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ABSTRACT

This report specifically assesses the courses described in Publication No. 4 of the Commission on College Geography, "New Approaches in Introductory College Geography", 1967. It does not attempt a comprehensive evaluation, and the testing instruments described are not models to be applied to all courses. However, it does demonstrate a way of looking at geography courses and provides an approach which should assist in the development of new courses. First is presented a general framework for this type of evaluation, along with its underlying rationale. Included are possible kinds and sources of data, some considerations of the constraining forces affecting such an evaluation, and an indication of the ways in which certain aspects of the entire evaluation scheme were selected for application to the three courses. The next section presents some of the specific kinds of data which resulted from the application of this approach to the three courses. Finally, an attempt is made to integrate those results in an accurate representation of the courses, and to bring together common concerns which emerged from the study. Appendices include samples of the student questionnaires used, and achievement test items. (Author/JLB)

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Evaluating Geography Courses:

A Model with Illustrative Applications

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DENNIS GOOLER

COMMISSION ON COLLEGE GEOGRAPHY
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FOREWORD

The Commission on College Geography has a continuing interest in evaluating the effectiveness of geography courses. This publication, Evaluating Geography Courses, first deals with some general evaluation considerations. It then assesses specifically the courses as published in CCG Publication #4, New Approaches to Introductory Geography Courses, 1967, and as taught at the University of Michigan, the University of Cincinnati, and the University of Iowa.

This document does not attempt a comprehensive evaluation, and the testing instruments are not models to be applied to all courses. The main purpose of this evaluation was to demonstrate a way of looking at geography courses and to provide an approach which should assist geographers involved in the development of new courses. Publication of this study under Association auspices with National Science Foundation support does not necessarily imply endorsement by the Association of American Geographers of the ideas presented.

John F. Lounsbury
Project Director
Commission on College Geography

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EVALUATING GEOGRAPHY COURSES: A MODEL WITH ILLUSTRATIVE APPLICATIONS

Introduction

The following pages present a possible approach to the evaluation of geography courses. It is felt that the general strategy outlined here may be effectively applied to geography courses in a variety of settings. The report represents more than a "how-to-do-it" argument, in that the strategy has been applied to the evaluation of three of the courses described in New Approaches in Introductory College Geography Courses (Commission on College Geography Publication No. 4).

Subsequent sections of this report are organized according to the following scheme. First is presented a general framework for an evaluation of this kind giving the underlying rationale for this framework. Included are possible kinds and sources of data, some considerations of the constraining forces affecting such an evaluation, and an indication of the ways in which certain aspects of the entire evaluation schema were selected for application to the three courses to which it has been applied. The next section of the report presents some of the specific kinds of data which resulted from the application of this approach to the three courses. Finally, an attempt is made to integrate those results (and others not formally presented) in such a way as to represent the three courses fairly.

A Framework for Course Evaluation

An Overview of the Evaluation Process

Evaluation deals with the worth of something. Just as a standardized test will have as many "validities" as there are groups to whom it is applied, contexts in which it is employed, and criteria against which it is judged, so an educational program will have as many "worths" as there are contexts in which it is conducted, groups with whom it is used, and value systems by which it is judged. A comprehensive evaluation of an educational program must consider many aspects of that program and its effects. Such an evaluation does not begin and end with a consideration of student achievement in the program, for many students seem to achieve regardless of (or in spite of) the particular instruction to which they are exposed. A systematic evaluation should consider the complexity of costs (teacher training, supplementary materials, additional instructional time, etc.) and products (better student-parent-teacher attitudes, more student interest, higher achievement level, etc.) of the program to be evaluated. The evaluator would then present a summary of these costs and benefits in such a form that his audience would be able to make judgments about the value of the program, from any of a number of points of view.

In practice, a truly comprehensive evaluation of the type implied by the foregoing comments would require an investment of money, time, and personnel at least as great as went into developing the program in the first place. Such an investment would be unrealistic without access to almost unlimited amounts of these three resources. As a result, the evaluation of any educational program must be tailored to the needs of its sponsors, within the very real constraints which must be imposed. Within this context, certain decisions must be made about what kinds of data are likely to prove most useful, how much the evaluator should intrude into the instructional

setting while collecting his data, and other aspects of the evaluative process.

