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Study of the Electronic Substituent Effects on the Homogeneous Isomerization of Substituted Phenylcyclopropanes with Rh(I) Catalysts

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NORTHERN MICHIGAN UNIVERSITY

AN EVALUATION OF THE GEOGRAPHY PROGRAM AT
MICHIGAN TECHNOLOGICAL UNIVERSITY BASED ON
AN ANALYSIS OF THE ATTITUDES OF SELECTED GRADUATES

ED 600 FIELD PROJECT
ROBERT CLYDE STINSON

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ABSTRACT

The geography program at Michigan Technological University serves the primary function of providing a general liberal educational component to the technological education of the students at the university. This study investigates the effectiveness of the geography program in meeting the professional/vocational needs and goals of the five principal academic disciplines within the university. The study was accomplished by means of a questionnaire surveying the attitudes and opinions of selected graduates of the university. No significant variation was found between the responses of graduates of the various academic disciplines. The geography program, as measured by the attitudes of recent university graduates, appears to be serving the needs and goals of its student body, regardless of academic discipline. The study also revealed areas where improvement of instruction might be undertaken and identified potential areas for new course development.

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TABLE

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8. By taking geography courses, I have been able to utilize more effectively the knowledge gained from my academic major in my present occupation.
9. By taking geography courses, I have been able to understand the effect of my profession on spatial relationships and upon my environment.
10. I do not believe that the study of geography has contributed to my professional life.
11. By taking geography courses, I have been able to better understand the relationships to and the implications of my major studies to my other studies.
12. I have not observed any relationship between the geography courses which I have taken and the courses in my academic major.
13. By taking geography courses, I believe that my college education has become more relevant to everyday life.
14. By taking geography courses, I have achieved a more rounded, liberal education.
15. By taking geography courses, I have become more interested and involved in environmental issues.
16. By taking geography courses, I have become more aware of my environment and better understand the area in which I live.
17. The geography courses which I took at Michigan Tech were too fact oriented.
18. The geography courses which I took at Michigan Tech were not relevant to the everyday problems and situations which I encounter in my occupation.

Tables, continued

19. I feel that the geography courses at Michigan Tech should be tailored more to the specific needs of my major field, rather than to the goal of a general liberal education.
20. There should be more geography courses at Michigan Tech which deal with specific topics, such as urban or environmental studies.
21. There should be more geography courses at Michigan Tech which deal with specific regions of the world.

INTRODUCTION

The purpose of this Field Project was to analyze the geography program at Michigan Technological University. This topic is of educational importance to the university because of the role of the geography program as a supplement to the technological orientation of education at Michigan Technological University. The University Role Statement declares that:

"The University has now a special opportunity to develop a program which supplements the technological orientation of the University and contains within the liberal arts programs many underlying and inter-related elements of the technology of modern society. Today's engineers and scientists need to know more than science and mathematics. They need to know how our society operates and how to communicate their ideas to others. Science and humanities are not separate and opposing entities; they are complementary." ¹ "In the degree programs this will mean new courses and curricula. Greater emphasis will be placed on courses to quicken the economic, political, and social awareness of the graduating engineer." ²

The department of Social Science was to review its programs, including geography, during the 1976-77 academic year. This field project will be a valuable resource in evaluating the role of this department in meeting the goals of the University.

The only known attempt to evaluate the geography program at Michigan Technological University within the past eight years, was a survey undertaken during the 1974-75 academic year. This was a survey of students enrolled in all social science courses, as to their relative interest in existing and proposed courses in geography. This survey failed to address the question of program evaluation, being inherently a survey of only currently enrolled students and seeking only opinions on course preferences. To evaluate the effectiveness of the geography program, the attitudes and opinions of graduates who have taken geography courses must be surveyed and evaluated.

In the University's Role Statement, it states:

"Michigan Technological University has a unique character. Having been founded as Michigan's answer to the need for trained mining engineers and metallurgists, being situated in the historic Copper Country, and emphasising education required by today's technology and related areas, all point to the uniqueness of this institution in the State's system of higher education." ³

The administration of Michigan Technological University has always maintained that, as a technological institution, our students' needs are different than those of students in general liberal educational institutions. The student body at Michigan Technological University is divided among five major curricular areas, with engineering students comprising nearly one half of the student population.

Accordingly, the focus of this Field Project was to investigate the extent to which the geography program contributes to helping students meet their professional/vocational needs and goals.

A review of the literature of curriculum evaluation proved to be disappointingly brief. Most curriculum evaluation has been done at the public school level. Curriculum evaluation in higher education has generally involved the entire curriculum of a particular college or department. There appears to have been little evaluation of a particular undergraduate discipline such as has been done in this paper.

Cohen, Rose, and Trent in their article "Teaching Technology and Methods", (Travers, 1973) ⁴ note that most attempts at curriculum study are merely notations of trends and/or descriptions of what is being done in various colleges and universities. They go on to state that these studies:

"...ignore the relationship of the trend to the goals of the college or the relative effectiveness of the curriculum have been undertaken." ⁵

The authors further note that there have been few attempts to measure the actual impact of a particular curriculum. They note a 1960 study by Fahey and Ball ⁶ of a general education program at the University of Pennsylvania and a 1960 study by Brinker ⁷ of liberal arts students at four colleges in the southwest.

More recently doctoral candidates at various universities have been studying the effectiveness of various curricular programs, mostly graduate programs in education. A doctoral dissertation at the University of Wisconsin, using an investigative technique similar to the one used in this paper, evaluated the Ph.D. program in Educational Administration (Thompson, 1970); while at Indiana

University a doctoral candidate has similarly evaluated the Master's Degree program in College Student Personnel Administration (Montgomery, 1971). Using the same research technique at Michigan State University, a doctoral candidate evaluated the Specialist and Doctoral programs in Educational Administration (Nigro, 1973). On the undergraduate level, a doctoral dissertation at the University of Pittsburgh evaluated an undergraduate program in liberal education (Bender, 1969). These four dissertations involved the technique of analyzing the preceptions of recent graduates, obtained through the distribution of a questionnaire, as an integral part of the evaluation of those programs.

In the discipline of geography in undergraduate higher education, a doctoral candidate at the University of Colorado made one of the few attempts at evaluation with a study of an innovative geography program through item sampling procedures (Richburg, 1971). This study did not, however, evaluate the whole geography program. The only other significant dissertation on geography in undergraduate general education is from the University of Denver (Terry, 1957) but is quite dated in its conclusions.

It appears that while considerable evaluation of specific programs is ongoing in other fields, evaluation of specific geography programs, as has been attempted in this paper, has not been forthcoming.

