.0<br>1.0<br>3.0<br>1.0<br>1.8<br>6.0<br>3.0 | 1.0<br>1.0<br>0.5<br>1.0<br>1.0<br>1.0<br>0.0<br>0.6<br>0.0<br>1.0 | 0.01<br>0.05<br>0.08<br>0.03<br>0.03<br>0.03<br>0.03<br>0.03<br>0.03<br>0.03 |  |  |  |  |
| Sample Means                                   | 4.6  | 74.8   | 2.46   | 0.71   | 0.03   |  |  |  |  |
| Sample Standard<br>Deviations                  | 2.37<br>N=10   | 4.75<br>N=10   | 1.52<br>N=10   | 0.23<br>N=10   | 0.02<br>N=10   |  |  |  |  |
| National Means                                 | 6.9  | 61.3   |  |  | 0.07   |  |  |  |  |
| National Standard<br>Deviations                | 8.4<br>N=575   | 20.6<br>N=575  |  |  | 0.07<br>N=575  |  |  |  |  |

TABLE 3.4.--Comparison of faculty characteristics.

Table 3.5 compares other characteristics. The mean of Variable 17 (library size) is substantially greater for this sample than for the national sample. This indicates that Michigan public community colleges have more books in their libraries. However, Variable 18 (relative library size) indicates that, although there are more total library resources the amount of library material per student is lower than the national average.

The comparison of sample college age to national averages indicates that there is no substantial difference.

|  |  |   | Variable   |   |  |
|--|--|---|--|---|--|
| COITERER                                       | l6<br>Intn'l<br>Club   | 17<br>Library<br>Size   | 18<br>Relative<br>Library<br>Size                                      | 19<br>Intn'l<br>Library   | 20<br>Age of<br>College  |
| A<br>B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>K | 1.0<br>0.0<br>1.0<br>0.0<br>1.0<br>2.0<br>0.0<br>1.0<br>2.0<br>1.0 | 36.0<br>26.0<br>15.0<br>20.0<br>17.0<br>60.0<br>150.0<br>30.0<br>18.0<br>45.0 | 5.1<br>17.3<br>29.0<br>6.0<br>6.3<br>11.5<br>18.3<br>5.9<br>4.1<br>4.0 | 26.0<br>12.0<br>9.0<br>23.0<br>29.0<br>31.0<br>21.0<br>27.0<br>18.0<br>23.0 | $\begin{array}{c} 0.0 \\ 1.0 \\ 0.0 \\ 3.0 \\ 0.0 \\ 3.0 \\ 0.0 \\ 3.0 \\ 0.0 \\ 3.0 \\ 2.0 \end{array}$ |
| Sample Means                                   | 0.9  | 41.7  | 10.75  | 21.9  | 1.2  |
| Sample Standard<br>Deviations                  | 1 0.7<br>N=10  | 38.53<br>N=10   | 7.88<br>N=10   | 6.78<br>N=10  | 1.26<br>N=10   |
| National Means                                 |  | 21.18   | 27.7   |   | 1.86   |
| National<br>Standard<br>Deviations             |  | 11.2<br>N=570   | 44.1<br>N=569  |   | 1.19<br>N=581  |

TABLE 3.5.--Comparison of other characteristics.

Table 3.6 compares international characteristics. None of these variables were used in the Richards study so no comparisons can be made to national averages.

|  |  | Variable   |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|
| Colleges                                       | 21<br>Number of<br>Courses   | 22<br>Number<br>Intn'l<br>Courses  | 23<br>Foreign<br>Language<br>Courses                               | 24<br>International<br>Dimension of<br>Curriculum                              |  |  |  |  |
| A<br>B<br>C<br>D<br>E<br>F<br>G<br>H<br>J<br>K | 387.0<br>197.0<br>143.0<br>185.0<br>231.0<br>362.0<br>292.0<br>319.0<br>225.0<br>317.0 | 56.0<br>46.0<br>28.0<br>46.0<br>54.0<br>53.0<br>37.0<br>53.0<br>43.0<br>50.0 | 12.0<br>9.0<br>8.0<br>12.0<br>12.0<br>16.0<br>22.0<br>16.0<br>12.0 | 99.0<br>83.0<br>47.0<br>84.0<br>113.0<br>105.0<br>64.0<br>96.0<br>78.0<br>86.0 |  |  |  |  |
| Sample Means                                   | 265.8  | 46.6   | 12.5   | 85.5   |  |  |  |  |
| Sample Standard<br>Deviation                   | 77.0   | 8.3  | 4.36   | 18.8   |  |  |  |  |

TABLE 3.6.--Comparison of international characteristics.

Variables 1 through 24 are perceived to reflect environmental attributes. A series of correlations which compare the attributes from the Richards study are included in Appendix C. Correlations between all variables will be computed and are reported in Chapter IV of this study.

The variables which were used to compute the total leadership variable were obtained through the use of an

opinionnaire. Using the definition of leadership developed by Michie the opinionnaire was designed to measure (1) priorities, goals, and objectives; (2) commitment; (3) activities and (4) policies relevant to international activities.

Twenty statements were used in the design of the opinionnaire. Some of these statements were direct quotations from other authors concerned with specific attitudes to increased international involvement by the community college. Other statements were addressed to more general concerns which were deemed important for a reasonable measure of administrative commitment.

Respondents were asked to react to the statements by indicating strong agreement, agreement, no opinion, disagreement or strong disagreement. Page 123 of Appendix E indicates the responses from each college to the statements. The opinionnaire is included as Appendix C, showing the number of responses.

### Design

The two main variables of this study are leadership and environment. In keeping with the concept of institutionalization the effects which these variables have on the international dimension of the community colleges in the sample will be measured.

The environmental variable will be computed using the scores of the community colleges on 24 separate measures of environment. The mean and standard deviation of the colleges on each of the 24 variables will then be computed

to make possible the use of standard scores. The formula used for finding the standard score is as follows:

$$z = \frac{X - \overline{X}}{s}$$

where z = the standard score

- X = a unit of measurement on a variable
- $\overline{X}$  = the mean of the distribution of scores on that variable
- s = the standard deviation of the distribution of scores on that variable.

After computing standard scores on each variable weights were assigned to the variables to stress their relative importance. The weights were assigned <u>a priori</u> to insure that returns of the data did not affect the weighting process. Appendix E indicates the weights used for each environmental variable. The sum of the weighted variables will then be calculated to arrive at a single value for environment for each community college in the sample.

The other main variable is leadership. An opinionnaire was designed to measure leadership in each community college studied. Hoyt's analysis of variance for reliability was used to calculate the reliability of the opinionnaire since it was designed specifically for this study and no reliability estimates were available.

To calculate reliability it is necessary to find a good estimate of the true score variance. The following equation indicates the form of reliability estimates.

### r<sub>n</sub> = <u>true score variance</u> obtained variance

Where true score variance is the variance of the scores with a reliability of 1.0. Hoyt's estimate of true score variance is computed by subtracting the mean score of error from the mean score of the individuals. If ...

Obtained variance = true score variance + error variance

then ...

# r<sub>n</sub> = <u>obtained variance - error variance</u> obtained variance

The reliability of the opinionnaire was computed as 0.77 which compares favorably with other such instruments.

### Testable Hypotheses

- 1. There is no positive relationship between the percentage of foreign students enrolled and the age of the college.
- 2. There is no positive relationship between the percentage of foreign students enrolled and the size of the community college.
- 3. There is a high positive relationship between the institutional conditions described by Michie and the total international dimension of the community college.
- 4. There is no relationship between the number of books in the library and the number of books which are primarily of an international nature.
- 5. There is a high positive relationship between the size of the international library and the number of international courses offered.
- 6. There is a high positive relationship between the size of the international library and the total environment variable.

- 7. There is a positive relationship between the international dimension of the curriculum and membership in international associations.
- 8. There is no relationship between the environmental and leadership variables.
- 9. There is a relationship between the percentage of Peace Corps volunteers on the community college faculty and the environmental variable.
- 10. Some of the sub-variables of environment and of leadership will be highly predictive of the main variables of environment and leadership.
- 11. Some of the sub-variables will be highly predictive of the total international dimension.

### <u>Analysis</u>

Pearson product-moment correlation coefficients will be computed to test the hypotheses. The use of this correlation requires a linear relationship between the variables of interest. Figure 3.2 graphically exhibits the scores of the community colleges in the sample on the two variables. A second condition for this correlation is homoscedasticity; that the standard deviations of the columns and rows tend to be equal. The standard deviation of the leadership variable for the analysis of this sample has been computed as 15.78 while the standard deviation of the environmental variable is 14.37.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup>The final assumption is that the distributions for each variable are normal. Actually, probably no distribution ever takes on the absolute form of a normal distribution. To the extent that the distributions of the variables in this study differ from normal, error enters the study. The standard scores which are used are assumed



The characterization of each community college in the sample in terms of the institutionality matrix will be accomplished by computing the mean of the distribution on each of the main variables and placing each college in its appropriate cell with reference to its total score on the variables.

#### Summary

Using a random sample of 10 of the 28 public Michigan community colleges scores have been computed on 24 environmental variables and 20 leadership variables. A number of hypotheses have been formulated concerning the relationship between selected variables. These relationships will be tested by using the Pearson productmoment correlation coefficient. Some of the variables will be more accurate predictors of the international dimension than will others. The most accurate predictors will be identified and used as a check list of international concern.

Finally, each community college in the sample will be assigned a cell on the institutionality matrix for comparative purposes only.

to be normally distributed with a mean of 0 and a standard deviation of 1. The assumption is that the distributions approximate a normal distribution.

#### CHAPTER IV

#### ANALYSIS OF RESULTS

The general format for this chapter will be to restate the hypotheses, show the data with probability statements of reject or accept, and finally to state whether the hypotheses were rejected or accepted. A discussion of the meaning of the data will be included in a separate section of this chapter.

Hypothesis 1. There is no positive relationship between the percentage of foreign students enrolled and the age of the college.

The correlation between variables 8 and 20 has been computed as -0.12. Variable 8 is the percentage of foreign students and variable 20 is the age of the community college.

With an alpha level set at .05 and 9 degrees of freedom the significance level is tabled as .60, that is, if the computed value of the correlation is between -.60 and +.60 there is not a statistically significant relationship.

Hypothesis 1 was accepted.

Hypothesis 2. There is no positive relationship between the percentage of foreign students enrolled and the size of the community college.

The correlation between variables 8 and 10 has been computed as -0.47. Variable 8 is the percentage of foreign students and variable 10 is the size of the community college.

With an alpha level set at .05 and 9 degrees of freedom the significance level is tabled as .60, that is, if the computed value of the correlation is between -.60 and +.60 there is not a statistically significant relationship.

Hypothesis 2 was accepted.

Hypothesis 3. There is a high positive relationship between the institutional conditions described by Michie and the total international dimension of the community college.

The correlation between variables 25 and 48 has been computed as 0.84. Variable 25 is the variable which reflects all institutional conditions as these have been described by Michie. Variable 48 is the total international dimension.

With the same alpha level the significance level remains at .60.

Hypothesis 3 was accepted.

Hypothesis 4.

There is no relationship between the number of books in the library and the number of books which are primarily of an international nature.

The correlation between variables 17 and 19 has been computed as 0.15. Variable 17 is library size and variable 19 is the size of the international library.

With the same alpha level the significance level remains at .60.

Hypothesis 4 was accepted.

Hypothesis 5. There is a high positive relationship between the size of the international library and the number of international courses offered.

The correlation between variables 19 and 22 has been computed as 0.78. Variable 19 is the international library size and variable 22 is the number of international courses offered by the community college.

With the same alpha level the significance level remains at .60.

Hypothesis 5 was accepted.

Hypothesis 6. There is a high positive relationship between the size of the international library and the total environment variable.

The correlation between variables 19 and 25 has been computed as 0.68. Variable 19 is the international library size and variable 25 is the total environmental variable. With the same alpha level the significance level remains at .60.

Hypothesis 6 was accepted.

Hypothesis 7. There is a positive relationship between the international dimension of the curriculum and membership in international associations.

The correlation between variables 24 and 36 has been computed as 0.27. Variable 24 is the international dimension of the curriculum and variable 36 is the variable which reflects membership in international associations.

With the same alpha level the significance level remains at .60.

Hypothesis 7 was rejected.

Hypothesis 8. There is no relationship between the environmental and leadership variables.

The correlation between variables 25 and 26 was measured to test the assumption that they are each independent predictors of the total international dimension.

The correlation between these variables has been computed as 0.48. Variable 25 is a measure of total environment and variable 26 is a measure of total leadership.

The 0.48 correlation compares with a correlation of 0.84 between variables 25 and 48 and 0.87 between variables 26 and 48. Variable 48 is the measure of total

international dimension. This comparison clearly indicates that both variable 25 and variable 26 independently add to the total international dimension.

With the same alpha level the significance level remains at .60.

Hypothesis 8 was accepted.

Hypothesis 9. There is a relationship between the percentage of Peace Corps volunteers on the community college faculty and the environmental variable.

The correlation between variables 14 and 25 has been computed as 0.54. Variable 14 is the percentage of Peace Corps volunteers on the faculty and variable 25 is the environmental variable.

The significance level remains at .60.

Hypothesis 9 was rejected.

Hypothesis 10. Some of the sub-variables of environment and of leadership will be highly predictive of the environment and leadership variables.