As a part of his consideration of the constraints within which the evaluation must take place, the evaluator must consider the audience for whom the evaluation is intended. In most instances, the audience for an evaluation will consist of a number of specific groups or individuals, each of which may have different needs and expectations for the evaluation. Consequently, any single evaluation effort is unlikely to meet the needs of all groups or individuals in the total audience. Therefore, decisions must be made as to the specific group or groups to whom the evaluation will be directed. The subsequent development of an evaluation design will be influenced by the group identified as the prime recipient of the results of the evaluation.

Once the prime interest groups have been specified, the evaluator determines the particular purposes for the evaluation, as seen by these interest groups. What do the groups intend to do with the evaluation? How is the evaluation to be related to the ongoing educational process? The answers to these questions will influence the kind of evaluation undertaken.

Each prime interest group will have particular questions they would like the evaluators to consider. These key questions will guide the development of the evaluation plan. As each group may have a number of questions for which they would like answers, a priority of questions needs to be established. The evaluator may, then, within the constraints imposed upon him, decide how many and which of the questions he can and should focus his attention on. The key questions thus identified will reflect both the needs and the purposes of the evaluation.

Having identified key questions, the evaluator must determine what kinds of data he must collect in order to answer the questions. To do this, the evaluator examines the variables that comprise the questions being asked, and determines what data will be needed for an evaluation of these variables. At this point, some degree of specificity is demanded. A reasonably careful delineation of the kinds of data needed greatly enhances the actual collection of those data.

Finally, the evaluator, knowing what kinds of data are to be collected, determines the sources from which he can obtain those data. For a given kind of data, the evaluator may identify several possible sources. For another kind of data, only one source is available. Again, certain constraints (time, money, personnel) influence which sources of data are actually utilized.

The following pages present the evaluation by the Center for Instructional Research and Curriculum Evaluation of the University of Illinois, Urbana, of three of the courses described in New Approaches in Introductory College Geography Courses (Commission on College Geography Publication No. 4). The courses involved were "Introduction to Geographic Behavior," developed and taught by Robert B. McNee at the University of Cincinnati; "World Regional Geography," developed and taught by Ann E. Larimore at the University of Michigan; and "Introduction to Geography—a Spatial Approach," developed by Kennard W. Rumage and Leslie P. Cummings and taught by Kennard W. Rumage at the University of Iowa. The fourth course, "Introduction to the Study of Geography," by Wesley C. Calef of the University of Chicago, was not being taught in a context where an extensive evaluation would be appropriate and therefore was omitted from the evaluation. What is presented is a summary of the major characteristics of each of the three courses, focusing especially on the information which

might be most useful to a person contemplating adopting one of these courses in a different setting.

Three audiences were identified for the present evaluation. These audiences included (1) the Commission on College Geography, (2) the authors of the courses being evaluated, and (3) the community of geographers, particularly those persons who might consider adopting parts or all of one of the experimental courses at other institutions.

Thus, the evaluation reported here is intended to serve at least three purposes: to illustrate one way in which it is possible to proceed in evaluating new course offerings; to provide specific data for the three course authors, data which might aid them in making revisions of their courses in terms of content, sequence, teaching acts, etc.; and to guide those persons who might consider adopting part or all of one of the courses for their own use. This evaluation was in no sense an attempt to compare the three courses, and any tendency to make comparisons of a "better than–worse than" nature among the courses on the basis of these data is inappropriate.

Framework for the Evaluation

In the early stages of planning for evaluation, a schema was developed to indicate the classes of information which might be collected, specific kinds of information within each class, some of the variables which illustrate each of these kinds of information, and some of the possible sources of data relevant to each variable. This schema is reproduced here as Table 1.

Note that the four classes of information include the context in which the instruction takes place ("environmental conditions"), the content of the instructional program ("instructional materials"), the process of instruction ("instruction-learning acts"), and the results of the program ("outcomes"). Within each of these classes, subcategories and specific variables have been provided as illustrations–without attempting to be comprehensive.

For each of the variables about which data could be obtained, several different methods might be used to collect those data. Some of these methods are designated in Table 1 as "public facts," "instructor impressions," "observer," and "instruments." Not every source is appropriate for every variable, but often multiple sources will provide complementary information about a given variable.