THE PROBLEM

It is possible that the geography program at Michigan Technological University is not adequately meeting university goals and student needs, therefore, an appraisal by graduates can offer valuable suggestions for improvements in existing programs. This research thus attempts to evaluate the geography programs at Michigan Technological University by surveying the attitudes of graduates toward the contributions that their course work in geography has made toward the graduate's attainment of professional/vocational goals. This project attempts:

(1) to determine the success of the current geography program in meeting the professional/vocational needs of students in each of the five major curriculum areas,

(2) to evaluate specific courses for their success in meeting the students' needs in each curriculum area,

(3) to identify areas where geography may develop new courses to meet or assist students in fulfilling professional/vocational needs, and

(4) to evaluate the role of geography in preparing the student for participation as a citizen in the community.

This research will serve the Department of Social Science in its review of department curricular programs during the 1976-77 academic year. It will also enable the Department to plan future curriculum development and thus enable the Department to better

serve the student body with its varied career orientations.

DESIGN AND METHODOLOGY

The focus of this study was the Geography Program at Michigan Technological University. Graduates who had taken two or more courses in geography at Michigan Technological University and graduated between 1970 and 1974, inclusively, were surveyed. Their responses were analyzed to ascertain what the strengths of the programs were, and to suggest where weakness existed and how they could be corrected. The design of the study was constructed around a questionnaire. Recipients of the questionnaire were graduates of Michigan Technological University, holding the B.S. or B.A. degree. The sample population was selected from each of the five major curricular areas; engineering, science/math, liberal arts, business administration, and forestry.

TABLE 1

| | <u>SAMPLE POPULATION</u> | | | | | |
|-----------|--------------------------|-------|-------|-------|-------|-------|
| | 70 | 71 | 72 | 73 | 74 | Ave. |
| Engineers | 358 | 396 | 323 | 279 | 336 | 338.4 |
| | .4431 | .4151 | .3887 | .3200 | .3537 | .3832 |
| Science | 121 | 176 | 129 | 152 | 161 | 147.8 |
| Math | .1498 | .1845 | .1552 | .1743 | .1695 | .1674 |
| Business | 105 | 142 | 166 | 175 | 169 | 151.4 |
| Admin. | .1300 | .1488 | .1998 | .2007 | .1779 | .1715 |

| | 70 | 71 | 72 | 73 | 74 | Ave. |
|--------------|-------|-------|-------|-------|-------|-------|
| Liberal Arts | 137 | 174 | 158 | 171 | 168 | 161.6 |
| | .1696 | .1824 | .1901 | .1961 | .1768 | .1830 |
| Forestry | 87 | 66 | 55 | 95 | 116 | 83.8 |
| | .1077 | .0692 | .0662 | .1089 | .1221 | .0949 |
| Total | 808 | 954 | 831 | 872 | 950 | 4415 |

The construction of the questionnaire was accomplished by an intensive review of the literature, centering on similar or related studies done at other institutions.

DELIMITATIONS OF THE STUDY

The questionnaire was sent only to graduates (B.A. & B.S.) between 1970-1974. The beginning year allowed for a stable geography program during the recipient's academic life and for a sufficiently large population. The study was limited to those who had taken two or more geography courses at Michigan Technological University. The questionnaire was a factorial design, which makes no pretense of being representative of the total student population in the university.⁸ The appraisal of the geography program was limited to those items in the questionnaire, and was not comprehensive of all possible items. The study assumed that all answers were sincere and forthright.

THE STUDY

The primary instrument was a questionnaire completed by every respondent. Completed questionnaires provided data about each respondent in two basic areas: biographical data, attitudes and interests,

and perceptions of the effectiveness of the geography program in meeting professional/vocational needs. Biographical data were collected on academic major, sex, current employment status, continuing educational effort, and date of matriculation. Table 2 shows the academic major of the respondents.

TABLE 2

ACADEMIC MAJOR

| | |
|-----------------|----------|
| Engineering | 34 |
| Science/Math | 15 |
| Business | 17 |
| Liberal Arts | 17 |
| <u>Forestry</u> | <u>8</u> |
| Total | 91 |

The distribution of survey respondents reflects the average enrollment by major given in Table 1. Table 3 gives the Sex of respondents.

TABLE 3

SEX OF RESPONDENTS

| | Male | Female |
|-----------------|----------|----------|
| Engineering | 33 | 1 |
| Science/Math | 12 | 3 |
| Business | 15 | 2 |
| Liberal Arts | 8 | 9 |
| <u>Forestry</u> | <u>8</u> | <u>0</u> |
| Total | 76 | 15 |

Table 4 indicates the graduates' current employment status in relation to the field of their academic training.

TABLE 4

CURRENTLY EMPLOYED IN FIELD OF MAJOR ACADEMIC TRAINING

| | yes | no |
|--------------|-----|----|
| Engineering | 29 | 5 |
| Science/Math | 9 | 6 |
| Business | 12 | 5 |
| Liberal Arts | 5 | 12 |
| Forestry | 6 | 2 |
| Total | 61 | 30 |

Table 5 sought information on whether or not the graduates had undertaken graduate studies at another institution.

TABLE 5

HAVE YOU TAKEN GRADUATE STUDIES AT ANOTHER SCHOOL?

| | yes | no |
|--------------|-----|----|
| Engineering | 7 | 27 |
| Science/Math | 6 | 9 |
| Business | 1 | 16 |
| Liberal Arts | 5 | 12 |
| Forestry | 3 | 5 |
| Total | 22 | 69 |

Table 6 indicates the year of graduation for the respondents.

TABLE 6

| | <u>YEAR OF GRADUATION</u> | | | | |
|-----------------|---------------------------|----------|----------|----------|----------|
| | 1970 | 1971 | 1972 | 1973 | 1974 |
| Engineering | 6 | 7 | 5 | 5 | 11 |
| Science/Math | 0 | 3 | 3 | 2 | 7 |
| Business | 2 | 3 | 2 | 4 | 6 |
| Liberal Arts | 2 | 0 | 3 | 5 | 7 |
| <u>Forestry</u> | <u>2</u> | <u>1</u> | <u>0</u> | <u>1</u> | <u>4</u> |
| Total | 12 | 14 | 13 | 17 | 35 |

In addition to biographical data, the questionnaires also sought data on attitudes of the graduate, as related to the role and value of their geography course experience. Responses were subjected to an analysis of variance to determine if there was a difference in response between groups. The analysis showed no significant difference between any of the groups on any question. The results of the Analysis of Variance is presented in Table 7.