The following correlations have been computed between the environmental sub-variables and the total environmental variable.

|              |                                       | Environmental   |
|--------------|---------------------------------------|-----------------|
| <u>Sub</u> - | variable                              | Variable No. 25 |
| 19.          | International Library                 | 0.68            |
| 2].          | Number courses offered                | 0.60            |
| 22.          | International courses                 | 0.91            |
| 23.          | Foreign Language courses              | 0.60            |
| 24.          | International dimension<br>curriculum | 0.88            |

The following correlations have been computed between the leadership sub-variables and the total leadership variable.

| Sub-variable                            | Variable No. 26 |
|---|-----------------|
| 27. Foreign student responsibilit       | ty 0.63         |
| 29. Obligation to foreign student       | ts 0.70         |
| 30. Equipped for FS (general)           | 0.91            |
| 31. Equipped for FS (specific)          | 0.68            |
| 38. Similar problems                    | 0.69            |
| 44. Priority of international dimension | 0.69            |

Hypothesis 10 was accepted.

Hypothesis 11. Some of the sub-variables will be good predictors of the total international dimension.

| Sub-1 | variables                             | <u>Total</u><br><u>International</u><br><u>Dimension No. 48</u> |
|-------|---------------------------------------|---|
| 14.   | Per cent PCV's on staff               | 0.60  |
| 22.   | International courses                 | 0.74  |
| 24.   | International dimension<br>curriculum | 0.70  |
| 27.   | Foreign student responsibility        | 0.70  |
| 29.   | Obligation to foreign students        | 0.65  |
| 30.   | Equipped for FS (general)             | 0.80  |
| 31.   | Equipped for FS (specific)            | 0.61  |
|       |                                       |   |

Hypothesis 11 was accepted.

# Discussion

The following tables show sub-variable correlations where a correlation of more than 0.60 resulted. A discussion of these relationships preceeds each table. The organization of the tables follows the same pattern as Tables 3.1 to 3.6.

Table 4.1 indicates that there are no significant correlations between the variables which measured curricular characteristics and any of the other variables of the study.
|   | Variables# | , .   |
|---|------------|-------|
| 1 | 2          | 3     |
|   | - <b>-</b> | ·<br> |

TABLE 4.1.--Comparison of curricular characteristics.

"No significant correlations were found with variables 1, 2 or 3.

Table 4.2 shows the correlations between the variables which measured financial characteristics and other variables of the study.

Variable 6 was weighted to reflect low tuition for out of state students. The correlation between variable 14 and variable 6 seems to indicate that tuition costs for foreign students tend to remain at a lower level if there are more former Peace Corps volunteers on the faculty.

TABLE 4.2.--Comparison of financial characteristics.

|  | Variables                 |                              |
|--|---------------------------|------------------------------|
|  | '5<br>Tuition<br>Michigan | 6<br>Tuition<br>Out-of-State |

14.%PCV on faculty

0.78

Table 4.3 shows the significant correlations between the variables of student characteristics and other variables of the study.

The correlation of 0.77 between variable 8 and variable 13 seems to indicate that foreign faculty members and foreign students increase or decrease together.

The correlation of 0.62 between variable 9 and variable 46 is quite straight forward. There would probably be no foreign student advisor if there were not a willingness to budget for international programs.

|     |  |                   | Variables                       |   |                                  |  |  |
|-----|--|-------------------|---------------------------------|---|----------------------------------|--|--|
|     |  | 7<br>Males<br>(%) | 8<br>Foreign<br>Students<br>(%) | 9<br>Foreign<br>Student<br>Advisor<br>(%) | 10<br>Total<br>Enrollment<br>(%) |  |  |
| 13. | Per cent foreign<br>faculty                              | -                 | 0.77                            |   |                                  |  |  |
| 46. | Willingness to<br>budget for inter-<br>national programs | -                 |                                 | 0.62                                      |                                  |  |  |

TABLE 4.3.--Comparison of student characteristics.

Table 4.4 shows the significant correlations between the faculty characteristics and other variables of this study.

|     | · · ·  | Variables         |                 |                    |                     |               |  |
|-----|--|-------------------|-----------------|--------------------|---------------------|---------------|--|
|     |  | 11                | 12              | 13                 | 14                  | 15<br>Student |  |
|     |  | With<br>Doctorate | With<br>Masters | Foreign<br>Faculty | PCV's on<br>Faculty | Faculty       |  |
|     |  | (%)               | (%)             | (%)                | (%)                 | (%)           |  |
| 32. | Community colleges should<br>seek to add foreign<br>scholars         | <b>1</b>          | 0.68            |                    |                     |               |  |
| 36. | Consortia membership   | 0.62              |                 |                    |                     |               |  |
| 38. | Sensitivity to problems<br>in this country                           |                   |                 |                    | 0.69                | ì             |  |
| 40. | Budget restrictions on international dimension                       |                   |                 |                    | 0.63                |               |  |
| 45. | Readiness to internation<br>alize program given<br>sufficient budget | -                 |                 |                    | 0.80                |               |  |
| 46. | Willingness to budget fo<br>international programs                   | r<br>0.68         |                 |                    |                     |               |  |
| 48. | Total international dimension  |                   |                 |                    | 0.60                |               |  |

TABLE 4.4.--Comparison of faculty characteristics.

The correlation between variables 12 and 32 seems to indicate that community college faculties with greater percentages of masters degree holders tend to add foreign faculty to the teaching staff.

The correlation between variables 11 and 36 indicates that the advanced degree tends to incline the faculty toward consortia-like arrangements for international activities. Holders of the advanced degree would seem to be more aware of the opportunities for increasing the international dimension of the college and also of the availability of associations which might assist in such an increase.

The correlations between variable 14 and the variables 38, 40, 45, and 48 seem to show that the former Peace Corps volunteers make a substantial impact on attitudes toward internationalizing the college program.

The 0.60 correlation between variable 14 and 48 lends some credence to hypothesis nine which was rejected. Although there is not a significant relationship between the percentage of Peace Corps volunteers on the faculty and the environmental variable, there is a significant relationship between the number of PCV's and the total international dimension of the college.

Finally, the correlation between variables 11 and 46 indicates that the advanced degree holders tend to restrict their international activities because of budget not ideological considerations.

Table 4.5 shows the significant correlations between other characteristics and the other variables of this study.

The correlation between variable 19 and variables 22, 24, 25, 29, 36, and 39 seem to indicate that the size of the international library varies directly with a number of indices of the international dimension. It also seems clear that the community colleges in this sample have given some attention to the development of library resources as other international activities have progressed.

The relationship between variables 16 and 39 indicates that the formation of an international club tends to encourage speculation concerning a possible dramatic intake of foreign students.

Table 4.6 shows the correlations between the international characteristics variables and other variables of this study.

The relationship between variable 21 and variables 24, 25, and 27 indicates that the number of international courses which are offered has a significant relationship to two environmental variables and also to the variable which measures the amount of responsibility that the administration feels it has for foreign students.

The correlation between variables 24 and 48 indicates that a measure of the international dimension of the

|     |   |                     | Variables     |                           |                                |              |  |  |  |
|-----|---|---------------------|---------------|---------------------------|--------------------------------|--------------|--|--|--|
|     |   | 16<br>International | 17<br>Litrary | 18<br>Relative<br>Library | 19<br>International<br>Library | 20<br>Age of |  |  |  |
|     |   | C1ub                | Size          | Size                      | Size                           | College      |  |  |  |
| 22. | International courses   |                     |               |                           | 0.78                           |              |  |  |  |
| 24. | International<br>dimension of the<br>curriculum                       |                     |               |                           | 0.79                           |              |  |  |  |
| 25. | Total environment<br>variable   |                     |               |                           | 0.68                           |              |  |  |  |
| 29. | Obligation to<br>admit foreign<br>students                            |                     |               |                           | 0.70                           |              |  |  |  |
| 36. | Consortia membershij  | p                   |               |                           | 0.73                           |              |  |  |  |
| 39. | Forsee foreign<br>student explosion<br>on community college<br>campus | e<br>0.68           |               |                           |                                |              |  |  |  |

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TABLE 4.5.--Comparison of ther characteristics.

|     | ,  | Variables               |                                |                                      |   |  |  |
|-----|--|-------------------------|--------------------------------|--------------------------------------|---|--|--|
|     |  | 21<br>No. of<br>Courses | 22<br>International<br>Courses | 23<br>Foreign<br>Language<br>Courses | 24<br>International<br>Dimension of<br>the Curriculum |  |  |
| 24. | International dimension<br>of the curriculum |                         | 0.90                           |                                      |   |  |  |
| 25. | Total environment<br>variable                |                         | 0.91                           | 0.60                                 | 0.88  |  |  |
| 27. | Responsibility for foreign students          |                         | 0.68                           |                                      |   |  |  |
| 48. | Total international dimension                |                         |                                |                                      | 0.68  |  |  |

TABLE 4.6.--Comparison of international characteristics.

curriculum is a good predictor of the total international dimension of the community college.

Table 4.7 shows the significant correlations between the leadership variables used in this study.

Correlations between variable 48 and variables 27, 29, 30 and 31 indicate those leadership variables which are the best predictors of the total international dimension.

Variable 48 is the total international dimension of the community colleges. Variables which are good predictors include:

- 27. The view that the community college should involve itself with educating foreign students.
- 29. The view that public tax supported community colleges should seek out and admit foreign students.
- 30. The belief that most of Michigan's community colleges are equipped to handle foreign students.
- 31. The belief that the particular community college of the respondent is equipped to handle the unique problems of foreign students.

Table 4.8 shows the total environment, leadership and international dimension of each community college in the study. The range of the environment variable is from -28.30 to 17.46. The range of the leadership variable is from 128.0 to 176.0.

The mean of the environment variable was computed as 2.34 and the mean of the leadership variable as 151.0. The leadership variable has been doubled for this table to  $\frac{1}{2}$ 

| Variabl | .es | 27         | 28  | 29     | 30   | 31      | 32      | 34      | 36      | 37      | 38    | 40       |
|---------|-----|------------|-----|--------|------|---------|---------|---------|---------|---------|-------|----------|
| 28      |     | .65        |     |        |      |         |         |         |         |         |       | <u> </u> |
| 34      |     |            |     |        |      | .66     |         |         |         |         | •     |          |
| 35      |     |            |     |        |      | .69     |         | •75     |         |         |       |          |
| 36      |     |            |     | .62    |      |         |         |         |         |         |       |          |
| 37      |     |            |     |        | .67  | .71     |         |         |         |         |       |          |
| 39      |     |            |     |        |      |         |         |         | .87     |         |       |          |
| 41      |     |            |     |        |      |         | .65     |         |         |         |       |          |
| 43      |     |            |     |        |      |         |         |         |         |         |       | .66      |
| 44      |     |            | .60 |        | •74  |         |         |         |         | . ·     |       | •        |
| 45      |     |            |     |        |      |         |         |         |         | .62     | .72   |          |
| 48      |     | .69        |     | .65    | .80  | .61     |         |         |         |         |       |          |
| Legend  | for | Variables: | The | leader | ship | variabl | .es are | e showr | n by ni | umber i | n App | endix    |

TABLE 4.7.--Correlations between leadership variables.

egend for Variables: The leadership variables are shown by number in Appendix C. Also noted are the responses to each statement by the community colleges in the sample.

| College | Total<br>Environmental<br>Dimension | Total<br>Leadership<br>Dimension | Total<br>International<br>Dimension |
|---------|-------------------------------------|----------------------------------|-------------------------------------|
| Α       | 3.98                                | 132.0                            | 125.98                              |
| В       | . 3.75                              | 160.0                            | 163.75                              |
| С       | -28.30                              | 142.0                            | 113.70                              |
| Ð       | - 7.68                              | 140.0                            | 132.32                              |
| Е       | 9.07                                | 176.0                            | 185.07                              |
| F       | 17.46                               | 158.0                            | 175.46                              |
| G       | -18.26                              | 148.0                            | 129.74                              |
| Н       | 7.67                                | 156.0                            | 163.67                              |
| .Τ      | 0.93                                | 128.0                            | 128.93                              |
| к       | 13.72                               | 170.0                            | 183.72                              |

TABLE 4.8.--Total environmental, leadership and international dimensions.

insure nearly equal standard deviations between environment and leadership.

Using the means<sup>#</sup> of the environmental and leadership variables as cut-off points, the results of assigning each college to a particular cell on the institutionality matrix are as follows:

<sup>\*</sup>The mean of the distribution on each variable was used as a cut-off point for two primary reasons. First, no norms exist outside this study which would offer appropriate comparisons for assigning the colleges to

TABLE 4.9.--Institutionality totals.

| Leadership                 | Leadership | Leadership  |
|----------------------------|------------|-------------|
| Environment                | ravorabie  | UNIAVOPADIE |
| Environment<br>Favorable   | 1          | . 3         |
| Environment<br>Unfavorable | 2          | 4           |

| College | Leadership    | Environment | Cell | Total  |
|---------|---------------|-------------|------|--------|
| A       | 66 = U        | 3.98 = F    | 3    | 135.98 |
| В       | 80 = F        | 3.75 = F    | 1    | 163.75 |
| С       | 71 = 0        | -28.30 = U  | 4    | 113.70 |
| D       | 70 = U        | - 7.68 = U  | 4    | 132.32 |
| Е       | 88 = F        | 9.07 = F    | 1    | 185.07 |
| F       | 79 = F        | 17.46 = F   | 1    | 175.46 |
| G       | 74 = U        | -18.26 = U  | 4    | 129.74 |
| н       | 78 = F        | 7.67 = F    | 1    | 163.67 |
| J       | 64 = U        | 0.93 = 0    | 4    | 128.93 |
| к       | 85 <b>=</b> F | 13.72 = F   | 1    | 183.72 |
| Means   | 75.5          | 2.34        |      | 151.23 |

specific cells on the matrix and secondly, given the exploratory nature of this study, more sophisticated statistical techniques are probably not appropriate. The scattergram of correlations on page 54 is divided at the means to graphically illustrate cell

assignment.