Because of the limitations of time, personnel, and money, it was necessary to select from the totality of variables-sources combinations those which were both relevant and accessible. Thus, the use of classroom observers–often an extremely valuable source of information–was omitted from this evaluation. In the planning stages of this evaluation project, serious consideration was given to using classroom observers. A trained observer has several advantages: he is not preoccupied–as the instructor and students are and rightly should be–with other responsibilities (teaching and learning); he can note those incidents of behavior which he feels are important indicants of the effectiveness of the teaching-learning transactions as they occur; and he can keep careful and relatively complete records of these significant classroom transactions. It is evident that an observer, to be effective, must know what to look for, must be a qualified judge of what are and what are not significant events in the teaching-learning process. Such persons most frequently have been trained as sociologists, social psychologists, or educational psychologists. (A slightly different–

TABLE 1

Framework for Evaluation of Introductory Geography Courses

Classes of Information			Sources of Data			
Focus	Exemplars	Illustrative Variables	Public Facts	Instructor Impressions	Observer	Instruments
A	1. Student characteristics	Background, aptitude, aspirations		*		*
Environmental	2. Instructor characteristics	Experience, style, personality				*
Conditions	3. Instructional setting	Physical plant, intellectual climate		*		*
	4. Departmental accommodation	Support by colleagues, administration		*		
	5. Interest by other departments	Curricular context, discussion of course		*		
B	1. Rationale	Utility, ideals, assumptions	*	*		
Instructional	2. Instructional objectives	Points of view, student changes	*	*		*
Materials	3. Reference works, study aids	Library, handouts, models, maps	*	*		
	4. Subject-matter coverage	Emphases, concepts, structure	*	*		*
	5. Sequence and time allotment	Concept development, review	*	*		*
C	1. Instructional strategy	Teaching styles, assignments		*		*
Instruction-	2. Student-instructor exchange	Information flow, counseling		*		
Learning Acts	3. Student-student exchange	Discussion, social climate				
	4. Reinforcement, grading	Motivation, utility, tests		*		*
	5. Lab experiences	Involvement, coverage		*		
D	1. Student competence	Knowledge, understanding, skill		*		*
	2. Student interest and attitude	Commitment, prejudice, course demands		*		*
Outcomes	3. Effects on instructors	Extra work, insights, expanded interests		*		
	4. Side effects	Prestige, social reaction		*		

but also important—frame of reference, that of the anthropologist, can also be brought to bear in the observation of classroom transactions.)

A further comment is in order about the inclusion of the column headed "public facts." It was included primarily as a reminder that a great deal of useful information is to be found in established records. In fact, the primary source of these data in this evaluation was the Commission on College Geography publication referred to above. Thus, only slight attention was given to "public facts"—such things as grade distributions, prerequisites for courses, catalog descriptions. The primary data sources, then, were instructor impressions (as obtained from a lengthy and detailed interview with each course author at the conclusion of the course) and instruments. The primary instrument was a questionnaire completed by every student at the beginning and again at the end of the course. In addition to the questionnaires, every student took a 16-item achievement test at the end of the course. This test was the only means employed which in any way sought to measure student competence at the conclusion of the course (although students were asked on the post-course questionnaire what grade they expected to receive).

Each of the data source-variable combinations actually used in this study is indicated by an asterisk in Table 1. For some variables, more than one data source is specified. This does not mean that the same information was obtained from more than one source (although occasionally it was); rather, data relating to different aspects of a particular variable may have been obtained from each source.

To illustrate, consider "emphases, concepts, structure" in row B-4. As the asterisks indicate, data related to this aspect of the instructional materials were obtained from public facts [CCG Publication No. 4], instructor impressions (the interviews), and instruments (the post-course questionnaire filled out by the students). Each of these sources provided a different kind of information. The published course outlines represented the intended scope and sequence of the courses; the instructor impressions provided information about how the content was actually presented, along with some judgments about how effective the organization and presentation were; and the student questionnaires provided yet another kind of judgment as to the effectiveness of the course as it was presented.

The Student Questionnaire

Two sets of questionnaires were used in gathering data about students taking the geography courses. The pre-course questionnaire was administered to the students during the first week of the course, and the post-course questionnaire was administered during the last week of the course. The one exception to this was at the University of Michigan. At that institution, some students took only the first semester of the course, some only the second semester, and some both semesters. Only nine of the seventeen students enrolled in the second semester had taken the first. Because of this situation, questionnaires were given both at the end of the first semester and at the end of the second. Because the final form of the post-course questionnaire had not been completed at the end of the first semester, the questionnaire used at that time differs in several respects from the other (second semester) post-course questionnaires.