TABLE 7

F TEST
ALL GROUPS

Significant over 2.52 at .05 level

| | | | | | |
|-------|---------|------|----|--------------------|--------------------|
| No. 1 | Between | 2.9 | 4 | .725 .985 x | .7360406 x x |
| | Within | 84.7 | 86 | | |
| | Total | 87.6 | 90 | | |
| No. 2 | Between | 6.3 | 4 | 1.575 .924 x | 1.705 x x |
| | Within | 79.5 | 86 | | |
| | Total | 85.8 | 90 | | |
| No. 3 | Between | 4.0 | 4 | 1.0 .853 x | 1.172 x x |
| | Within | 73.4 | 86 | | |
| | Total | 77.4 | 90 | | |
| No. 4 | Between | 1.5 | 4 | .375 .921 x | .407 x x |
| | Within | 79.2 | 86 | | |
| | Total | 80.7 | 90 | | |
| No. 5 | Between | 7.0 | 4 | 1.75 .966 x | 1.812 x x |
| | Within | 83.1 | 86 | | |
| | Total | 90.1 | 90 | | |
| No. 6 | Between | 3.9 | 4 | .975 .567 x | 1.720 x x |
| | Within | 48.8 | 86 | | |
| | Total | 52.7 | 90 | | |

| | | | | | |
|--------|---------|-------|----|-------|-------|
| No. 7 | Between | 6.8 | 4 | 1.7 | 2.208 |
| | Within | 66.2 | 86 | .770 | x |
| | Total | 73.0 | 90 | x | x |
| No. 8 | Between | 4.4 | 4 | 1.1 | 2.450 |
| | Within | 38.6 | 86 | .449 | x |
| | Total | 43 | 90 | x | x |
| No. 9 | Between | 5.1 | 4 | 1.275 | 2.154 |
| | Within | 50.9 | 86 | .592 | x |
| | Total | 56 | 90 | x | x |
| No. 10 | Between | 2.3 | 4 | .575 | .745 |
| | Within | 66.4 | 86 | .772 | x |
| | Total | 68.7 | 90 | x | x |
| No. 11 | Between | 4.4 | 4 | 1.1 | .474 |
| | Within | 199.4 | 86 | 2.319 | x |
| | Total | 203.8 | 90 | x | x |
| No. 12 | Between | 8.5 | 4 | 2.125 | 2.089 |
| | Within | 87.5 | 86 | 1.017 | x |
| | Total | 96 | 90 | x | x |
| No. 13 | Between | 2.4 | 4 | .6 | 1.141 |
| | Within | 45.2 | 86 | .526 | x |
| | Total | 47.6 | 90 | x | x |
| No. 14 | Between | 2.9 | 4 | .725 | .948 |
| | Within | 65.8 | 86 | .765 | x |
| | Total | 68.7 | 90 | x | x |

Since it was felt that there might be a difference in response between those graduates which were employed in their major field and those that were not, an analysis of variance was performed for each academic major. No significant difference was found. The results of the analysis of variance

for each group is presented in the appendix.

The graduates were asked to indicate their reaction to various statements concerning the geography program by checking a response from strongly agree to agree, neutral, disagree, or strongly disagree. As there was no significant difference in response among groups, the frequency of response to each question discussed below is that of overall response.

The questionnaire contained fourteen statements dealing with the geography program's role:

- (1) in helping the student attain professional/vocational goals,
- (2) in helping integrate major and nonmajor course studies,
- (3) in achieving a more rounded education,
- (4) in becoming more environmentally aware, and
- (5) in evaluating the geography program.

In the area of achieving professional/vocational goals, Tables 8, 9, and 10 show that the graduates feel strongly that the study of geography has contributed to their professional life. Table 8, which has the lowest favorable response of any statement in the questionnaire might reflect the fact that nearly one third of the graduates are not employed in the field of their major academic training. This supposition is based on the high neutral response.

TABLE 8.--By taking geography courses, I have been able to utilize more effectively the knowledge gained from my academic major in my present occupation

| | |
|----------------|-------|
| Strongly agree | 5.5% |
| Agree | 26.5% |
| Neutral | 46.2% |

| | |
|-------------------|-------|
| Disagree | 13.2% |
| Strongly disagree | 8.8% |

TABLE 9.--By taking geography courses, I have been able to understand the effect of my profession on spatial relationships and upon my environment

| | |
|-------------------|-------|
| Strongly agree | 15.4% |
| Agree | 53.8% |
| Neutral | 16.5% |
| Disagree | 13.2% |
| Strongly disagree | 1.0% |

TABLE 10.--I do not believe that the study of geography has contributed to my professional life

| | |
|-------------------|-------|
| Strongly agree | 2.2% |
| Agree | 15.4% |
| Neutral | 8.8% |
| Disagree | 62.6% |
| Strongly disagree | 11.0% |

The statements concerning how well geography enabled the student to integrate his or her major and cognate studies elicited a favorable, somewhat varying response. Some of the variation is probably due to the manner in which the statement was phrased. Tables 11 and 12 present these statements and the frequencies of response.

TABLE 11.--By taking geography courses, I have been able to better understand the relationships to and the implications of my major studies to my other studies

| | |
|----------------|-------|
| Strongly agree | 5.5% |
| Agree | 45.1% |
| Neutral | 31.9% |

| | |
|-------------------|-------|
| Disagree | 11.0% |
| Strongly disagree | 6.7% |

TABLE 12.--I have not observed any relationship between the geography courses which I have taken and the courses in my academic major

| | |
|-------------------|-------|
| Strongly agree | 3.3% |
| Agree | 13.2% |
| Neutral | 12.1% |
| Disagree | 56.0% |
| Strongly disagree | 15.4% |

The statements given in Tables 13 and 14 on the role of the geography program in contributing to a well rounded, liberal education, received a very favorable response. The geography program appears to be succeeding in achieving its goal in that area.

TABLE 13.--By taking geography courses, I believe that my college education has become more relevant to everyday life

| | |
|-------------------|-------|
| Strongly agree | 11.0% |
| Agree | 62.6% |
| Neutral | 17.6% |
| Disagree | 8.8% |
| Strongly disagree | 0.0% |

TABLE 14.--By taking geography courses, I have achieved a more rounded, liberal education

| | |
|----------------|-------|
| Strongly agree | 15.4% |
| Agree | 73.6% |
| Neutral | 7.7% |

| | |
|-------------------|------|
| Disagree | 1.0% |
| Strongly disagree | 2.2% |

Environmental awareness among college students is of great interest all across the country. Tables 15 and 16 indicate that the geography program is succeeding in fostering the growth of that awareness at Michigan Technological University.