#### Summary

Eleven hypotheses were tested using the Pearson product-moment correlation coefficient as a statistical device. Nine of the eleven hypotheses were accepted and two rejected at an alpha level of .05.

A discussion of the relationship between a number of variables with high correlations was also included in this chapter. Seven of the variables used in the study had significant correlations with the total international dimension of the colleges studied. It is possible that the use of just these seven variables could be sufficient for predicting the total international dimension of other community colleges.

The total international dimension for each community college in the sample was computed by summing the total environmental variable and the total leadership variable times two. The leadership variable was doubled to insure that the standard deviations of each of the distributions were relatively equal.

There are additional correlations between variables which were significant. These other correlations are not shown in the tables because, although they are significant they are essentially uninteresting to this study.

Tables showing all correlations between the variables are included as Appendix F.

#### CHAPTER V

### SUMMARY AND CONCLUSIONS

#### Summary

In Chapter I a case was made for a study of this type by indicating the increasing interest and awareness of educators in international activities. A number of studies have taken place in four year colleges and universities and the results of these studies were reviewed in Chapter II. The community college has been studied with reference to foreign students but a comprehensive study of the total international involvement has not yet taken place. Although this study has been restricted to Michigan public community colleges, it is possible that some of the results may be useful in planning studies of greater magnitude.

In Chapter III the variables which were used in this study were identified and defined in terms of the way each variable was measured. The eleven primary hypotheses were tested and accepted or rejected according to the results of the correlations.

The community colleges were assigned cells on the matrix of institutionality for the purpose of comparing the colleges. No value judgments have been made about the international involvement of any of the community colleges studied.

Three of the 24 environmental variables and four of the 20 leadership variables correlated significantly with the total international dimension of the community colleges studied. The environmental variables include:

- Variable 14: The percentage of former Peace Corps volunteers on the faculty. 0.60 correlation.
- Variable 22: The number of courses listed in the college catalog which include references to international institutions, programs, or activities. 0.74 correlation.
- Variable 24: The international dimension of the curriculum. This variable was computed by assigning 0 to each course listed which included no international references, 1 for each course with only incidental references to an international dimension, 2 for each course with a descriptive reference to international institutions, and 3 for each course with a comparative emphasis between cultures, institutions or literature. 0.70 correlation.

The leadership variables include:

- Variable 27: Responses to the following statement were used to compute this variable: Community colleges should involve themselves with the additional responsibility of educating students from foreign countries. 0.70 correlation.
- Variable 29: Responses to the following statement were used to compute this variable: Public tax supported community colleges have the obligation to seek out and admit foreign students. 0.65 correlation.
- Variable 30: Responses to the following statement were used to compute this variable: Most Michigan two year public colleges are equipped to handle the unique problems of foreign students. 0.80 correlation.
- Variable 31: Responses to the following statement were used to compute this variable: The community college for which you work is equipped to handle the unique problems of foreign students. 0.61 correlation.

The results which were obtained from testing the hypotheses indicate that:

- 1. Foreign student enrollment has proceeded hapazardly in the community colleges studied.
- 2. Institutional conditions of leadership and environment go hand-in-hand in providing an atmosphere for international activities.
- 3. It is possible that predictions of the total international dimension of community colleges may be made using just a few of the variables used in this study.
- 4. The presence of foreign students on the community college campus is neither a necessary nor a sufficient condition for concluding that the international dimension of that college is large. If a community college desires to increase its international dimension there are alternatives open which do not require a large foreign student population.

Increasing the library resources in non-Western areas offers the possibility of an increase in the international dimension as does recruiting additional former Peace Corps volunteers as faculty members and revising the existing courses or planning new courses with greater international emphasis.

## <u>Conclusions</u>

Below is a list of hypotheses with statements of reject or accept. The conclusions which may be drawn from each of the hypotheses are also included.

Hypothesis 1. No positive relationship between percentage of foreign students and college age. Accept.

Hypothesis 2. No positive relationship between percentage of foreign students and college size. Accept.

Taking these two hypotheses together it may be concluded that foreign student enrollment has proceeded in a haphazard manner in the community colleges of the sample. Since the sample was obtained through random selection, this conclusion may be generalized to all Michigan public community colleges. In general this conclusion indicates that there has been no system of foreign student enrollment and that probably more thought should be given to admitting foreign students.

Hypothesis 3. High positive relationship between institutional conditions and total international dimension. Accept.

This hypothesis indicates that the institutional conditions which have been found essential in four year colleges and universities also contribute to the international dimension of the community college. There is congruence between these conditions in the separate institutions.

Hypothesis 4. No relationship between international library and total library holdings. Accept.

Hypothesis 4 reinforces the conclusions drawn from the first two hypotheses. In those community colleges where an interest exists in international activities some

library resources have been developed. Such acquisitions seem to follow no rational pattern with reference to total library resources.

Hypothesis 5. There is a high positive relationship between the size of the international library and the number of international courses offered. Accept.

This hypothesis was formulated to test an assumption about the development of an internationally oriented library. It seems clearly indicated that resource materials have been developed as courses are geared to international objectives.

Hypothesis 6. There is a high positive relationship between the size of the international library and the total environment variable. Accept.

It was assumed that the international library would be a good predictor of the total environment variable. The correlation between these two variables supports the assumption.

Hypothesis 7. Positive relationship between international dimension of the curriculum and membership in international associations. Reject.

Although there is not a significant relationship between these two variables there is a positive relationship between membership in international associations and the total international dimension of the community college. This seems to indicate that curriculum changes have not developed from an increased participation in consortialike arrangements for international programs.

Hypothesis 8. No relationship between environmental and leadership variables. Accept.

This hypothesis was designed primarily to test whether the environmental and leadership variables were independent measures. The 0.48 correlation indicates that they are independent and the correlation between these variables and the total international dimension indicates that they both contribute significantly to the total. The correlation between environment and the total was computed as 0.84 and the correlation between leadership and the total was computed as 0.87.

Hypothesis 9. Relationship between percentage of Peace Corps volunteers and the environmental variable. Reject.

Hypothesis 7 was rejected when comparing the PCV's with environment. It should be noted that the correlation between variable 14 (PCV's) and the total international dimension is significant. This seems to indicate that the PCV's exercise some leadership in determining international activities as well as making some contribution to the environment.

Hypothesis 10. Some sub-variables of environment and leadership will be highly predictive of the main environment and leadership variables. Accept.

A listing of the most highly predictive variables and a discussion of them appears on pages 76-77.

Hypothesis 11. Some sub-variables will be highly predictive of the total international dimension for the community colleges. Accept.

A discussion of these variables is included in the summary of Chapter V, pages 75-77.

### Discussion

This study has attempted to make use of three theories in the investigation of international activities in Michigan public community colleges.

The Richards, Rand and Rand study of community college characteristics found that there was no congruence between the community college and four-year colleges and universities when measured on specified environmental attributes. A number of environmental measures were used in this study which were identical with the Richards measures.

The description of minimal conditions for effective institutional involvement in international activities as these have been defined by Michie was also used to characterize the colleges in the sample. It should be noted that Michie defined the conditions with reference to four-year colleges and universities.

Finally, the concept of institution building was used to further refine the characterization of the colleges

in the sample. Again, this concept has been developed with reference to the senior institutions.

Environmental attributes in the community college and in the four-year college seem to be congruent when they are used as a measure of international activities. This does not necessarily mean that these attributes are congruent in all dimensions but rather that, when addressed to a specific measure, there is some similarity.

The conditions described by Michie appear to be as essential in the development of community college activities in the international arena as they are for the senior colleges. It is clearly indicated that the ordering of priorities for international involvement around the conditions Michie so cogently defines, would be an excellent strategy for increasing the international dimension of community college education.

The relationship between environment and leadership when measured on the scale of institutionality is very close among all of the community colleges in this study. In nine of the ten colleges studied environment and leadership indicated a common cell on the matrix of institutionality. The single exception does not mean that the concept breaks down. This study has used the concept of institution building strictly as a descriptive device to compare community colleges.

#### Implications for Future Research

The analysis of the international dimension of Michigan public community college education clearly shows that some of the community colleges in the sample are much more active in pursuing an international interest than are others.

How far ought the public community college go in increasing its international dimension? Additional research is clearly indicated in the pursuit of such judgments. The world has dramatically changed during the past twenty years and part of that change has been reflected in increased concern with international aspects of education. Certainly the world is not going to stand still for the next twenty years but, what directions should education take to become more relevant to an additional internationalization of activity? Speculation along such lines is outside the scope of this study but erucial to the development of guidelines for future community college orientation to international education.

Certain variables of this study appear to be highly predictive of the total international dimension of the community colleges in the sample. Additional research is indicated in testing whether or not such variables are indeed predictive in all cases. Another sample might be randomly selected and only the highly predictive variables used in an attempt to predict comparative relationships

between the community colleges in the new sample. After the predictions had been made, this study could be replicated to discover actual scores on the total and the actual and predicted values could be compared.

Additional research is also indicated on a national scale. It is possible that the results of this study might prompt others to undertake research which could be generalized to the total population of American community colleges. The results of this study can clearly be generalized only to the population of Michigan public community colleges.

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APPENDICES

# APPENDIX A

# VARIABLES AND MEASURES USED IN THE RICHARDS STUDY

#### APPENDIX A

- Private versus public control public score 0;
  Private score 1. (N = 581)
- 2. Degree of religious control nondenominational score 0; Protestant score 1; Catholic score 2. (N=581)
- 3. Liberal arts emphasis no liberal arts score 0; liberal arts plus other curricula score 1; liberal arts only score 2. (N=574) <u>Used in this study</u>.
- <sup>4</sup>. Teacher training emphasis no teacher training score
  0; teacher training plus other training score 1;
  teacher training only score 2. (N=574) <u>Used in this</u>
  <u>study</u>.
- 5. Technical training emphasis no technical training score 0; technical training and other training score l; technical training only score 2. (N=574) <u>Used</u> <u>in this study</u>.
- Tuition non-resident fees were used. (N=533)
  Used in this study.
- 7. Endowment estimated market value. (N=509)
- Operating budget annual expenditures for educational and general purposes. (N=482)
- 9. Capital income gifts and appropriations. (N=191)

- 10. Scholarship funds amount of money available for scholarships. (N=520)
- 11. Per cent of males in the student body. (N=571) Used in this study.
- 12. Per cent of out-of-state students in the student body. (N=501)
- Per cent of foreign students in the student body.
  (N=578) Used in this study.
- 14. Per cent of part time students in the student body. (N=571).
- 15. Per cent of students earning half or more of their college expenses. (N=386)
- 16. Total enrollment the square root of the total number was used in order to obtain a more nearly normal distribution. (N=579) <u>Used in this study</u>.
- 17. Aptitude level score on the American College Testing Program national test battery. (N=314)
- 18. Realistic orientation per cent of students studying agriculture, forestry, engineering, etc. (N=497)
- 19. Intellectual orientation per cent of students studying science, mathematics, philosophy, etc. (N=497)
- 20. Social orientation per cent studying education, nursing, etc. (N=497)
- 21. Conventional orientation per cent studying secretarial science, accounting, etc. (N=496)

- 22. Enterprising orientation per cent studying political science, pre-law, business administration, etc. (N=497)
- 23. Artistic orientation per cent studying art, music, journalism, etc. (N=496)
- 24. Homogeneity score on this variable is the difference between the highest and lowest Environmental Assessment Technique variable from the Astin study. Measures on the EAT are included in variables 18-23. (N=499)
- 25. Per cent of faculty with doctorate. (N=575) <u>Used</u> in this study.
- 26. Per cent of faculty with masters. (N=577) <u>Used in</u> <u>this study</u>.
- 27. Per cent of full time faculty. (N=579).
- 28. Faculty-Student ratio number of full-time faculty divided by number of full time students. (N=575) Used in this study.
- 29. Library size number of books in the library. (N=570) <u>Used in this study</u>.
- 30. Relative library size number of books divided by total enrollment. (N=569) <u>Used in this study</u>.
- 31. Variety of curriculum number of different fields of study offered. (N=575)
- 32. Per cent of graduates going on to four year colleges. (N=467)

- 33. Growth Rate per cent increase in enrollment between 1958 and 1962. (N=476)
- 34. California location if located in California score 1; if located elsewhere score 0. (N=581)
- 35. Age of institution. (N=581) Used in this study.
  - 36. Placement service colleges having placement service scored 1; other colleges scores 0. (N=581)

## APPENDIX B

# LIST OF 100 BOOKS RANDOMLY SELECTED FROM THE AMERICAN UNIVERSITIES FIELD STAFF BIBLIOGRAPHY

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## APPENDIX C

## THE LEADERSHIP OPINIONNAIRE WITH RESPONSES TO EACH STATEMENT

#### APPENDIX C

An attempt is being made to measure the international dimension of community college education in Michigan. This survey is in conjunction with a Ph.D. dissertation.

Your assistance in filling out the attached opinionaire will be greatly appreciated. A stamped selfaddressed envelope is included for the return of the completed opinionaire.