Occasionally, results are presented for what appear to be two different classes at the University of Cincinnati. The reason for this is that two forms of the questionnaires were used at that institution. The forms differed only with respect to the items included in the section on "Objectives" (see Appendices A-C). Since the final list of possible objectives was felt to be too long to administer to any one group at one time, it was divided into two separate lists. The two forms of the questionnaire were then distributed in a non-systematic manner among the students in the course. Although the questionnaires were identical in every respect except the "objectives" section, data from the two were generally analyzed separately. Thus, the results in Tables 9, 14, and 21 are based on one form and the results in Tables 20 and 24 on the other form of the questionnaires.

The questionnaires were very similar in content, making possible some direct comparisons between responses made by students before experiencing the course and responses to the same items after experiencing the course.

Completed questionnaires provided data about each student in three basic areas: biographical data, attitudes and interests, and the student's perception of his relation to the course he was about to take or had just completed.

Biographical data collected on the age, sex, and marital status of students indicate that those at the University of Iowa (n = 619) were mostly males (69%) and were less than 20 years of age (63%). At the University of Cincinnati most of the 60 students were females (67%), and the majority (57%) were less than 20 years of age. The class at the University of Michigan (n = 49) was composed primarily of males (59%), and students tended to be 20 years of age or older (55%). In all three groups, most students were single (90-91%).

Other biographical data collected included year in school, college in which enrolled, and career objectives being pursued. Table 2 presents data on year in college for the three institutions. At both Iowa and Cincinnati, students were primarily underclassmen (about 50% freshmen in both cases). At Michigan, on the other hand, 66% of the students were upperclassmen, and there were more seniors than students at any other level. On the basis of these data, it is apparent that the course at the University of Michigan involved a different kind of student than did the other two.

Table 3 indicates the percentages of students enrolled in the various colleges at the three institutions. Note that at the University of Iowa 70%

TABLE 2

Year in College of Students
at the Three Institutions (Percentages)

Institution	Year			
	Freshman	Sophomore	Junior	Senior
University of Iowa	53	18	18	9
University of Cincinnati	49	11	23	16
University of Michigan	24	10	27	39

were Arts and Sciences students. Most of the students from this college were taking the course in partial fulfillment of their natural science requirement. At the University of Cincinnati, the situation was markedly different—68% of the students were in the College of Education and only 22% in Liberal Arts and Sciences. At the University of Michigan, 65% of the students were in the arts and sciences. Thus the College of Liberal Arts and the College of Education together provided the largest percentage of students at all three institutions. The University of Iowa and the University of Michigan had students primarily from the College of Literature, Arts, and Sciences, while the University of Cincinnati had students primarily from the College of Education.

When the career objectives of students are considered (Table 4), it can be seen that those students who plan to be educators or businessmen comprise the greatest percentage. There was very little difference among the three institutions in the career objectives of the students.

Student Attitudes and Interests

In addition to biographical data, the questionnaires also sought data on the attitudes and interests of the student, particularly as related to the particular geography course and to geography in general. These data were treated in a number of ways. In order to examine the patterns of responses to individual items, frequencies of response to each alternative were obtained. Some illustrative results are presented here, with indications as to how those results might be interpreted.

Responses of students at the University of Iowa to the pre-course question "Do you think you will sign up for additional courses in Geography after you have completed this one?" are given in Table 5. At the beginning of the course, most of these students were uncertain about signing up for additional geography courses.

Students at the University of Cincinnati responded to the statement "I like to study maps" as indicated in Table 6. Although there is no strong directional trend to these responses, there is a tendency for students to disagree (41%), rather than to agree (30%).