TABLE 15.--By taking geography courses, I have become more interested and involved in environmental issues

| | |
|-------------------|-------|
| Strongly agree | 19.8% |
| Agree | 50.5% |
| Neutral | 19.8% |
| Disagree | 17.6% |
| Strongly disagree | 1.0% |

TABLE 16.--By taking geography courses, I have become more aware of my environment and better understand the area in which I live

| | |
|-------------------|-------|
| Strongly agree | 22.0% |
| Agree | 63.7% |
| Neutral | 7.7% |
| Disagree | 5.5% |
| Strongly disagree | 1.0% |

The final five statements (17-21) involve an evaluation of the content and direction of the geography program at Michigan Technological University. Statement 17 concerns the degree to which the geography courses emphasized facts over theory. Statement 18 dealt with the relevancy of the geography program. Statement 19, which asks if courses

should be tailored to specific major fields, is very interesting in light of requests by certain major departments for specific courses tailored to their particular major. The graduates rather positively disagreed with the idea of such courses. Tables 20 and 21 sought input on additional or new course development. Graduates overwhelmingly supported topical courses over regional courses.

TABLE 17.--The geography courses which I took at Michigan Tech, were too fact oriented

| | |
|-------------------|-------|
| Strongly agree | 2.2% |
| Agree | 9.9% |
| Neutral | 31.9% |
| Disagree | 47.3% |
| Strongly disagree | 8.8% |

TABLE 18.--The geography courses which I took at Michigan Tech. were not relevant to the everyday problems and situations which I encounter in my occupation

| | |
|-------------------|-------|
| Strongly agree | 6.6% |
| Agree | 18.7% |
| Neutral | 20.9% |
| Disagree | 4.18% |
| Strongly disagree | 12.1% |

TABLE 19.--I feel that the geography courses at Michigan Tech. should be tailored more to the specific needs of my major field, rather than to the goal of a general liberal education

| | |
|----------------|-------|
| Strongly agree | 2.2% |
| Agree | 17.6% |
| Neutral | 15.4% |

| | |
|-------------------|-------|
| Disagree | 48.4% |
| Strongly disagree | 16.5% |

TABLE 20.--There should be more geography courses at Michigan Tech. which deal with specific topics, such as urban or environmental studies

| | |
|-------------------|-------|
| Strongly agree | 25.3% |
| Agree | 59.3% |
| Neutral | 13.2% |
| Disagree | 1.0% |
| Strongly disagree | 1.0% |

TABLE 21.--There should be more geography courses at Michigan Tech. which deal with specific regions of the world

| | |
|-------------------|-------|
| Strongly agree | 12.1% |
| Agree | 40.7% |
| Neutral | 36.3% |
| Disagree | 9.9% |
| Strongly disagree | 1.0% |

CONCLUSIONS

One of the first and foremost conclusions which can be drawn from this study is that within this university, the students in the various academic disciplines show no significant differences in response to or evaluation of the geography program. The needs and goals of the engineering majors appear to be substantially the same as those of the liberal arts majors. This similarity was not anticipated at the beginning of this study. It was felt that there would be a difference between engineering and non-engineering students. This study has proved otherwise, as shown in appendix I-I and I-II.

The second conclusion is that the geography program is succeeding in helping students attain their professional/vocational goals. The response to statements concerning this goal indicates that graduates find geography studies to be valuable in their professional lives. (see tables 8, 9, & 10)

The third conclusion is that the geography program is fulfilling its role as an integrating discipline, as the graduates seem to feel that geography has made their other studies more meaningful and interrelated. (see tables 11, 12, & 13)

The fourth conclusion is that the study clearly supports the idea of the geography program helping to create a more rounded, liberally educated graduate. This is particularly important in a technological university with its heavy orientation toward science and technology. (see tables 14, 15, & 16)

This study suggests that the university should reexamine core curriculum requirements of the various academic disciplines to insure that students in all disciplines receive sufficient exposure to social science courses for the purpose of developing a well-rounded graduate.

Based on comments received on the questionnaire, it can be concluded that graduates would like to have taken courses which dealt with specific effects and consequences of technology on society and on the environment. Graduates also suggested new courses dealing with more specific topics, which apply geography to various problems which have arisen as a result of technology.

The graduates made numerous suggestions for the improvement of instruction, ranging from field trips to changes in testing procedure to use of visual aids and changes in course content and orientation.

Footnotes

¹ Michigan Technological University's Role in Higher Education in Michigan (Handbook for Academic Faculty) p. 63.

²Ibid. p. 65

³Ibid. p. 61

⁴Robert W. M. Travers (ed), Second Handbook of Research on Teaching (Chicago: Rand McNally & Co., 1973) Chapter 32.

⁵Ibid. p. 1032

⁶George L. Fahey and Joe M. Ball, "Objective Evaluation of a Program in General Education", Journal of Educational Psychology (Vol. 51, 1960), pp. 141-151. Cited by Cohen, Rose, and Trent, "Teaching Technology and Methods" Second Handbook of Research on Teaching (Chicago: Rand McNally & Co., 1973)

⁷P. A. Brinker, "Our Illiberal-Arts Colleges", Journal of Higher Education (Vol. 31. No. 3, 1960) pp. 133-38.

⁸A. N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books, Inc., 1966) p. 15.

APPENDIX I-I MEAN SCORE

| | 34 Eng. | 15 Math | 17 Bus. Ad. | 17 Lib. Arts | 8 Forestry | Overall mean by question |
|----|------------|------------|----------------|-----------------|---------------|--------------------------------|
| | 3.477 | 3.700 | 3.471 | 3.651 | 3.482 | |
| 1. | 3.059 | 2.933 | 2.824 | 3.353 | 3.25 | 3.066 |
| 2. | 3.147 | 3.267 | 3.118 | 3.824 | 3.5 | 3.319 |
| 3. | 3.618 | 4.133 | 3.706 | 3.529 | 3.5 | 3.692 |
| 4. | 3.647 | 3.667 | 3.471 | 3.647 | 4.0 | 3.648 |
| 5. | 3.5 | 3.733 | 3.353 | 4.118 | 4.0 | 3.670 |
| 6. | 3.588 | 4.0 | 3.882 | 3.941 | 3.375 | 3.758 |
| 7. | 3.647 | 4.133 | 3.882 | 4.0 | 3.125 | 3.791 |
| 8. | 3.735 | 4.333 | 4.0 | 4.118 | 4.125 | 3.989 |
| 9. | 3.706 | 4.333 | 4.118 | 4.118 | 4.125 | 4.0 |

| | | | | | | |
|---------------------------------------------|-------|-------|-------|-------|-------|-------|
| 10. | 3.559 | 3.733 | 3.235 | 3.412 | 3.625 | 3.505 |
| 11. | 3.059 | 3.667 | 3.118 | 3.058 | 3.25 | 3.341 |
| 12. | 2.675 | 2.0 | 2.353 | 2.294 | 2.0 | 2.407 |
| 13. | 4.029 | 4.333 | 4.176 | 3.941 | 3.75 | 4.066 |
| 14. | 3.588 | 3.533 | 3.353 | 3.765 | 3.125 | 3.527 |
| Ques- tion- naire mean by group | 3.477 | 3.700 | 3.471 | 3.651 | 3.482 | 3.555 |

APPENDIX I-II

VARIANCE IN SCORES BY QUESTION

Analysis of variance showed no significance at 2.52 at the .05 level

| | | |
|-----|--------|---------------|
| 1. | .529 | |
| 2. | .706 | |
| 3. | .633 | |
| 4. | .529 | 1.008 to .498 |
| 5. | .765 | |
| 6. | .625 | |
| 7. | .1.008 | |
| 8. | .598 | |
| 9. | .509 | |
| 10. | .498 | |
| 11. | .609 | |
| 12. | .675 | |
| 13. | .583 | |
| 14. | .640 | |

APPENDIX I-II

EMPLOYMENT STATUS

Top number stands for those employed.