Please indicate your reaction to each of the following statements by checking the appropriate response.

| 27 | Strongly agree7Agree3No opinion0Disagree0Strongly disagree0 | 1. Community colleges should<br>involve themselves with the<br>additional responsibility of<br>educating students from foreign<br>countries. |
|----|---|--|
| 28 | Strongly agree5Agree5No opinion0Disagree0Strongly disagree0 | 2. Community colleges should<br>participate in educational<br>exchange programs with other<br>nations.                                       |
| 29 | Strongly agree2Agree3No opinion1Disagree4Strongly disagree0 | 3. Public tax supported com-<br>munity colleges have the<br>obligation to seek out and<br>admit foreign students.                            |
| 30 | Strongly agree0Agree1No opinion2Disagree4Strongly disagree3 | 4. Most Michigan two year<br>public colleges are equipped<br>to handle the unique problems<br>of foreign students.                           |

| 31  | Strongly agree3Agree4No opinion0Disagree2Strongly disagree1 | 5. The community college for<br>which you work is equipped to<br>handle the unique problems of<br>foreign students.  |
|-----|---|--|
| 32  | Strongly agree2Agree3No opinion3Disagree2Strongly disagree0 | 6. Community colleges should<br>seek to add foreign scholars<br>to their staff.  |
| 33  | Strongly agree1Agree9No opinion0Disagree0Strongly disagree0 | 7. The administration should<br>encourage faculty participation<br>in seminars designed to provide<br>information on internationaliz-<br>ing the curriculum.                             |
| 3/1 | Strongly agree4Agree5No opinion0Disagree1Strongly disagree0 | 8. A reasonable sabbatical<br>leave policy should provide<br>for foreign travel and study.   |
| 35  | Strongly agree4Agree6No opinion0Disagree0Strongly disagree0 | 9. The sabbatical leave<br>policy of this community col-<br>lege does provide for foreign<br>travel and study.   |
| 36  | Strongly agree6Agree3No opinion0Disagree1Strongly disagree0 | 10. Community colleges should<br>join other community colleges,<br>four year colleges and uni-<br>versities in consortia-type<br>arrangements to promote inter-<br>national development. |
| 37  | Strongly agree1Agree5No opinion2Disagree2Strongly disagree0 | 11. One of the goals of the<br>administration of this com-<br>munity college is to increase<br>the international dimension<br>of the college.  |

| 38 | Strongly agree5Agree4No opinion0Disagree1Strongly disagree0 | 12. Study and action having to<br>do with the educational prob-<br>lems of the developing coun-<br>tries leads directly to a<br>more sensitive awareness of<br>the character and scope of<br>similar problems in this<br>country.  |
|----|---|--|
| 39 | Strongly agree1Agree6No opinion2Disagree1Strongly disagree0 | 13. Community colleges are<br>on the threshold, during the<br>next decade of a potential<br>explosion from foreign student<br>sources that will be one of<br>the most dramatic and signifi-<br>cant challenges to higher<br>education, nationally and<br>internationally, since the<br>establishment of the land-grant<br>colleges over 100 years ago. |
| 40 | Strongly agree1Agree5No opinion0Disagree4Strongly disagree0 | 14. The only thing that is<br>stopping this community col-<br>lege from increasing the inter-<br>national dimension is a lack<br>of funds.   |
| 41 | Strongly agree1Agree8No opinion1Disagree0Strongly disagree0 | 15. Sufficient faculty and<br>administration commitment can<br>be built at this institution<br>to increase the international<br>dimension of the college.  |
| 42 | Strongly agree4Agree6No opinion0Disagree0Strongly disagree0 | 16. It is important to in-<br>volve at least a few under-<br>graduate student leaders in<br>the planning process if the<br>international dimension of the<br>college is to be developed.   |
| 43 | Strongly agree4Agree3No opinion1Disagree2Strongly disagree0 | 17. It is essential to in-<br>volve representatives of<br>minority groups on campus in<br>the planning for additional<br>international emphasis.   |

Strongly agree1Agree244No opinion3Disagree4Strongly disagree0

Strongly agree 0 Agree 5 45 No opinion 3 Disagree 2 Strongly disagree 0 18. One of the top priorities of this community college is to develop a meaningful and coherent strategy for building the international dimension of the college.

19. If funds were available through the International Education Act to increase the international dimension of this institution, we would be ready to move.

.....

|    | Strongly agree | 0 | 20. This community college is |
|----|----------------|---|-------------------------------|
|    | Agree          | 4 | willing to budget for new     |
| 46 | No opinion     | 5 | international programs if the |
|    | Disagree       | 1 | International Education Act   |
|    | Strongly agree | 0 | will fund them for the first  |
|    |                |   | three years.                  |

Thank you very much for your kind cooperation.

F. T. Fink Doctoral candidate College of Education MSU

#### APPENDIX D

# CORRELATIONS FROM RICHARDS SURVEY AMONG VARIABLES COMMON TO THE RICHARDS STUDY AND THIS STUDY

Ϋ٢.

|     | Variable       | 1.  | 2.  | 3.  | 5.  | 7.  | 8.  | 10. | 11. | 12. | 15. | 17.       | 18. | 20. |
|-----|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-----|-----|
| 1.  | Lib. Arts      |     |     |     |     |     |     |     |     |     |     |           |     |     |
| 2.  | Teach. Tr.     | 09  |     |     | •   |     |     |     |     |     |     |           |     |     |
| 3.  | Tech. Tr.      | -28 | 25  |     |     |     |     |     |     |     |     |           |     |     |
| 5.  | Tuition        | -07 | -22 | -19 |     |     |     |     |     |     |     |           |     |     |
| 7.  | % Males        | -22 | -01 | 44  | -20 |     | `   |     |     |     | . · |           |     |     |
| 8.  | % Foreign      | 06  | -06 | -11 | 08  | -15 |     |     |     |     |     |           |     |     |
| 10. | Enrollment     | -05 | 16  | 31  | -22 | 12  | -07 |     |     |     |     |           |     |     |
| 11. | % Doctorate    | 19  | 02  | -04 | 12  | -06 | 10  | 06  |     |     |     |           |     |     |
| 12. | % Masters      | 33  | 31  | 00  | -13 | -04 | -09 | -07 | -08 |     |     |           |     |     |
| 15. | Fac-Stu. Ratio | -07 | -14 | -16 | 80  | -06 | 19  | -12 | 02  | -18 |     |           |     |     |
| 17. | Library size   | 09  | 13  | 05  | -08 | -07 | 09  | 60  | 12  | -01 | -02 | . <b></b> |     |     |
| 18. | Rel. Library   | 07  | 04  | -28 | 03  | -16 | 37  | -31 | -03 | -08 | 45  | 09        |     |     |
| 20. | Age            | 11  | 13  | -04 | 01  | -03 | 15  | 00  | -13 | 12  | -07 | 30        | 18  |     |
|     |                |     |     |     |     |     |     |     |     |     |     |           |     |     |

APPENDIX D.--Correlations among community college characteristics.\*

\*Correlations are from the Richards survey among selected variables common to both studies. The number of observations on each variable is shown in Tables 3.1 - 3.6.

### APPENDIX E

## RAW AND TRANSFORMED DATA FOR EACH COMMUNITY COLLEGE

#### APPENDIX E

The following tables show the raw and transformed data for each community college in the sample on each variable used in computing the environmental variable and the leadership variable.

| COLLEGE "A | 11 |
|------------|----|
|------------|----|

| No.   | Variable               | Coservation | Sample<br>Mean | Sample Std.<br>Deviation | Standard<br>Score | Weight | Score on<br>Variable |
|-------|------------------------|-------------|----------------|--------------------------|-------------------|--------|----------------------|
| 1.    | Liberal Arts           | 1.0         | 1.0            | 0.0                      | 0.0               | 1      | 0.0                  |
| 2.    | Teacher Training       | 1.0         | 0.5            | 0.5                      | 1.0               | 1      | 1.0                  |
| 3.    | Technical Train-       |             |                | <u> </u>                 | • •               | -      | ~ ~                  |
| л     | Ing<br>Tuition (Dis-   | 1.0         | 1.0            | 0.0                      | 0.0               | T      | 0.0                  |
| •••   | triet)                 | 279.0       | 298.2          | 43.16                    | -0.44             | ı      | -0.44                |
| 5.    | Tuition (Mich)         | 396.0       | 472.3          | 65.6                     | -1.16             | ī      | -1.16                |
| 6.    | Tuition (out           |             |                | _                        |                   |        | •                    |
| .,    | state)                 | 396.0       | 555.9          | 100.6                    | -1.59             | -2     | 3.18                 |
| β.    | % Males<br>% Wonoign   | 68.0        | 62.8           | 8.77                     | 0.59              | T      | 0.59                 |
| υ.    | Students               | 0.5         | 05             | 0.7                      | 0.14              | 2      | 0 42                 |
| 9.    | FS Advisor             | 0.0         | 0.8            | <b>0.</b> 4              | -2.0              | ر<br>۲ | -6.0                 |
| 10.   | Total Enrollment       | 84.26       | 65.6           | 24.27                    | 0.77              | ĭ      | 0.77                 |
| 11.   | % Faculty              |             |                |                          |                   |        |                      |
|       | Doctorate              | 7.0         | 4.6            | 2.37                     | 1.01              | l      | 1.01                 |
| 15.   | % Faculty              | ( - 0       |                |                          | 0.00              | -      | 0.00                 |
| 1.5   | Masters<br>Ø Foncian   | 05.0        | 74.0           | 4.75                     | -2.00             | T      | -2.00                |
| T 2 • | Reculty                | 2 0         | 2 45           | 1 52                     | -0 30             | 3      | 0                    |
| 14.   | % FCV on Staff         | 1.0         | 0.71           | 0.23                     | 1.24              | े<br>२ | 3.72                 |
| 15.   | Faculty-Student        |             |                | <b>J</b>                 |                   | 2      | 5-1-                 |
| -     | Ratio                  | 0.01        | 0.03           | 0.02                     | -1.0              | 1      | -1.0                 |
| 16.   | Intn'l. Club           | 1.0         | 0.9            | 0.7                      | 0.14              | 5      | 0.28                 |
| 17.   | Library Size           | 36.0        | 41.7           | 38.53                    | -0.15             | 1      | -0.15                |
| 18.   | Relative Lib.          | <b>5</b> 7  | 10 75          | 7 99                     | 0 71              | Ъ      | 0 71                 |
| 10    | DIZE<br>Intril Ithnony | 26 0        | 10./5          | 6 78                     | -0.71             | ⊥<br>2 | -0.71                |
| 20.   | Age of College         | 20.0        | 1.2            | 1.26                     | -0.95             | 1      | -0.95                |
| 21.   | No. Courses            | 387.0       | 265.8          | 77.0                     | 1.57              | ī      | 1.57                 |
| 22.   | Intn'l. Courses        | 56.0        | 46.6           | 8.3                      | 1.13              | 2      | 2.26                 |
| 23.   | Foreign Language       | 12.0        | 12.5           | 4.36                     | -0.11             | l      | -0.11                |
| 24.   | Intn'l. Dim.           | 00.0        | 0              | 100                      | 0 70              | ~      |                      |
|       | curric.                | 99.0        | ö5•5           | T0.0                     | 0.72              | 3      | 1.40                 |
|       |                        |             |                |                          | Total             | •      | 3.98                 |
|       |                        |             |                |                          |                   |        |                      |

| CO | LL | EGE | "B" |
|----|----|-----|-----|
|----|----|-----|-----|

| No.        | Variable                            | Observation    | Sample<br>Mean | Sample Std.<br>Deviation | Standard<br>Score | Weight     | Score on<br>Variable |
|------------|-------------------------------------|----------------|----------------|--------------------------|-------------------|------------|----------------------|
| 1.         | Liberal Arts<br>Teacher Training    | 1.0            | 1.0            | 0.0                      | 0.0               | <br>1<br>1 | 0.0                  |
| 3.         | Technical Train-                    | 0.0            | 0.9            | 0.9                      | ~1.U              | -          | -1.0                 |
| h          | ing<br>Wuitten (Die                 | 1.0            | 1.0            | 0.0                      | 0.0               | 1          | 0.0                  |
| 5.         | trict)<br>Tuition (Mich)            | 387.0<br>495.0 | 298.2<br>472.3 | 43.16<br>65.6            | 2.06<br>0.35      | 1<br>1     | 2.06<br>0.35         |
| 6.<br>7.   | Tuition (out<br>state)<br>% Males   | 531.0<br>59.0  | 555.9<br>62.8  | 100.6<br>8.77            | -0.25<br>-0.43    | ~2<br>1    | 0.50<br>-0.43        |
| 8.         | % Foreign<br>Students               | 0.80           | 05             | 07                       | 0 43              | 3          | 1 20                 |
| 9.<br>10.  | FS Advisor<br>Total Enrollment      | 1.0<br>38.73   | 0.8<br>65.6    | 0.4<br>24.27             | 0.5               | 31         | 1.5                  |
| 11.        | % Faculty<br>Doctorate              | 1.0            | 4.6            | 2.37                     | -1.52             | 1          | -1.52                |
| 12.        | % Faculty<br>Masters                | 81.0           | 74.8           | - 4.75                   | 1.30              | 1          | 1.30                 |
| 13.        | % Foreign                           | <br>li o       | 2 16           | 1 50                     | 1 01              | -          | 2 02                 |
| 14.<br>15. | % FCV on Staff<br>Faculty-Student   | 1.0            | 0.71           | 0.23                     | 1.24              | 3          | 3.72                 |
|            | Ratio                               | 0.05           | 0.03           | 0.02                     | 1.5               | 1          | 1.5                  |
| 16.        | Intn'l. Club                        | 26.0           | 0.9<br>//1 7   | 28 52                    | -1.28             | 2<br>1     | -2.56                |
| 18.        | Relative Lib.                       | 17 0           | 74.7           | 7 90                     | -0.91             | -          | 0.92                 |
| 19.        | Size<br>Intn'l, Library             | 17.3<br>12.0   | 21.9           | 6.78                     | -1.46             | 2          | -2.92                |
| 20.        | Age of College                      | 1.0            | 1.2            | 1.26                     | -0.16             | ī          | -0.16                |
| 21.        | No. Courses                         | 197.0          | 265.8          | 77.0                     | -0.89             | 1          | -0.89                |
| 22.        | Intn'I. Courses<br>Foreign Language | 45.0           | 40.0           | 0.3<br>4.36              | -0.07             | 2          | -0.14                |
| 24.        | Intn'l. Dim.                        | 9.0            | 12.7           | JQ                       | -0.00             | - <b>L</b> | -0.00                |
|            | Curric.                             | 83.0           | 85.5           | 18.8                     | -0.13             | 3          | -0.39                |
|            |                                     |                |                |                          | Total             | •          | 3.75                 |