At the conclusion of the course, students at the University of Cincinnati were quite evenly distributed as to their perception of the importance

TABLE 3

Enrollment by College of Students
at the Three Institutions

College	Percent
University of Iowa	
Commerce and Business	15
Education	8
Engineering	2
Fine and Applied Arts	1
Journalism and Communications	2
Liberal Arts and Sciences	70
Other	2
University of Cincinnati	
Commerce and Business	9
Education	68
Liberal Arts and Sciences	22
Other	1
University of Michigan	
Literature, Science and Arts	65
Architecture and Design	4
Engineering	2
Education	18
Nursing	4
Music	6

TABLE 4

Career Objectives of Students
at the Three Institutions (Percentages)

Career Objective	Institution		
	Iowa	Cincinnati	Michigan
Architect	0.3	0	2
Artist (Including Performing)	4	0	6
Behavioral Scientist (or Social Scientist, not including Geographer)	4	4	2
Biological Scientist (Including Medicine)	11	3	10
Businessman	24	11	6
Educator	23	66	31
Engineer	2	0	0
Geographer	1	0	0
Geologist	1	0	0
Historian	2	0	0
Housewife	2	4	2
Journalist	2	0	0
Lawyer	5	3	8
Linguist	1	0	2
Mathematician	3	2	0
Philosopher	0	1	2
Physical Scientist (Not including Geologist)	1	2	2
Other	16	9	24

of the objective "To learn enough about Geography to be able to teach it." Since there were a number of students from the College of Education in this course, it seems likely that they considered the objective important or very important, while students from other colleges felt it was not important or rejected it completely (see Table 7).

TABLE 5

Pre-Course Indications of Intention
to Take Additional Geography Courses
(University of Iowa)

Response	Percent
Probably yes	7
Maybe yes	17
Don't know	38
I don't think so	13
Probably no	23

TABLE 6

Pre-Course Responses to Statement
"I Like to Study Maps"
(University of Cincinnati)

Extent of Agreement	Percent
Strongly agree	10
Agree	20
Uncertain	27
Disagree	25
Strongly disagree	16

TABLE 7

Evaluation of Objective
"To Learn Enough About Geography To Be Able To Teach It"
(University of Cincinnati)

Response	Percent
Very important objective	22
Important objective	12
Satisfactory objective	20
Not an important objective	29
Objective I would reject	17

Table 8 summarizes the responses of students at the University of Michigan to the post-course question about the importance of the objective "To learn various place names." This table presents an illustration of some of the problems of data interpretation. At the beginning of the course, the responses to this item were as follows:

Very important objective	0%
Important objective	4%
Satisfactory objective	29%
Not an important objective	45%
Objective I would reject	18%

Forty-nine people responded to the pre-course questionnaire, 52 to the first-semester post-course questionnaire, and 18 to the second-semester post-course questionnaire. Of students responding to the pre-course questionnaire, 63% reported the objective to be "not important" or "an objective I would reject," while 65% of the respondents on the first-semester post-course questionnaire and 44% on the second-semester one responded in the same manner. In comparing the pre- and post-course questionnaire results, the trend seems to be toward perceiving the objective as being more important after completion of the course. One possible interpretation of these data is that as students progressed through the course, they came to feel that this was, in fact, an important objective of the course. (This interpretation is consistent with one of the emphases of the instructor.) Alternatively, because it was necessary to learn place names as a part of the course, it could also reasonably be concluded that those students who felt this was an important objective to begin with were the ones who remained through both semesters. Thus, the nine students who completed both semesters might have been largely responsible for the apparent changes in valuing this objective. It might also be that two semesters are needed to effect any change in opinion of the sort reported here.

As a second way of analyzing these data, a number of comparisons were made between responses to pairs of items. The intention was to see whether responses to certain items showed any systematic relationship to responses to other items. Since the data which follow involve mostly comparisons of responses by students in a single course to two different questionnaire items, the remaining tables in this report will be based on actual numbers of responses rather than percentages. It is hoped that the tables

TABLE 8

Evaluation of Objective
"To Learn Various Place Names"
(University of Michigan)

Response	Percent	
	1st Semester	2nd Semester
Very important objective	6	0
Important objective	15	33
Satisfactory objective	13	22
Not an important objective	38	33
Objective I would reject	27	11

will be more meaningful if presented in this manner. (Because not all students responded to all items on the questionnaires and because a number of students took one but not both of the pre-course and post-course questionnaires, the number of respondents at any institution varies from table to table.)

The first of these comparisons is presented in Table 9. This table presents evaluations by students pursuing various career objectives of the objective "To learn about the modern metropolis as both the focus and mirror of present-day civilization." These students at the University of Cincinnati tended as a group to consider this objective unimportant. Those who were planning to become scientists or businessmen (and the one person who intended to be a housewife) gave more positive evaluations, while those intending a career in education, philosophy, or law gave the most negative reactions to this objective.