Bottom number stands for those not employed.

| Question Number | Forestry | Lib. Arts | Business | Science & Math | Engineering |
|-----------------|----------|-----------|----------|----------------|-------------|
| 1. | 3.0 | 3.6 | 2.75 | 3.111 | 3.1034 |
| | 3.5 | 3.35 | 3.0 | 2.666 | 2.8 |
| 2. | 3.339 | 3.6 | 3.0 | 3.444 | 3.0345 |
| | 4.0 | 3.917 | 3.4 | 3.166 | 3.8 |
| 3. | 3.333 | 3.8 | 3.75 | 4.333 | 3.5517 |
| | 4.0 | 3.063 | 3.6 | 3.833 | 4.0 |
| 4. | 4.0 | 3.4 | 3.583 | 3.111 | 3.5862 |
| | 4.0 | 3.75 | 3.6 | 3.666 | 3.8 |
| 5. | 4.0 | 3.6 | 3.166 | 4.0 | 3.4827 |
| | 4.0 | 4.333 | 3.8 | 3.166 | 3.6 |
| 6. | 3.167 | 3.8 | 4.083 | 4.111 | 3.3793 |
| | 4.0 | 4.0 | 4.0 | 3.833 | 3.8 |
| 7. | 3.167 | 3.8 | 3.917 | 4.0 | 3.5517 |
| | 3.0 | 4.083 | 4.0 | 4.333 | 4.2 |
| 8. | 4.167 | 4.2 | 3.917 | 4.333 | 3.6651 |
| | 4.0 | 4.083 | 4.2 | 4.333 | 3.4 |
| 9. | 4.167 | 3.6 | 4.083 | 4.222 | 3.6651 |
| | 4.0 | 4.330 | 4.2 | 4.5 | 4.0 |

Employment Status--Continued

| Question Number | Forestry | Lib. Arts | Business | Science & Math | Engineering |
|-----------------|----------|-----------|----------|----------------|-------------|
| 10. | 3.667 | 4.0 | 2.917 | 3.555 | 3.5172 |
| | 3.5 | 3.167 | 3.4 | 4.0 | 3.8 |
| 11. | 3.667 | 3.8 | 3.0 | 3.666 | 2.8965 |
| | 4.0 | 3.583 | 3.4 | 3.666 | 3.6 |
| 12. | 2.0 | 2.0 | 2.583 | 4.0 | 2.6896 |
| | 4.0 | 2.417 | 1.8 | 4.0 | 3.2 |
| 13. | 3.4 | 3.6 | 4.25 | 4.220 | 4.0689 |
| | 4.5 | 4.083 | 4.0 | 4.333 | 3.8 |
| 14. | 3.0 | 4.0 | 3.167 | 3.333 | 3.4482 |
| | 3.5 | 3.667 | 3.8 | 3.833 | 3.8 |

APPENDIX I-IV

F VALUES---ENGINEERING
EMPLOYED VS UNEMPLOYED

Significant over 4.15 at .05 level

| | | | | | |
|--------|---------|------|----|-------|-------|
| No. 1 | Between | .7 | 1 | .7 | .824 |
| | Within | 27.2 | 32 | .85 | x |
| | Total | 27.9 | 33 | x | x |
| No. 2 | Between | 2.5 | 1 | 2.5 | 2.878 |
| | Within | 27.8 | 32 | .869 | x |
| | Total | 30.3 | 33 | x | x |
| No. 3 | Between | .8 | 1 | .8 | .821 |
| | Within | 31.2 | 32 | .975 | x |
| | Total | 32 | 33 | x | x |
| No. 4 | Between | .2 | 1 | .2 | .179 |
| | Within | 35.8 | 32 | 1.119 | x |
| | Total | 36 | 33 | x | x |
| No. 5 | Between | .1 | 1 | .1 | .0879 |
| | Within | 36.4 | 32 | 1.394 | x |
| | Total | 36.5 | 33 | x | x |
| No. 6 | Between | .8 | 1 | .8 | .574 |
| | Within | 44.6 | 32 | 1.394 | x |
| | Total | 45.4 | 33 | x | x |
| No. 7 | Between | 1.8 | 1 | .2 | .169 |
| | Within | 24 | 32 | .75 | x |
| | Total | 25.8 | 33 | x | x |
| No. 8 | Between | .2 | 1 | .2 | .169 |
| | Within | 37.8 | 32 | 1.181 | x |
| | Total | 38. | 33 | x | x |
| No. 9 | Between | .8 | 1 | .8 | .462 |
| | Within | 55.4 | 32 | 1.731 | x |
| | Total | 56.2 | 33 | x | x |
| No. 10 | Between | .4 | 1 | .4 | .710 |
| | Within | 18 | 32 | .563 | x |
| | Total | 18.4 | 33 | x | x |

Appendix, continued

| | | | | | |
|--------|---------|------|----|-------|-------|
| No. 11 | Between | 2.1 | 1 | 2.1 | 1.774 |
| | Within | 37.9 | 32 | 1.184 | x |
| | Total | 40 | 33 | x | x |
| No. 12 | Between | 1.2 | 1 | 1.2 | .674 |
| | Within | 57 | 32 | 1.781 | x |
| | Total | 58.2 | 33 | x | x |
| No. 13 | Between | .3 | 1 | .3 | .898 |
| | Within | 57 | 32 | 1.781 | x |
| | Total | 11 | 33 | x | x |
| No. 14 | Between | .5 | 1 | .5 | .381 |
| | Within | 42 | 32 | 1.313 | x |
| | Total | 42.5 | 33 | x | x |

APPENDIX I-V

F VALUE--MATH-SCIENCE
EMPLOYED VS UNEMPLOYED

Significant at 4.67 at .05 level

| | | | | | |
|-------|---------|------|----|------|------|
| No. 1 | Within | .7 | 1 | .7 | .636 |
| | Between | 14.2 | 13 | 1.1 | x |
| | Total | 14.9 | 14 | x | x |
| No. 2 | Within | .3 | 1 | .3 | .3 |
| | Between | 13.0 | 13 | 1.0 | x |
| | Total | 13.3 | 14 | x | x |
| No. 3 | Within | .1 | 1 | .3 | .3 |
| | Between | 9.5 | 13 | .369 | x |
| | Total | 9.6 | 14 | x | x |
| No. 4 | Within | .1 | 1 | .1 | .137 |
| | Between | 9.5 | 13 | .731 | x |
| | Total | 9.6 | 14 | x | x |
| No. 5 | Within | .1 | 1 | .1 | .167 |
| | Between | 7.8 | 13 | .6 | x |
| | Total | 7.9 | 14 | x | x |