COLLEGE "C"

| No.          | Variable               | Observation  | Sample<br>Mean | Sarple Std.<br>Deviation | Standard<br>Score | Weight | Score on<br>Variable |
|--------------|------------------------|--------------|----------------|--------------------------|-------------------|--------|----------------------|
| 1.           | Liberal Arts           | 1.0          | 1.0            | 0.0                      | 0.0               | 1      | 0.0                  |
| 2.           | Teacher Training       | 0.0          | 0.5            | 0.5                      | -1.0              | 1      | -1.0                 |
| 3.           | Technical Train-       | 1 0          | 1 0            | 0 0                      | 0 0               | г      | 0 0                  |
| 4.           | Tuition (dis-          | 1.0          | <b>T</b> .0    | 0.0                      | 0.0               | т      | 0.0                  |
|              | trict)                 | 270.0        | 298.2          | 43.16                    | -0.65             | 1      | -0.65                |
| 5.           | Tuition (Mich)         | 360.0        | 472.3          | 65.6                     | -1.71             | l      | -1.71                |
| 6.           | "l'ultion (out         | <b>510 0</b> |                | 100 6                    |                   | . 0    | 0 00                 |
| •7           | State)<br>Ø Malor      | 510.0        | 555.9          | 100.6                    | -0.45             | -2     | -1 60                |
| 8.           | % Forelen              | 40.0         | 02.0           | 0.11                     | -1.09             | Ŧ      | -1.09                |
|              | Students               | 0.6          | 0.5            | 0.7                      | 0.14              | 3      | 0.42                 |
| 9.           | FS Advisor             | 0.0          | 0.8            | 0.4                      | -2.0              | 3      | -6.0                 |
| 10.          | Total enrollment       | 22.4         | 65.6           | 24.27                    | -1.79             | 1      | -1.79                |
| 11.          | % Faculty              |              | 1. <i>C</i>    | 0.08                     | 1 0 1             | -      | 1 0 1                |
| <b>1</b> · , | Doctorate<br># Focultu | 7.0          | 4.6            | 2.37                     | 1.01              | L.     | 1.01                 |
| ± <i>C</i> • | Masters                | 72.0         | 74 8           | 4.75                     | -0.59             | ר      | -0.59                |
| 13.          | % Foreign              | 12.0         | 11.0           |                          | -0.))             | *      | -0.))                |
| - • •        | Faculty                | 5.0          | 2.46           | 1.52                     | -0.30             | 3      | -0.90                |
| 14.          | % PCV on Staff         | 0.5          | 0.71           | 0.23                     | -0.90             | 3      | -2.70                |
| 15.          | Faculty-Student        | o <b>o O</b> |                |                          | 0 5               | -      | 0.5                  |
| 16           | Ratio                  | 0.08         | 0.03           | 0.02                     | 2.5               | 1      | 2.5                  |
| 17           | library Size           | 15.0         | U.9<br>41 7    | 38.53                    | -0.14             | 2      | -0.20                |
| 18.          | Relative Lib.          | 19.0         | 1 + 1          |                          | - 0.09            | -      | 0.05                 |
|              | Size                   | 29.0         | 10.75          | 7.88                     | 2.31              | 1      | 2.31                 |
| 19.          | Intn'l. Library        | 9.0          | 21.9           | 6.78                     | -1.90             | 2      | -3.8                 |
| 20.          | Age of College         | 0.0          | 1.2            | 1.26                     | -0.95             | 1      | -0.95                |
| 21.          | No. Courses            | 143.0        | 265.8          | 77.0                     | -1.59             | 1      | -1.59                |
| 22           | Fonetan Language       | 20.0         | 40.0           | 0.3<br>4 36              | -2.24             | 1      | -4.40                |
| 24.          | Intn'l, Dim.           | 0.0          | 16.7           | - · ) U                  | - <b>1</b> .0)    | 4      | -1.00                |
| •            | Curric.                | 47.0         | 85.5           | 18.8                     | -2.05             | 3      | -6.15                |
|              |                        |              |                |                          | Total             |        | -28.30               |

| CO | LL | EGE | : "D" |  |
|----|----|-----|-------|--|
|    |    |     |       |  |

|                                 |   |                                      |                                      |                                     |   |                       | <u></u>                                 |
|---------------------------------|---|--------------------------------------|--------------------------------------|-------------------------------------|---|-----------------------|---|
| No.                             | Variable  | Observation                          | Sample<br>Mean                       | Sample Std.<br>Deviation            | Standard<br>Score                       | Weight                | Score on<br>Variable                    |
| 1.                              | Liberal Arts<br>Teacher Training  | 1.0<br>1.0                           | 1.0<br>0.5                           | 0.0<br>0.5                          | 0.0<br>1.0                              | 1<br>1                | 0.0<br>1.0                              |
| 3.                              | Technical Train-<br>ing   | 1.0                                  | 1.0                                  | 0.0                                 | 0.0                                     | 1                     | 0.0                                     |
| 4.<br>5.                        | Tuition (Dis-<br>trict)<br>Tuition (Mich)   | 300.0<br>450.0                       | 298.2<br>472.0                       | 43.16<br>65.6                       | 0.04<br>-0.34                           | 1<br>1                | 0.04<br>-0.34                           |
| 6.<br>7.                        | Tuition (out<br>state)<br>% Males   | 600.0<br>59.0                        | 555.9<br>62.8                        | 100.6<br>8.77                       | 0.44<br>-0.43                           | -2<br>1               | -0.88<br>-0.43                          |
| 9.<br>10.                       | z Foreign<br>Students<br>FS Advisor<br>Total Enrollment                                 | 0.5<br>1.0<br>54.77                  | 0.5<br>0.8<br>65.6                   | 0.7<br>0.4<br>24.27                 | 0.0<br>0.5<br>-0.45                     | 3<br>3<br>1           | 0.0<br>1.5<br>-0.45                     |
| 11.                             | % Faculty<br>Doctorate  | 1.0                                  | 4.6                                  | 2.37                                | -1.52                                   | l                     | -1.52                                   |
| 12.                             | % Faculty<br>Masters  | 74.0                                 | 74.8                                 | 4.75                                | -0.17                                   | 1                     | -0.17                                   |
| 13.<br>14.                      | % Foreign<br>Faculty<br>% PCV on Staff  | 1.0<br>1.0                           | 2.46<br>0.71                         | 1.52<br>0.23                        | -1.01<br>1.24                           | 3<br>3                | -3.03<br>3.72                           |
| 15.<br>16.<br>17.               | Faculty-Student<br>Ratio<br>Intn'l. Club<br>Library Size                                | 0.03<br>0.0<br>20.0                  | 0.03<br>0.9<br>41.7                  | 0.02<br>0.7<br>38.53                | 0.0<br>-1.28<br>-0.56                   | <br>2<br>1            | 0.0<br>-2.56<br>-0.56                   |
| 18.                             | Relative Lib.<br>Size   | 6.0                                  | 10.75                                | 7.88                                | -0.60                                   | 1                     | -0.60                                   |
| 19.<br>20.<br>21.<br>22.<br>23. | Intn'l. Library<br>Age of College<br>No. Courses<br>Intn'l. Courses<br>Foreign Language | 23.0<br>0.0<br>185.0<br>46.0<br>12.0 | 21.9<br>1.2<br>265.8<br>46.6<br>12.5 | 6.78<br>1.26<br>77.0<br>8.3<br>4.36 | 0.16<br>-0.95<br>-1.05<br>-0.7<br>-0.11 | 2<br>1<br>2<br>1<br>2 | 0.32<br>-0.95<br>-1.05<br>-1.4<br>-0.11 |
| 24.                             | Intn'l. Dim.<br>Curric.   | 84.0                                 | 85.5                                 | 18.8                                | -0.07                                   | 3                     | -0.21                                   |
|                                 |   |                                      |                                      |                                     | Total                                   |                       | -7.68                                   |

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|                                 | •   |                                      |                                      |                                     |  |          |  |
|---------------------------------|---|--------------------------------------|--------------------------------------|-------------------------------------|--|----------|--|
| No.                             | Variable  | Observation                          | Sample<br>Mean                       | Sample Std.<br>Deviation            | Standard<br>Score                      | Weight   | .Score on<br>Variable                  |
| 1.                              | Liberal Arts<br>Teacher Training  | 1.0                                  | 1.0                                  | 0.0                                 | 0.0                                    | 1<br>1   | 0.0                                    |
| 3.                              | Technical Train-<br>ing   | 1.0                                  | 1.0                                  | 0.0                                 | 0.0                                    | 1        | 0.0                                    |
| 4.<br>5.                        | Tuition (Dic-<br>trict)<br>Tuition (Mich)   | 240.0<br>400.0                       | 298.2                                | 43.16<br>65.6                       | -1.35                                  | 1        | -1.35                                  |
| 6.                              | Tuition (out<br>state)  | 450.0                                | 555.9                                | 100.6                               | -1.05                                  | -2       | 2.10                                   |
| 7.<br>8.                        | % Males<br>% Foreign<br>Students  | 56.0<br>03                           | 62.8                                 | 8.77                                | -0.77                                  | .]<br>.] | -0.77                                  |
| 9.<br>10.                       | FS Advisor<br>Total Enrollment  | 1.0<br>51.96                         | 0.8<br>65.6                          | 0.4<br>24.27                        | 0.5                                    | 3<br>1   | 1.5                                    |
| 11.                             | % Faculty<br>Doctorate<br>% Faculty   | 6.0                                  | 4.6                                  | 2.37                                | 0.59                                   | 1        | 0.59                                   |
| 13.                             | Masters<br>% Foreign  | 74.0                                 | 74.8                                 | 4.75                                | -0.17                                  | 1        | -0.17                                  |
| 14.                             | Faculty<br>% PCV on Staff<br>Faculty Student  | 1.0<br>1.0                           | 2.46<br>0.71                         | 1.52<br>0.23                        | -0.96<br>1.24                          | 3<br>3   | -2.88<br>3.72                          |
| 16.                             | Ratio<br>Intn'1. Club   | 0.03                                 | 0.03                                 | 0.02                                | 0.0<br>0.14                            | 1<br>2   | 0.0                                    |
| 17.<br>18.                      | Library Size<br>Relative Lib.<br>Size   | 17.0                                 | 41.7                                 | 38.53                               | -0.64                                  | 1<br>1   | -0.64                                  |
| 19.<br>20.<br>21.<br>22.<br>23. | Intn'l. Library<br>Age of College<br>No. Courses<br>Intn'l. Courses<br>Foreign Language | 29.0<br>3.0<br>231.0<br>54.0<br>12.0 | 21.9<br>1.2<br>265.8<br>46.6<br>12.5 | 6.78<br>1.26<br>77.0<br>8.3<br>4.36 | 1.05<br>0.95<br>-0.45<br>0.89<br>-0.11 | 21221    | 2.10<br>0.95<br>-0.45<br>1.78<br>-0.11 |
| 24.                             | Curric.   | 113.0                                | 85.5                                 | 18.8                                | 1.46                                   | 3        | 4.38                                   |
|                                 |   |                                      |                                      |                                     | Total                                  | ·        | 9.07                                   |