Appendix, continued

| | | | | | |
|--------|---------|------|----|-------|-------|
| No. 6 | Within | .3 | 1 | .3 | 1.053 |
| | Between | 3.7 | 13 | .285 | x |
| | Total | 4 | 14 | x | x |
| No. 7 | Within | .4 | 1 | .4 | .340 |
| | Between | 15.3 | 13 | 1.77 | x |
| | Total | 15.7 | 14 | x | x |
| No. 8 | Within | 3.3 | 13 | .254 | x |
| | Between | .0 | 1 | .0 | .0 |
| | Total | 5.3 | 14 | x | x |
| No. 9 | Within | .2 | 1 | .2 | .510 |
| | Between | 10.2 | 13 | .392 | x |
| | Total | 10.9 | 14 | x | x |
| No. 10 | Within | .7 | 1 | .7 | .892 |
| | Between | 10.2 | 13 | .785 | x |
| | Total | 10.9 | 14 | x | x |
| No. 11 | Within | .0 | 1 | .0 | .0 |
| | Between | 13.3 | 13 | 1.023 | x |
| | Total | 13.3 | 14 | x | x |
| No. 12 | Within | .0 | 1 | .0 | .0 |
| | Between | 11 | 13 | .785 | x |
| | Total | 13.3 | 14 | x | x |
| No. 13 | Within | .0 | 1 | .0 | .0 |
| | Between | 6.9 | 13 | .531 | x |
| | Total | 6.9 | 14 | x | x |
| No. 14 | Within | .9 | 1 | .9 | 1.083 |
| | Between | 10.8 | 13 | .831 | x |
| | Total | 11.7 | 14 | x | x |

APPENDIX I-VI

F VALUES--BUSINESS
EMPLOYED VS UNEMPLOYED

Significant at 4.54 at .05 level

Appendix, continued

| | | | | | |
|--------|---------|------|----|-------|-------|
| No. 1 | Between | .3 | 1 | .3 | .318 |
| | Within | 14.2 | 15 | .947 | x |
| | Total | 14.5 | 16 | x | x |
| No. 2 | Between | .4 | 1 | .4 | .458 |
| | Within | 13.1 | 15 | .873 | x |
| | Total | 13.5 | 16 | x | x |
| No. 3 | Between | .1 | 1 | .1 | x |
| | Within | 15.4 | 15 | 1.027 | .097 |
| | Total | 15.5 | 16 | x | x |
| No. 4 | Between | .1 | 1 | .1 | .083 |
| | Within | 18.1 | 15 | 1.207 | x |
| | Total | 18.2 | 16 | x | x |
| No. 5 | Between | 1.4 | 1 | 1.4 | 1.135 |
| | Within | 18.5 | 15 | 1.233 | x |
| | Total | 19.9 | 16 | x | x |
| No. 6 | Between | .0 | 1 | .0 | .0 |
| | Within | 2.9 | 15 | .193 | x |
| | Total | 2.9 | 16 | x | x |
| No. 7 | Between | .0 | 1 | .0 | .0 |
| | Within | 2.9 | 15 | .193 | x |
| | Total | 2.9 | 16 | x | x |
| No. 8 | Between | .8 | 1 | .8 | 1.333 |
| | Within | 9.0 | 15 | .6 | x |
| | Total | 9.8 | 16 | x | x |
| No. 9 | Between | .1 | 1 | .1 | .405 |
| | Within | 3.7 | 15 | .247 | x |
| | Total | 3.8 | 16 | x | x |
| No. 10 | Between | .8 | 1 | .8 | .543 |
| | Within | 22.1 | 15 | 1.473 | x |
| | Total | 22.9 | 16 | x | x |
| No. 11 | Between | .6 | 1 | .6 | .469 |
| | Within | 19.2 | 15 | 1.28 | x |
| | Total | 13.9 | 16 | x | x |
| No. 12 | Between | 2.2 | 1 | 2.2 | 2.820 |
| | Within | 11.7 | 15 | .78 | x |
| | Total | 13.9 | 16 | x | x |

Appendix, continued

| | | | | | |
|--------|---------|-----|----|------|-------|
| No. 13 | Between | .3 | 1 | .3 | 1.071 |
| | Within | 4.2 | 15 | .28 | x |
| | Total | 4.5 | 16 | x | x |
| No. 14 | Between | 1.4 | 1 | 1.4 | 2.469 |
| | Within | 8.5 | 15 | .567 | x |
| | Total | 9.9 | 16 | x | x |

APPENDIX I-VII

F VALUES--LIBERAL ARTS
EMPLOYED VS UNEMPLOYED

Significant at 4.54 at .05 level

| | | | | | |
|-------|---------|------|----|-------|-------|
| No. 1 | Between | .5 | 1 | .5 | .350 |
| | Within | 21.4 | 15 | 1.427 | x |
| | Total | 21.9 | 16 | x | x |
| No. 2 | Between | .4 | 1 | .4 | .594 |
| | Within | 10.1 | 15 | .673 | x |
| | Total | 16.2 | 16 | x | x |
| No. 3 | Between | .5 | 1 | .5 | .487 |
| | Within | 15.7 | 15 | 1.047 | x |
| | Total | 16.2 | 16 | x | x |
| No. 4 | Between | .5 | 1 | .5 | .487 |
| | Within | 15.4 | 15 | 1.027 | x |
| | Total | 15.9 | 16 | x | x |
| No. 5 | Between | 1.9 | 1 | 1.9 | 2.050 |
| | Within | 13.9 | 15 | .927 | x |
| | Total | 15.8 | 16 | x | x |
| No. 6 | Between | .1 | 1 | .1 | .139 |
| | Within | 10.8 | 15 | .72 | x |
| | Total | 10.9 | 16 | x | x |
| No. 7 | Between | .3 | 1 | .3 | .287 |
| | Within | 15.7 | 15 | 1.047 | x |
| | Total | 16 | 16 | x | x |
| No. 8 | Between | .1 | 1 | .1 | .195 |
| | Within | 7.7 | 15 | .513 | x |
| | Total | 7.8 | 16 | x | x |

Appendix, continued

| | | | | | |
|--------|---------|------|----|-------|-------|
| No. 9 | Between | 1.6 | 1 | 1.6 | 1.98 |
| | Within | 12.2 | 15 | .813 | x |
| | Total | 13.8 | 16 | x | x |
| No. 10 | Between | 2.4 | 1 | 2.4 | 2.629 |
| | Within | 13.7 | 15 | .913 | x |
| | Total | 16.1 | 16 | x | x |
| No. 11 | Between | .2 | 1 | .2 | .118 |
| | Within | 25.7 | 15 | 1.713 | x |
| | Total | 25.9 | 16 | x | x |
| No. 12 | Between | .6 | 1 | .6 | .476 |
| | Within | 18.9 | 15 | 1.26 | x |
| | Total | 19.5 | 16 | x | x |
| No. 13 | Between | .8 | 1 | .8 | .663 |
| | Within | 18.1 | 15 | 1.207 | x |
| | Total | 18.9 | 16 | x | x |
| No. 14 | Between | .4 | 1 | .4 | .561 |
| | Within | 10.7 | 15 | .713 | x |
| | Total | 11.1 | 16 | x | x |

APPENDIX I-VIII

F VALUES--FORESTRY
EMPLOYED VS UNEMPLOYED

Significant at 5.99 at .05 level

| | | | | | |
|-------|---------|-----|---|-----|-------|
| No. 1 | Between | .4 | 1 | .4 | .533 |
| | Within | 4.5 | 6 | .75 | x |
| | Total | 4.9 | 7 | x | x |
| No. 2 | Between | .7 | 1 | .7 | 1.273 |
| | Within | 3.3 | 6 | .55 | x |
| | Total | 4.0 | 7 | x | x |
| No. 3 | Between | .7 | 1 | .7 | 1.273 |
| | Within | 3.3 | 6 | .55 | x |
| | Total | 4.0 | 7 | x | x |

Appendix, continued

| | | | | | |
|--------|---------|-----|---|------|-------|
| No. 4 | Between | .0 | 1 | .0 | .0 |
| | Within | .0 | 6 | .0 | x |
| | Total | .0 | 7 | x | x |
| No. 5 | Between | .0 | 1 | .0 | .0 |
| | Within | .0 | 6 | .0 | x |
| | Total | .0 | 7 | x | x |
| No. 6 | Between | 1.1 | 1 | 1.1 | 8.271 |
| | Within | .0 | 6 | .0 | x |
| | Total | 1.9 | 7 | x | x |
| No. 7 | Between | .1 | 1 | .1 | .125 |
| | Within | 4.8 | 6 | .8 | x |
| | Total | 4.9 | 7 | x | x |
| No. 8 | Between | .1 | 1 | .1 | .752 |
| | Within | .8 | 6 | .133 | x |
| | Total | .9 | 7 | x | x |
| No. 9 | Between | .1 | 1 | .1 | .752 |
| | Within | .8 | 6 | .133 | x |
| | Total | .9 | 7 | x | x |
| No. 10 | Between | .1 | 1 | .1 | .752 |
| | Within | 7.8 | 6 | 1.3 | x |
| | Total | 7.9 | 7 | x | x |
| No. 11 | Between | .2 | 1 | .2 | .227 |
| | Within | 5.3 | 6 | .883 | x |
| | Total | 5.5 | 7 | x | x |
| No. 12 | Between | .0 | 1 | .0 | .0 |
| | Within | .4 | 6 | .067 | x |
| | Total | .4 | 7 | x | x |
| No. 13 | Between | 1.5 | 1 | 1.5 | 2.249 |
| | Within | 4.0 | 6 | .667 | x |
| | Total | 5.5 | 7 | x | x |
| No. 14 | Between | .4 | 1 | .4 | .959 |
| | Within | 2.5 | 6 | .417 | x |
| | Total | 2.9 | 7 | x | x |

APPENDIX I-IX

QUESTIONNAIRE MEANS

| | Eng. | Math | Bus. Ad. | Lib. Arts | Forestry | Overall Mean by question |
|-------------------------------------|-------|-------|----------|-----------|----------|--------------------------------|
| | 3.477 | 3.700 | 3.471 | 3.651 | 3.482 | |
| 1. | 3.059 | 2.933 | 2.824 | 3.353 | 3.25 | 3.066 |
| 2. | 3.147 | 3.267 | 3.118 | 3.824 | 3.5 | 3.319 |
| 3. | 3.618 | 4.133 | 3.706 | 3.529 | 3.5 | 3.692 |
| 4. | 3.647 | 3.667 | 3.471 | 3.647 | 4.0 | 3.648 |
| 5. | 3.5 | 3.733 | 3.353 | 4.118 | 4.0 | 3.670 |
| 6. | 3.588 | 4.0 | 3.882 | 3.941 | 3.375 | 3.758 |
| 7. | 3.647 | 4.133 | 3.882 | 4.0 | 3.125 | 3.791 |
| 8. | 3.735 | 4.333 | 4.0 | 4.118 | 4.125 | 3.989 |
| 9. | 3.706 | 4.333 | 4.118 | 4.118 | 4.125 | 4.0 |
| 10. | 3.559 | 3.733 | 3.235 | 3.412 | 3.625 | 3.505 |
| 11. | 3.059 | 3.667 | 3.118 | 3.058 | 3.25 | 3.341 |
| 12. | 2.675 | 2.0 | 2.353 | 2.294 | 2.0 | 2.407 |
| 13. | 4.029 | 4.333 | 4.176 | 3.941 | 3.75 | 4.066 |
| 14. | 3.588 | 3.533 | 3.353 | 3.765 | 3.125 | 3.527 |
| Question- naire mean by group | 3.477 | 3.700 | 3.471 | 3.651 | 3.482 | 3.555 |

APPENDIX II-I

ENGINEERING

1. Offering geography courses with specific majors in mind.
2. Tailor them toward specific majors, but also continue the general geography courses.
3. Ask the students to evaluate existing spatial relationships for an area in the U. S.. The objective being to demonstrate poor land use (or otherwise) by comparison to an idealized example. Ultimately the studies may show that politics is the controlling factor in land use or resource development.
4. Being located in a good area I think that a field trip or two could be of some benefit to the courses as well as increasing student interest.
5. Improve the testing procedure or drop the tests. The one thing I really remember was that all the tests were replicas of previous exams with very few questions changed. Thus, the student merely studied old tests and neglected his notes (if any were taken). This, I feel, is a liability of the student, rather than an asset, as he becomes a mechanical robot rather than an intellectual being.
6. Are you going to improve them first? If so, "yes".
7. Note items 12 and 13 on the questionnaire. Specific topics would lend themselves much more readily to interaction with the technical courses most tech students are taking. Example: an in-depth course on the environment and the effect of engineering projects on the environment would be quite relevant to an engineer's educational needs, particularly if the opposing points of view were presented in an unbiased manner. The existence of such a course would change my response to the last two questions.
8. Relate more to specific areas of the world and relate more to needs of person's field of endeavor.
9. A study of geography that would be relative to environmental impact and construction in general would be of some benefit to the engineer.
10. Separate courses could be generated to cover specific areas of the U. S..
11. I felt the geography courses served their purpose well. I don't

believe the courses should be made more difficult in content or required work; to maintain a balance in student interest in the courses.