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| COLLEGE | "F" |
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| No.        | Variable                  | Observation | Sample<br>Mean | Sample Std.<br>Deviation | Standard<br>Score | Weight | Score on<br>Variable |
|------------|---------------------------|-------------|----------------|--------------------------|-------------------|--------|----------------------|
| 1.         | Liberal Arts              | 1.0         | 1.0            | 0.0                      | 0.0               | 1      | 0.0                  |
| 2.<br>     | Teacher Training          | 0.0         | 0.5            | 0.5                      | -1.0              | T      | ~1.0                 |
| .).        | ing                       | 1.0         | 1.0            | 0.0                      | 0.0               | 1      | 0.0                  |
| 4.         | Tuition (Dic-             | 200 0       | 208 2          | 40 70                    |                   | 7      |                      |
| 5.<br>6    | Tuition (Mich)            | 540.0       | 472.3          | 43.10                    | 1.03              | 1      | 1.03                 |
|            | state)                    | 540.0       | 555.9          | 100.6                    | -0.16             | -2     | 0.32                 |
| <b>7</b> . | % Males                   | 58.0        | 62.8           | 8.77                     | -0.55             | 1      | -0.55                |
| ο.         | % FOreign<br>Students     | 04          |                | 07                       | -0 14             | 2      | - 0 /12              |
| 9.         | FS Advisor                | 1.0         | 0.8            | 0.4                      | 0.5               | 2      | 1.5                  |
| 10.        | Total Enrollment          | 72.1        | 65.6           | 24.27                    | 0.26              | ĩ      | 0.26                 |
| 11.        | % Faculty                 | •           |                |                          |                   |        |                      |
|            | Doctorate                 | 5.0         | 4.6            | 2.37                     | 0.17              | -      | L 0.17               |
| 12.        | % Faculty                 |             | - 1 0          | 1                        | - 0               | _      |                      |
| <b>1</b> 0 | Masters                   | 71.0        | 74.8           | 4.75                     | -0.8              | 1      | -0.8                 |
| 13.        | % Foreign                 | 2 0         | 2 46           | 1 60                     | 0.25              | n      | 1 05                 |
| ٦U         | Faculty<br># PCV on Staff | 3.0         | 2.40           | 1.72                     | 1 2/1             | 2      | 2 70                 |
| 15.        | Faculty-Student           | 1.0         | 0.11           | 0.25                     | 1.29              | S      | 2.12                 |
|            | Ratio                     | 0.03        | 0.03           | 0.02                     | 0.0               | 1      | <b>Ø.</b> 0          |
| 16.        | Intn'l. Club              | 2.0         | 0.9            | 0.7                      | 1.57              | 2      | 3.14                 |
| 17.        | Library Size              | 60.0        | 41.7           | 38.53                    | 0.47              | 1      | 0.47                 |
| 18.        | Relative Lib.             |             |                | - 00                     |                   | _      |                      |
| 10         | Size                      | 11.5        | 10.75          | 7.88                     | 0.09              | 1      | 0.09                 |
| 19.        | Intn'l. Library           | 31.0        | 21.9           | 0.70                     | 1.34              | 2      | 2.68                 |
| 20, 21     | No Courses                | 362 0       | 265 8          | 77 0                     | -0.95             | 1<br>1 | -0.95                |
| 22.        | Intn'1. Courses           | 53.0        | 46.6           | 8.3                      | 0.77              | 2      | 1.54                 |
| 23.        | Foreign Language          | 16.0        | 12.5           | 4.36                     | 0.8               | ī      | 0.80                 |
| 24.        | Intn'l. Dim.              |             |                | · •                      |                   | _      |                      |
|            | Curric.                   | 105.0       | 85.5           | 18.8                     | 1.04              | 3      | 3.12                 |
|            |                           |             |                |                          | Total             | •      | 17.46                |

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| No.                      | Variable  | Observation                                     | Sample<br>Mean                        | Sample Std.<br>Deviation                    | Standard<br>Score                      | Weight                     | Score on<br>Variable                   |
|--------------------------|---|---|---------------------------------------|---|--|----------------------------|--|
| 1.                       | Liberal Arts<br>Teacher Training  | 1.0   | 1.0                                   | 0.0   | 0.0                                    | 1<br>1                     | 0.0                                    |
| 3.<br>h                  | Technical Train-<br>ing<br>Tuition (Dis   | 1.0   | 1.0                                   | 0.0   | 0.0                                    | 1                          | 0.0                                    |
| 9.<br>5.                 | Tuition (Dis-<br>trict)<br>Tuition (Mich)   | 270.0<br>540.0                                  | 298.2<br>472.3                        | 43.16<br>65.6                               | ~0.65<br>1.03                          | 1<br>1                     | -0.65<br>1.03                          |
| 7.<br>8                  | state)<br>% Males<br>% Foreign  | 750.0<br>65.0                                   | 555.9<br>62.8                         | 100.6<br>8.77                               | -1.92<br>0.25                          | -2<br>1                    | -3.84<br>0.25                          |
| 9.<br>10.                | Students<br>FS Advisor<br>Total Enrollment  | 0.1<br>1.0<br>90.55                             | 0.5<br>0.8<br>65.6                    | 0.7<br>0.4<br>24.27                         | -0.57<br>0.5<br>1.02                   | 3<br>3<br>1                | -1.71<br>1.5<br>1.02                   |
| 11.                      | % Faculty<br>Doctorate  | 8.0   | 4.6                                   | 2.37  | 1.43                                   | l                          | 1.43                                   |
| 13.                      | % Faculty<br>Masters<br>% Foreign   | 76.0  | 74.8                                  | 4.75  | 0.25                                   | 1                          | 0.25                                   |
| 14.                      | Faculty<br>% PCV on Staff<br>Faculty-Student  | 1.0<br>0.0                                      | 2.46<br>0.71                          | 1.52<br>0.23                                | -0.96<br>-3.05                         | 3<br>3                     | -2.88<br>-9.15                         |
| 16.<br>17.               | Ratio<br>Intn'l. Club<br>Library Size   | 0.03<br>0.0<br>150.0                            | 0.03<br>0.9<br>41.7                   | 0.02<br>0.7<br>38.53                        | 0.0<br>-1.28<br>2.81                   | 1<br>2<br>1                | 0.0<br>-2.56<br>2.81                   |
| 19.<br>20.<br>21.<br>22. | Size<br>Intn'l. Library<br>Age of College<br>No. Courses<br>Intn'l. Courses<br>Foreign Language | $ 18.3 \\ 21.0 \\ 3.0 \\ 292.0 \\ 37.0 \\ 6 0 $ | 10.75<br>21.9<br>1.2<br>265.8<br>46.6 | 7.88<br>6.78<br>1.26<br>77.0<br>8.3<br>4 36 | 0.96<br>-0.13<br>1.43<br>0.34<br>-1.06 | 1<br>2<br>1<br>2<br>1<br>2 | 0.96<br>-0.26<br>1.43<br>0.34<br>-2.32 |
| 24.                      | Intn'l. Dim.<br>Curric.   | 64.0  | 85.5                                  | 18.8  | -1.14                                  | 3                          | -3.24                                  |
|                          |   |   |                                       |   | Total                                  | L                          | -18.26                                 |

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| COLLEG | $\mathbf{E}^{-1}$ | "H" |
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| No.  | Variable                 | Observation | Sample<br>Mean | Sample Std.<br>Deviation | Standard<br>Score | Weight | Score on<br>Variable |
|------|--------------------------|-------------|----------------|--------------------------|-------------------|--------|----------------------|
| 1.   | Liberal Arts             | 1.0         | 1.0            | 0.0                      | 0.0               | 1      | 0.0                  |
| 2.   | Teacher Training         | 1.0         | 0.5            | 0.5                      | 1.0               | 1      | 1.0                  |
| 3.   | Technical Train-         |             |                |                          |                   |        | •                    |
| 1.   | ing                      | 1.0         | 1.0            | 0.0                      | 0.0               | l      | 0.0                  |
| 4.   | Tuition (Dis-            |             |                |                          |                   | -      |                      |
| t:   | trict)<br>Mudtien (Mich) | 300.0       | 298.2          | 43.10                    | 0.04              | L<br>1 | 0.04                 |
| 5.   | Tuition (Mich)           | 540.0       | 4/2.3          | 05.0                     | 1.03              | 1      | 1.03                 |
| 0.   | state)                   | 540.0       | 555.9          | 100.6                    | -0.16             | -2     | 0.32                 |
| 7.   | % Males                  | 63.0        | 62.8           | 8.77                     | 0.02              | ī      | 0.02                 |
| 8.   | % Foreign                |             |                |                          |                   |        |                      |
|      | Students                 | 0.40        | 0.5            | 0.7                      | -0.14             | 3      | -0.42                |
| 9.   | FS Advisor               | 1.0         | 0.8            | 0.4                      | 0.5               | 3      | 1.5                  |
| 10.  | Total Enrollment         | 71.41       | 65.6           | 24.27                    | 0.24              | 1      | 0.24                 |
| 11.  | % Faculty                | ~ ~         |                | 0 0 7                    |                   | -      | 0 (P                 |
| 1 1  | Doctorate                | 3.0         | 4.0            | 2.37                     | -0.67             | T      | -0.67                |
| 12.  | % raculty<br>Mostons     | 81 0        | 7/1 8          | 1 75                     | 1 20              | ٦      | 1 20                 |
| 13   | % Foreign                | 01.0        | 14.0           |                          | 1.30              | Т      | 1.00                 |
| т.)• | Faculty                  | 1.8         | 2.46           | 1.52                     | -0.43             | 3      | -1.29                |
| 14.  | % PCV on Staff           | 0.6         | 0.71           | 0.23                     | -0.47             | ž      | -1.41                |
| 15.  | Faculty-Student          |             | •              |                          | •                 |        |                      |
| -    | Ratio                    | 0.03        | 0.03           | 0.02                     | 0.0               | 1      | 0.0                  |
| 16.  | Intn'l. Club             | 1.0         | 0.9            | 0.7                      | 0.14              | 2      | 0.28                 |
| 17.  | Library Size             | 30.0        | 41.7           | 38.53                    | -0.30             | 1      | -0.30                |
| 10.  | Relative Lib.            | <b>F</b> 0  |                | 7 00                     | 0 61              | ٦      | 0 61                 |
| 10   | Size<br>Intril Ithnony   | 5.9         | 10.75          | 6 78                     | -0.01             | 2<br>1 | -U.DI                |
| 20   | Age of College           | 27.0        | 1 2            | 1 26                     | _0.75             | 2      |                      |
| 21.  | No. Courses              | 319.0       | 265.8          | 77.0                     | 0.69              | า      | 0.69                 |
| 22.  | Intn'l. Courses          | 53.0        | 46.6           | 8.3                      | 0.77              | 2      | 1.54                 |
| 23.  | Foreign                  | 2010        |                |                          |                   | -      |                      |
|      | Language                 | 22.0        | 12.5           | 4.36                     | 2.18              | 1      | 2.18                 |
| 24.  | Intn'l. Dim.             | -           | -              | • •                      |                   |        |                      |
|      | Curric.                  | 96.0        | 85.5           | 18.8                     | 0.56              | 3      | 1.68                 |
|      |                          |             |                |                          | Total             | ·      | 7.67                 |

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COLLEGE "J"

| No.         | Variable                 | Orientation | Sample<br>Mean | Sample Std.<br>Deviation | Standard<br>Score | Weight     | Score on<br>Variable |
|-------------|--------------------------|-------------|----------------|--------------------------|-------------------|------------|----------------------|
| 1.          | Liberal Arts             | 1.0         | 1.0            | 0.0                      | 0.0               | 1          | 0.0                  |
| 2.          | Teacher Training         | 0.0         | 0.5            | 0.5                      | -1.0              | ī          | -1.0                 |
| 3.          | Technical Train-         |             |                |                          |                   |            |                      |
| 1.          | ing                      | 1.0         | 1.0            | 0.0                      | 0.0               | 1          | 0.0                  |
| 4.          | Tuition (Dis-            |             | 008 0          |                          |                   | -          |                      |
| E.          | Trict)<br>Thitian (Mich) | 300.U       | 290.2<br>172 2 | 43.10                    | ⊥•5/<br>_0_16     | L<br>1     | 1.5/                 |
| 6.          | Tuition (out             | 402.0       | -12.5          | 0.0                      | -0.10             | Т          | -0.10                |
|             | state)                   | 702.0       | 555.9          | 100.6                    | 1.45              | -2         | -2.90                |
| 7.          | % Males                  | 70.0        | 62.8           | 8.77                     | 0.82              | 1          | 0.82                 |
| 8.          | % Foreign                |             |                |                          |                   |            |                      |
|             | Students                 | 0.9         | 0.5            | 0.7                      | 0.57              | 3          | 1.71                 |
| .9.         | FS Advisor               | 1.0         | 0.8            | 0.4                      | 0.5               | 3          | 1.5                  |
| 10.         | Total Enrollment         | 60.83       | 05.0           | 24.27                    | -0.20             | Т          | -0.20                |
| TT•         | 7 Faculty<br>Fostorate   | 2 0         | 4 6            | 2 27                     | -0 67             | ٦          | -0 67                |
| 12.         | % Faculty                | 5.0         | · · ·          | 2.51                     | -0.07             | <u>ـ</u> ـ | -0.07                |
|             | Masters                  | 74.0        | 74.8           | 4.75                     | -0.17             | l          | -0.17                |
| 13.         | % Foreign                |             | ,              |                          |                   | -          |                      |
|             | Faculty                  | 6.0         | 2.46           | 1.52                     | 2.33              | 3          | 6.99                 |
| 14.         | % PCV on Staff           | 0.0         | 0.71           | 0.23                     | -3.05             | 3          | -9.15                |
| 15.         | Faculty-Student          |             |                |                          |                   | -          |                      |
| 10          | Ratio                    | 0.03        | 0.03           | 0.02                     | 0.0               | 1          | 0.0                  |
| 10.         | Intn'l. Club             | 2.0         | 0.9            | 0.7                      | 1.57              | 2          | 3.14                 |
| 18<br>18    | Belative Lib             | 10.0        | 41.1           | 30.93                    | -0.01             | Ŧ          | -0.01                |
| <b>1</b> 0. | Size                     | 4.1         | 10.75          | 7.88                     | -0.84             | ٦          | -0.84                |
| 19.         | Intn'l, Library          | 18.0        | 21.9           | 6.78                     | -0.57             | 2          | -1.14                |
| 20.         | Age of College           | 3.0         | 1.2            | 1.26                     | 1.43              | ī          | 1.43                 |
| 21.         | No. Courses              | 225.0       | 265.8          | 77.0                     | -0.53             | 1          | -0.53                |
| 22.         | Intn'l. Courses          | 43.0        | 46.6           | 8.3                      | -0.43             | 2          | -0.86                |
| 23.         | Foreign Language         | 16.0        | 12.5           | 4.36                     | 0.80              | 1          | 0.80                 |
| 24.         | Intn'l. Dim.             | <b>50</b> 0 | 0 ~ ~          | - 0 0                    |                   | ۱.         |                      |
|             | Curric.                  | 78.0        | ٥٦.5           | 18.8                     | 0,40              | 4          | 1.20                 |
|             |                          |             |                |                          | Total             |            | 0.93                 |