12. I think that a special topics course would strike some interest. This course could involve some independent research by the student concerning some aspect of geography which he may find interesting.
13. I believe that Tech should stress the relationship between quality of the environment and the cost of that quality. Special effort should be made to relate jobs or employment and the goal of a better environment. Many students seem to come out of school without any feeling for the common man, his job, his cost of living and his goals in life. The stressing of the effect of decisions on the environment is of utmost importance, especially in such fields as engineering. Stress the importance of today's decision on tomorrow's generation.
14. Add movies to class lectures.
15. They could use more visual aids--like films and slides and they could have individuals with first hand knowledge of the country or area of study make presentations to the class.
16. As I said above, more emphasis should be placed on basic helpful information rather than statistics. Courses could be offered with more specifics as option courses. Basic information I received from my Geology courses has been helpful from time to time, in my 3½ years of highway construction and 1½ years of structural design work in the field of mining.
17. Make the lab shorter.
18. The traditional forms of geography are important but they must be made relevant by the present day student's standards.
19. Classes were too crowded and time was too short.
20. The geography courses could be a bit more specific to the different fields of study at MTU, e.g. a study of overall geography for foresters, a study of urban geography for those in the urban aspect of business or what different areas of engineering can do to the topography of the land.

APPENDIX II-II

MATH/SCIENCE

1. Should expand to more courses in the different aspects of geography and related fields.
2. Get more teachers interested in giving a student an education and not how well he can fit a class to a bell curve.
3. Additional courses offered in environmental studies and/or specific regions of the earth would strengthen and diversify the program. The quality of instruction I feel was quite good.
4. Put more emphasis on specific places.
5. I would have liked to have taken courses such as environmental engineering geared to ecosystems of North America, also something like energy and man dealing with reserves of oil, gas, coal, uranium, etc. and also dealing with natural energy, solar power (wind power), solar heating, etc.. These two suggested course headings seem to be both well documented and are fast becoming a necessity.
6. Get rid of Mrs. _____ if you haven't already! (Stinson was a great teacher!)
7. Make students use their heads not memorize facts. Essay tests rather than fill in the blank.
8. I would like to suggest a two part course...part I to cover a region with the purpose of familiarizing the student with the area and part II to cover current topics and events concerning the area or region covered in part I.

APPENDIX II-III

BUSINESS ADMINISTRATION

1. I suggest having field trips to better educate Tech students on the variety of local geography found in the Copper Country.
2. Instead of turning toward specific studies in geography, maybe you should look at more general studies. As was my case, many students in other fields of study take your classes simply to expand their education.
3. A wider range of courses should be offered that would appeal to the non-social science major, such as courses in how to be "ecology" minded. Courses should teach more knowledge and less facts.
4. Tech needs a program that is more specific on areas of the world.
5. Add field courses in the study of weather. Example: Visit a weather station, study of effects of weather.
6. Make geography courses more relevant to each area of study.
7. In light of third world demands for "more" for "theirs", perhaps a whole series of Economic Geo. type courses to help us better understand their "why" and their "chances". Before you can do an environmental impact study you have to have knowledge of the individual components of the environment, the economic needs, the non-economic social needs and the regional norms, etc.. Think of all the places that such studies are in desperate need alone and you can appreciate the scope of the job for the "Discipline of Place".
8. If possible I feel that geography courses could be designed to incorporate more information that is related to one's major. If there was a geography offering in geography as related to business, no one where geography is related to engineering would be very advantageous to any person looking for a course that relates to one's major.
9. As far as I was concerned, the courses offered me what I wanted. I wish I would have taken more classes.
10. Smaller classes, 1 or 2 more teachers.
11. Lab work. Environmental topics emphasized more.

APPENDIX II-IV

LIBERAL ARTS

1. They should be rearranged to be more interesting and focus on current problem areas.
2. It would be nice to see more support in every aspect from the university as a whole. The social sciences in general and the geography courses in particular are certainly more important than the hockey team! Probably the only way you would be able to improve the department is to get a new University president.
3. A graduate program in geography is a good idea and should be pursued. Especially courses relating to environmental problems would be very helpful to the majority of students, being an Engineering College.
4. In addition to the straight presentation of facts which is the case, I would like to see students doing more independent work in specific areas of geography. Would like to see more variety of geography courses.
5. Set up at least a few in-depth courses in environmental studies and other complex subjects. Survey courses can be boring and redundant if subject matter doesn't change and delve into current and important issues the students can relate to. Otherwise, keep up the good work.
6. Maybe some field work in a particular field, for example field trips in physical geography to back up what was given in class.
7. Set them up more like English eg: World Lit. I, II and III. Have World Geo. I, II, and III. I feel a much needed area to study is geography of the U. S.. Too many people don't know really anything about our own country. I am today dealing with a lot of foreign people and wouldn't be able to answer a lot of the questions they ask if I hadn't taken geo.. I loved it.
8. One instructor constantly used the same tests over and over again, which, first of all isn't fair, and secondly, I don't believe students bothered to learn any other material than what was there on the old test. I think movies would be an excellent method to help teach geography. The attendance might be better.
9. If you plan on expanding the dept.--more detail into environmental and urban studies. Some field work would be marvelous-- a picture is not always worth a thousand words.
10. Narrow the focus, get it above fourth grade level.

APPENDIX II-V

FORESTRY

1. Courses had too much material to be covered for the time period.
2. It's tough to correlate the study of geography 7 - 8 years ago to my present occupation; hence the neutral answers. I was fortunate on leaving school in '70 to see many parts of Asia and South America as an Army officer- here, more than at present, the geography study seemed to be of benefit in my job. I think your evaluation is timely and I wish you luck. There are a number of areas where some beefing up of the program would be appropriate e.g. environmental issues.
3. I am convinced an instructor of greater value could be easily found to replace Dr. _____.
4. A college education consists of a lot of introductory and basic classes on many different fields- for example, a forester gets physics, chemistry, math, anthropology, etc., however, physics majors, chemistry majors, etc. get no basic courses in forestry or conservation type courses. I think a basic course in environmental education- conservation should be offered for people who are not in a life science major and therefore would not get any of this type of education. I think as much talk as there is for concern for the environment that people should be informed on how delicate the environment is and how for example, the mere elimination of a single moth species may drastically change an environment. I feel this is as pertinent as a forester needing to understand economics or physics. To get a good broad college education, environmental education should be included.

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