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| No.       | Variable   | Orientation           | Sample<br>Mean        | Sample Std.<br>Deviation     | Standard<br>Score     | Weight      | Score on<br>Variable  |
|-----------|--|-----------------------|-----------------------|------------------------------|-----------------------|-------------|-----------------------|
| 1.        | Liberal Arts<br>Teacher Training                   | 1.0<br>1.0            | 1.0<br>0.5            | 0.0<br>0.5                   | 0.0                   | 1<br>1      | 0.0                   |
| 3 •<br>11 | ing<br>Tuition (Dig-)                              | 1.0                   | 1.0                   | 0.0                          | 0.0                   | l           | 0.0                   |
| 5.        | trict)<br>Tuition (Mich)                           | 270.0<br>540.0        | 298.2<br>472.3        | 43.16<br>65.6                | -0.65<br>1.03         | 1<br>1      | -0.65<br>1.03         |
| 7.        | state)<br>% Males<br>% Foreign                     | 540.0<br>82.0         | 555.9<br>62.8         | 100.6<br>8.77                | -0.16<br>2.19         | -2<br>1     | 0.32<br>2.19          |
| 9.<br>10. | Students<br>FC Advisor<br>Total Enrollment         | 0.4<br>1.0<br>109.54  | 0.5<br>0.8<br>65.6    | 0.7<br>0.4<br>24.27          | -0.14<br>0.5<br>1.81  | 3<br>3<br>1 | -0.42<br>1.5<br>1.81  |
| 11.       | % Faculty<br>Doctorate<br>% Faculty                | 5.0                   | 4.6                   | 2.37                         | 0.17                  | l           | 0.17                  |
| 13.       | Masters<br>% Foreign                               | 80.0                  | 74.8                  | 4.75                         | 1.09                  | 1           | 1.09                  |
| 14.       | Faculty<br>% PCV on Staff<br>Faculty-Student       | 3.0<br>1.0            | 2.46<br>0.71          | 1.52<br>0.23                 | 0.35<br>1.24          | 3<br>3      | 1.05<br>3.72          |
| 16.       | Ratio<br>Intn'l. Club<br>Library Size              | 0.01<br>1.0<br>45.0   | 0.03<br>0.9<br>41.7   | 0.02<br>0.7<br><u>3</u> 8.53 | -1.0<br>0.14<br>0.08  | 1<br>2<br>1 | -1.0<br>0.28<br>0.08  |
| 19.       | Relative Lib.<br>Size<br>Intn'l. Library           | 4.0<br>23.0           | 10.75<br>21.9         | 7.88<br>6.78                 | -0.86                 | 1<br>2<br>1 | -0.86                 |
| 22.23.    | No. Courses<br>Intn'l. Courses<br>Foreign Language | 317.0<br>50.0<br>12.0 | 265.8<br>46.6<br>12.5 | 77.0<br>8.3<br>4.36          | 0.66<br>0.41<br>-0.11 | 1<br>2<br>1 | 0.66<br>0.82<br>-0.11 |
| 24.       | Intn'l. Dim.<br>Curric.                            | 86.0                  | 85.5                  | 18.8                         | 0.03                  | 3           | 0.09                  |
|           |  |                       |                       |                              | Total                 | ·           | 13.72                 |

## RESPONSES OF THE COMMUNITY COLLEGES TO

## THE LEADERSHIP OPINIONNAIRE

| Colleges  | Λ  | В | С   | D | E | F   | G | Н        | J | К |
|-----------|----|---|-----|---|---|-----|---|----------|---|---|
| Variables |    |   |     |   |   |     |   | <u> </u> |   |   |
| 27        | 5  | 5 | 4   | 4 | 5 | 5   | 5 | 5        | 4 | 5 |
| 28        | 4  | 5 | 4   | 4 | 5 | 5   | 5 | 5        | 4 | 4 |
| 29        | 2  | 2 | 2   | 3 | 5 | 4   | 4 | 5        | 2 | 4 |
| 30        | 1  | 3 | 1   | 2 | 4 | 2   | 2 | 2        | 1 | 3 |
| 31        | 1  | 5 | 4   | 2 | 5 | 4   | 2 | 4        | 4 | 5 |
| 32        | 3  | 5 | 4   | 3 | 3 | 2   | 4 | 5        | 2 | 4 |
| 33        | Ц  | 4 | 4   | Ц | 4 | 4 - | 4 | · 4      | 4 | 5 |
| 34        | 4  | 5 | 4   | 2 | 5 | 4   | 4 | 4        | 5 | 5 |
| 35        | 4  | 5 | 4   | 4 | 5 | 4   | 4 | 4        | 5 | 5 |
| 36        | 5  | 2 | 4   | 4 | 5 | 5   | 5 | 5        | 4 | 5 |
| 37        | 2  | 5 | 4   | 4 | 4 | 3   | 2 | 4        | 3 | 4 |
| 38        | 4  | 5 | . 4 | 5 | 5 | 4   | 4 | 5        | 2 | 5 |
| 39        | 4  | 2 | 3   | 3 | 4 | 5   | 4 | 4        | 4 | 4 |
| 40        | 4  | 2 | 4   | 4 | 4 | 5   | 2 | 2        | 2 | 4 |
| 41        | 11 | 5 | 4   | 4 | 4 | 3   | 4 | 4        | 4 | 4 |
| 42        | 4  | 5 | 4   | 4 | 4 | 5   | 5 | 4        | 4 | 5 |
| 43        | 4  | 3 | 4   | 4 | 5 | 5   | 5 | 2        | 2 | 5 |
| 44        | 5  | 4 | 3   | 2 | 5 | 3   | 4 | 2        | 2 | 3 |
| 45        | 3  | 4 | 3   | 4 | 4 | 4   | 2 | · 4      | 2 | 3 |
| 46        | 2  | 1 | 3   | 4 | 3 | 3   | 3 | 4        | 4 | 3 |
|           |    |   |     |   |   |     |   |          |   |   |

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## APPENDIX F

## CORRELATIONS BETWEEN ALL VARIABLES USED IN THIS STUDY

|  |   | 1,0000<br>0,0000<br>-0,47307<br>-0,10007<br>0,70414<br>0,31000               | 0,0000<br>0,7000<br>0,0000<br>0,0000<br>0,0000<br>0,0000   | 1,0000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000000 |  | 1,00000<br>-0,19569<br>-0,19569  | 1.01901  | 1.0000  |   |  |   |
|--|---|--|--|---|--|--|--|---|---|--|---|
| 10 11 17 14 14                               |   | 0,2000<br>0,70791<br>-0,20396<br>-0,20396<br>-0,47989<br>0,32035<br>-0,32035 |  | 8,27384<br>-8,28948<br>-8,71998<br>8,38811<br>8,77462<br>-8,18374<br>1,18374  | 0.21707<br>0.08037<br>-0.28231<br>0.00401<br>0.15374<br>-0.1804  | -0,91049<br>-0,15499<br>0,11498<br>-0,33144<br>-0,23144<br>-1,24393<br>0,78979<br>-0,29413 | 8,27499<br>8,64644<br>-6,01843<br>8,22009<br>0,3101<br>-0,09923<br>-0,2517 | -+,21922<br>-+,47992<br>-9,12876<br>-1,87379<br>+,77221<br>-0,00118<br>-1,129 | 1,0000<br>0,29410<br>-0,50476<br>0,64319<br>0,19461<br>-0,09092<br>-0,97344             | 1,90000<br>0,27000<br>0,05632<br>-0,06485<br>-0,06485<br>-0,08647            | 1.00000<br>-0,40940<br>-0,37120<br>-0,35136<br>-0,35136                   |
| 14 17 18 19                                  | 8.8788<br>8.8884<br>8.8844<br>8.8844<br>8.8844<br>8.8844<br>8.8844<br>8.8844  | -2,14441<br>-9,31439<br>-3,67269<br>6,54527<br>-3,28799                      | 8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,8888<br>8,88888<br>8,8888<br>8,88888<br>8,88888<br>8,8888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,888888<br>8,888888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,88888<br>8,888888<br>8,888888<br>8,88888<br>8,888888<br>8,8888888<br>8,888888<br>8,888888 | \$,02454<br>-4,23211<br>-4,01923<br>-0,42060<br>\$,32179  | -9,92339<br>9,93644<br>-9,23210<br>9,31154<br>9,31154  | 0,11588<br>-0,95672<br>-0,10578<br>0,22121<br>-0,56237                                     | 0,12596<br>0,21030<br>-0,64003<br>0,24404<br>0,42240                       | 9,24884<br>-8,47361<br>-8,83629<br>-8,91988<br>-8,12431                       | -8,87988<br>6,21076<br>-8,48951<br>8,32973<br>8,45346                                   | 8,96925<br>8,93677<br>-9,59989<br>8,96281<br>8,96281<br>8,96494              | 8,19749<br>8,49736<br>8,31998<br>8,19392<br>8,19392<br>8,19392            |
| 21<br>27<br>23<br>24<br>25<br>24             | 0,8100<br>0,63849<br>0,81040<br>0,00080<br>0,00080<br>0,01040<br>0,01040      | 6,28490<br>0,59137<br>0,34907<br>0,49125<br>8,3795A<br>0,25378               | *. *****<br>*. *****<br>*. *****<br>*. *****   | -0,20202<br>-0,30202<br>0,16203<br>0,02000<br>0,12644<br>-0,21780   | 0,25031<br>0,25030<br>0,30624<br>0,17990<br>0,43156<br>0,32973   | 0,70003<br>0,70010<br>0,12572<br>0,33464<br>0,34024<br>0,26063                             | 0,02202<br>0,30437<br>0,17978<br>0,20101<br>0,40249<br>0,40249             | -0.30007<br>-0.04954<br>0.13545<br>0.00393<br>0.03390<br>-0.46926             | 8,24972<br>8,24977<br>8,43475<br>8,43475<br>8,45475<br>8,45487                          | 0,46978<br>0,16081<br>0,76031<br>0,44712<br>0,14264                          | -0,10801<br>-0,20409<br>-0,20200<br>-0,20200<br>-0,20105<br>0,01135       |
| 27<br>25<br>29<br>30<br>31                   | 8,94646<br>6,94666<br>8,94666<br>8,94666<br>8,94666<br>8,94666<br>8,94666     | 8,71427<br>-8,78888<br>8,42188<br>8,31887<br>-8,14744                        |  | -0,20007<br>0,02768<br>-0,54100<br>-0,10775<br>0,10775<br>0,19780   | 0,40256<br>0,46030<br>0,07444<br>0,03441<br>0,03441<br>0,03441   | 0,31500<br>-0,00114<br>-0,00194<br>0,20307<br>0,10400                                      | 0,2*347<br>-0,2*5**<br>0,5*243<br>0,0*340<br>-0,0*340                      | -0,40298<br>-0,43679<br>-0,77929<br>-0,29971<br>0,18269                       | \$ \$1022<br>\$ \$9999<br>\$ \$4749<br>\$ \$4749<br>\$ \$4208<br>\$ \$4208<br>\$ \$4208 | 5,531,54<br>+5,52594<br>6,46524<br>0,16479<br>+5,24398                       | 0,25727<br>-0,00000<br>0,14905<br>-0,16104<br>-0,16104<br>-0,26601        |
| 13<br>4<br>34<br>34<br>34<br>34<br>34<br>37  | 0,81840<br>0,01849<br>6,04849<br>0,04849<br>0,04849<br>0,04849                | 0,33333<br>-0,22942<br>0,6030F<br>0,43444<br>4,16847                         | 0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000<br>0.0000   | -0,21703<br>0,17740<br>0,33194<br>-0,77053<br>0,20900   | 8,44306<br>6,69184<br>8,89491<br>8,12669<br>*8,82872   | 0,05312<br>0,10207<br>0,0123<br>0,07611<br>0,23071   | 0,78997<br>8,38426<br>0,36945<br>0,28290<br>-0,27814                       | -0,19269<br>0,22007<br>0,38600<br>-0,60337<br>0,30342                         | 8,16467<br>8,11471<br>8,49875<br>-9,89455<br>8,87116                                    | 0,40084<br>9,99649<br>-0,01149<br>0,42894<br>-0,51584                        | 8,83644<br>8,10499<br>-8,34176<br>-8,62948<br>-8,62944                    |
|  | 8.87849<br>8.85848<br>9.85848<br>5.87878<br>5.87878<br>8.87878<br>8.87878     | 0.12504<br>0.12504<br>0.27273<br>0.56f0L<br>-0.40525<br>0.00405              | 0,0000<br>0,0000<br>0,0000<br>0,0000<br>0,0000<br>0,0000<br>0,0000   | -0,44397<br>-0,54490<br>0,45174<br>0,14251<br>-0,49476  | 0,30493<br>-0,41564<br>-0,15219<br>8,70264<br>-0,00001   | -6,84483<br>6,75447<br>9,82817<br>-7,27781<br>4,19716                                      | 0.31113<br>-0.10999<br>0.02403<br>0.29401<br>-0.01349                      | -0,48788<br>-0,19898<br>F,48446<br>-0,28324<br>-8,68581                       | 0,12004<br>-0,31010<br>0,90000<br>0,46075<br>-0,94402                                   | 0,40314<br>6,83889<br>-0,30993<br>0,40444<br>0,31293                         | 8,47467<br>9,27530<br>9,37771<br>9,07101<br>8,07101<br>8,57730            |
| 43<br>44<br>47<br>41                         | 0,07070,0<br>0,07070,0<br>0,04070,0<br>0,04070,0<br>1                         | -0,70007<br>0,38411<br>-0,15617<br>0,37053<br>0,36236<br>2                   | 0,00050<br>0,00050<br>0,00050<br>0,00050<br>0,00050<br>3   | -0,01101<br>0,04775<br>-0,03531<br>-0,12240<br>4  | 0,01201<br>0,01201<br>0,01666<br>0,01666<br>0,01666<br>0,0160<br>0,0100<br>0,0100<br>0,0100<br>0,01001<br>0,01001<br>0,01001<br>0,01001<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,01201<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,0100<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000<br>0,000000 | 0,54390<br>-0,48561<br>0,37902<br>3,34999  | -0,41394<br>-0,41394<br>-0,07526<br>0,34527<br>0,26627<br>7                | -0,2439<br>-0,04499<br>-1,39833<br>-1,16373<br>-9,24494<br>4                  | \$,19294<br>6,42476<br>8,92927<br>4,93422<br>9  | -0,31101<br>-0,28409<br>0,38807<br>0,33104<br>10                             | .0,47479<br>.8,84137<br>.0,20060<br>.0,19470<br>11                        |
| 17<br>13<br>14<br>19                         | 1.61040<br>0.13503<br>-0.07046<br>0.14459<br>-0.33677                         | 1,80664<br>-0,26065<br>0,86963<br>0,52423                                    | 1,00000<br>-0,16775<br>-0,10526  | 1,00000<br>-9,10461<br>-0,72613   | 1,00000  | 1.00000  |  |   |   |  |   |
| 18<br>19<br>20<br>21<br>22                   | -0,01439<br>-0,21049<br>0,20540<br>-9,20179<br>-0,65044                       | +0.13931<br>-0.32757<br>0.27396<br>-0.19934<br>0.73083                       | -0,25001<br>0,34130<br>-0,54309<br>0,17917<br>0,54851  | 8,89976<br>-6,76798<br>-6,82885<br>-8,75173<br>-8,69374   | -8.27788<br>8.41477<br>8.41477<br>8.41675<br>8.43176<br>8.44828  | 8,22434<br>8,14631<br>9,38455<br>9,38767<br>-9,18752<br>-1,18752                           | 1,0401<br>-0,40437<br>-0,13014<br>-0,47708<br>-0,74799                     | 1,0800<br>-9,83796<br>0,72007<br>0,77882<br>0,77882                           | 1,86888<br>-8,89748<br>-8,89169<br>-8,24874   | 1,00060<br>0,71931<br>0,38907  | 1:07910   |
| 24 25 24 27 28                               | -\$,48476<br>8,14293<br>8.57548<br>6,25215<br>6,37897                         | C,11714<br>0,27547<br>-0,24254<br>-0,24254<br>-0,2020<br>-6,20401            | 0,44731<br>0,93854<br>0,48359<br>0,34694<br>8,845931   | -0,01144<br>-0,00000<br>-0,05901<br>-0,41250<br>0,09950   | 0,41419<br>0,42775<br>-0,16569<br>-0,07410<br>-0,16241   | -\$,27257<br>-\$,71273<br>8,82567<br>8,42537<br>8,3264<br>8,36648                          | -0,79450<br>-0,72655<br>-0,06394<br>-0,10947<br>0,14116                    | 8.74748<br>8.47773<br>9.31272<br>9.94922<br>8.31474                           | 0,64191<br>-0,01099<br>0,19244<br>0,07214<br>0,11193<br>0,11193                         | 0,47849<br>9,59819<br>0,46483<br>0,69311<br>0,18837<br>0,25187               | 1,84088<br>9,91839<br>8,88264<br>8,67982<br>6,29674<br>8,42384            |
| 177<br>31<br>37<br>37<br>34                  | 8,31775<br>8,51775<br>8,67843<br>8,67843<br>8,84493<br>8,27531                | -C.94495<br>8.39719<br>-C.74200<br>6.11445<br>6.54517                        | 0,47875<br>0,19697<br>1,83763<br>9,24389<br>-8,12181   | -8,12637<br>9,31943<br>8,33967<br>-9,39641<br>8,01141   | -0.25000<br>0.27357<br>-0.07532<br>0.14640<br>0.46640  | -0,01498<br>-0,37654<br>0,08989<br>0,02078<br>-0,35783                                     | -0,20344<br>6,4494<br>0,39177<br>-0,28772<br>-0,28772<br>-0,2864           | 0,20346<br>-0,10999<br>-0,30711<br>0,03345<br>-0,13186                        | 8,20748<br>8,22128<br>-8,13287<br>6,22674<br>8,25888<br>8,5588                          | -0,04140<br>-0,27325<br>-0,16781<br>0,22048<br>0,10229                       | 0,34449<br>9,89444<br>0,19444<br>8,19441<br>8,24,50<br>8,24,50<br>8,21834 |
| 37<br>34<br>37<br>39<br>37<br>39<br>40       | 0.41172<br>0.41172<br>0.33945<br>0.33945<br>-1.33945                          | -,43938<br>-,43938<br>-,43938<br>-,43991<br>-,4319<br>-,74319<br>-,21689     | -9,06402<br>9,42439<br>8,60321<br>-9,11976<br>9,63547  | -8,62949<br>8,48967<br>-9,81186<br>-0,62427<br>-0,14473   | 0.47313<br>-0.23370<br>-0.50833<br>6.47647<br>0.29012  | 0,33796<br>-0,60797<br>-0,00786<br>0,32961<br>-0,22040                                     | -0.3460<br>0.11790<br>-0.41370<br>-0.42064<br>-0.42064                     | 0.73190<br>-0.34441<br>0.20845<br>0.76995<br>0.37905                          | 1.147323<br>-1.14774<br>-1.14774<br>-1.14734<br>-1.14734<br>-1.43843                    | 0.63045<br>-0.97012<br>0.00223<br>0.72740<br>1.10471<br>-0.4794              | 8,34815<br>-2,87844<br>8,85541<br>8,45984<br>9,16777<br>-5,16379          |
| 173444                                       | 8.37439<br>-8.28174<br>8.23157<br>8.17791<br>8.67734                          | 0,30010<br>0,30714<br>-0,53230<br>-0,24697<br>-0,31287<br>0,74117            | 0,00174<br>0,37914<br>0,14004<br>0,70001<br>-0,20077   | -0,06003<br>-0,20150<br>0,24076<br>0,11466<br>0,27926   | -0,17408<br>-0,13844<br>-0,28982<br>-0,12848<br>-0,12848<br>-0,12848   | 8,68271<br>8,43636<br>9,27434<br>-0,46463<br>-0,27851                                      | 8,20741<br>0,19614<br>0,34347<br>-0,12449<br>-0,12449<br>-0,94072          | -8,01041<br>9,31467<br>-0,04310<br>6,32594<br>-9,76727                        | 0,33340<br>0,10781<br>0,46119<br>-0,61401<br>0,07834                                    | 8,27819<br>6,26788<br>-8,21349<br>-8,21349<br>-8,2336<br>-8,5336<br>-8,52481 | 6,04030<br>6,02044<br>-0,02195<br>0,43175<br>-1,1049                      |
| 47 44 11 14 14 14 14 14 14 14 14 14 14 14    | 6.31895<br>6.39697<br>12<br>1.85893<br>8.47695<br>8.64959                     | 0,00114<br>-1,20707<br>13<br>1,0000  | \$; <b>\$9</b><br>14<br>1.01010  | -9,27314  | 0.17259<br>10  | -0,09984<br>17   | -0,44197<br>10   | 8, <b>5699</b><br>19  | 8,00481<br>28   | 0,30784<br>Fl  | 8,78778<br>88   |
| ***  | 0,02178<br>0,07953<br>3,11399<br>0,37675<br>-0,60394<br>0,10961               | 0,17253<br>0,17253<br>0,17253<br>0,17253                                     | 6,97248<br>6,87176<br>8,49371<br>8,49783<br>8,49783<br>8,84444   | 8,48447<br>8,57434<br>8,70384<br>8,71322<br>8,67944   | 1,89899<br>9,99445<br>8,33294<br>8,33294<br>8,33291<br>8,3291<br>8,32976   | 1,80088<br>8,58951<br>9,53868<br>8,29486   | 1,80000<br>9,50010<br>8,80075  |   | <u>}-::!!!</u>  |  |   |
| 32<br>33<br>34<br>35<br>34<br>35<br>34<br>37 | •2.14442<br>-0.63733<br>-0.68646<br>-0.04434<br>8.38874<br>8.38874<br>8.68785 | -0,40734<br>-0,01408<br>0,20763<br>0,31049<br>0,27561<br>0,06563             | -0,23309<br>0,82042<br>0,85692<br>0,80730<br>0,20176<br>0,12009  | 6,42247<br>6,39034<br>6,40078<br>6,11437<br>6,47783   | 0,21322<br>0,41350<br>1,00007<br>0,20571<br>-0,11535   | -,33733<br>,22942<br>,0000<br>,0000<br>,1000<br>,10047                                     | \$,1705;<br>0,03644<br>-0,03430<br>0,63430<br>0,63403<br>0,04567           | ,31888<br>,34445<br>,56757<br>-1,14626<br>,51738                              | 8,34483<br>8,49948<br>8,49972<br>-8,27348<br>8,71445                                    | 0.10249<br>0.11174<br>0.00000<br>-0.21944<br>0.00000<br>0.00000<br>0.00000   | 1,85548<br>5,35507<br>6,45825<br>6,21823<br>6,21823<br>6,21823            |
| 14 44 47 47                                  | -0,64177<br>0,45398<br>-0,65145<br>-0,35774<br>-0,37720<br>-0,51491           | 8,10293<br>8,47194<br>8,19635<br>-8,26974<br>-8,69488<br>-8,93871            | 0,17537<br>0,43815<br>0,20622<br>-0,22492<br>1,23564<br>0,68823  | 0,07432<br>0,07490<br>0,1842 <u>1</u><br>0,02907<br>0,43434<br>0,44101  | 0,4895<br>0,68734<br>-5,81984<br>6,0000<br>0,53492<br>5,82662  | 0,3233<br>0,19894<br>-0,27273<br>0,00080<br>0,40825<br>0,48855                             | \$,52539<br>0,00422<br>-\$,37642<br>0,13753<br>0,13753<br>0,131953         | -9,89984<br>8,66749<br>8,73787<br>8,34619<br>8,34619<br>8,34844               | -0,11387<br>-0,07242<br>0,14489<br>9,24977<br>-9,99887                                  | -0,96988<br>-0,40709<br>0,69469<br>0,19988<br>-0,2988                        | 8,19884<br>8,81818<br>8,89880<br>8,49889<br>8,49889<br>8,49889            |
| 44<br>45<br>44<br>47<br>44                   | -3,52405<br>9,33459<br>9,33949<br>9,45678<br>8,34953<br>8,34953<br>83         | 0,49477<br>0,41497<br>0,41495<br>0,79383<br>0,69863<br>24                    | -0,00932<br>8,44054<br>-8,00014<br>0,93421<br>0,44957<br>25  | 0,52161<br>-0,01043<br>0,76102<br>0,67396<br>24   | \$,43844<br>\$,25146<br>-0,37485<br>\$,6788/<br>\$,6788/<br>\$,09924<br>27   | 0,0000<br>0,30421<br>0,15417<br>0,43494<br>0,49994<br>20                                   | 8,33426<br>6,33426<br>9,01315<br>9,50306<br>8,60130<br>87                  | 0.74200<br>6.98214<br>0.11588<br>0.76853<br>0.40876<br>30                     | 0,30305<br>0,34043<br>0,54641<br>0,61531<br>71  | 0,10743<br>0.23441<br>-0.02101<br>0.08592<br>32                              | -9,19884<br>-9,19897<br>8,41978<br>8,41978<br>8,43999<br>83               |
| ***  | 1,88908<br>8,74027<br>-0.14013<br>8,12442<br>-0,20303<br>8,07412              | 1,0000<br>-0,35435<br>0,44201<br>-0,04534<br>-0,2000                         | 1.0000<br>-0.99173<br>-0.02425<br>0.02425  | 1,88488<br>8,54733<br>-8,62494  | 1,00000<br>-0,20075  | 1,00000  | 1.47400  |   |   |  |   |
| ****   | • , 27113<br>• , 25449<br>• , 26070<br>• , 60600<br>• , 45083<br>• , 23499    | 0,45444<br>0,14447<br>0,14703<br>0,44425<br>-0,05237                         | -0,73103<br>-0,13443<br>0,42269<br>-0,10911<br>-0,16744  | 8,40507<br>0,0000<br>-0,23079<br>0,21693<br>0,24494   | 0,44849<br>0,18144<br>0,88283<br>0,48333<br>0,48333<br>0,78554   | -0,05000<br>0,05227<br>0,30437<br>-0,12004<br>-0,18004<br>-0,18033                         | -6,63984<br>-8,83711<br>9,64434<br>4,69900<br>0,34693<br>4,59271           | 1,88887<br>8,00000<br>-3,30375<br>8,22361<br>8,0000<br>8,24927                | 1.00000<br>0.43133<br>0.40025<br>-0.05227<br>-0.05227                                   | 1.00000<br>0.90027<br>0.03382<br>-0.04627                                    | 1,88888<br>8,13894<br>-1, <u>13994</u>                                    |
|  | *7,16749<br>8,48763<br>8,43989<br>54<br>1,88688<br>8,21996                    | 1,10000  | 0,19689<br>0,18267<br>36   | 4,89114<br>6,37969<br>37  | 0,02376<br>0,92007<br>48   | 0,55955<br>0,24947<br>39   | 6,82817<br>6,82871<br>49   | -7,17477<br>-7,19437<br>-1,19437<br>-1  | 0,39891<br>0,39990<br>48  | 0,1 <b>00</b> 01<br>0,27267<br>41  | 8,27685<br>8,41741<br>44  |
| 47   | 8.54183   | -+,  | 1:44437  | 1,00000   |  |  |  |   |   |  |   |