TABLE 9

Evaluation of Objective "To Learn About the Modern Metropolis as Both the Focus and Mirror of Present-Day Civilization" by Students Pursuing Various Career Objectives (University of Cincinnati)

Career Objective	Evaluation of Objective					
	Would Reject	Not Important	Satisfactory	Important	Very Important	Totals
Scientist	1	1	2	1	0	5
Businessman	2	2	3	1	0	8
Educator	13	9	6	1	0	29
Lawyer	2	0	1	0	0	3
Philosopher	1	0	0	0	0	1
Housewife	0	0	1	0	0	1
Other	1	1	1	1	0	4
Totals	20	13	14	4	0	51

In Table 10 are the evaluations of the objective "To learn something about the earth in spite of the harassment of examinations, grading, and other routine features of college education" broken down by groups indicating various career objectives. In general, this was not an important objective for these University of Iowa students. Although all groups tended to react negatively to this objective, those students planning careers in business, law, art and architecture, mathematics, and engineering gave less negative evaluations than did the rest. Those planning careers in geology, history, science or linguistics gave the most negative responses.

As Table 11 illustrates, the majority of the students at the University of Iowa indicated they knew either "a little" or "some—but not a great deal" about the subject matter content of the course at the time they registered for it. These people also felt that the objective "To learn how to observe

TABLE 10

Evaluation of Objective "To Learn Something About the Earth in Spite of the Harassment of Examinations, Grading, and Other Routine Features of College Education" by Students Pursuing Various Career Objectives (University of Iowa)

Career Objective	Evaluation of Objective					
	Would Reject	Not Important	Satisfactory	Important	Very Important	Totals
Businessman	12	65	53	16	1	147
Educator	21	63	44	9	0	137
Scientist	13	45	25	6	1	90
Lawyer	1	10	12	6	0	29
Architect, Artist	0	7	15	1	0	23
Mathematician	1	4	9	3	0	17
Engineer	2	1	7	2	1	13
Journalist	3	4	3	1	0	11
Historian	1	7	2	0	0	10
Geologist	4	2	1	1	0	8
Linguist	2	5	2	0	0	9
Geographer	0	2	1	0	0	3
Housewife	1	6	4	0	0	11
Other	7	42	36	8	1	94
Totals	68	263	214	53	4	602

and interpret what we see in our daily geographic environments" was an important or satisfactory objective. Although the relationship is not very strong, the data indicate that the more the student felt he knew about the subject matter content of the course the more important he perceived the objective to be.

Table 12 presents the comparison of prior knowledge of the subject matter with the objective "To get some needed course credits without straining myself" for students at the University of Michigan. Students tended to value the objective as satisfactory or important and indicated that they knew "some" or "a little" about the course. Additionally, those who felt they knew something about the course content also tended to value the objective more highly.

Data collected using the pre-course questionnaire suggest the general tenor of attitudes and opinions held by students prior to the experiences they had in the course. The post-course questionnaire provided data indicating their attitudes and opinions after exposure to the course. Since a

TABLE 11

Comparison of Estimated Prior Knowledge of Course Content With Evaluation of Objective "To Learn How to Observe and Interpret What We See in Our Daily Geographic Environments" (University of Iowa)

Evaluation of Objective	Prior Knowledge					Totals
	Nothing	Almost Nothing	A Little	Some	A Great Deal	
Very Important	1	21	33	48	12	115
Important	2	42	86	104	24	258
Satisfactory	0	32	57	61	7	157
Not Important	2	14	20	16	5	57
Would Reject	1	9	4	7	1	22
Totals	6	118	200	236	49	609

TABLE 12

Comparison of Estimated Prior Knowledge of Course Content With Evaluation of Objective "To Get Some Needed Course Credits Without Straining Myself" (University of Michigan)

Evaluation of Objective	Prior Knowledge					Totals
	Nothing	Almost Nothing	A Little	Some	A Great Deal	
Very Important	0	2	0	3	3	8
Important	1	1	5	6	2	15
Satisfactory	0	4	2	6	2	14
Not Important	1	2	3	1	0	7
Would Reject	0	0	1	1	0	2
Totals	2	9	11	17	7	46

number of questions were identical on the two questionnaires, it was possible to compare responses on the initial and final questionnaires in order to ascertain something of the impact of the course on the attitudes and opinions of students. The following pages present a number of these comparisons.

Table 13 shows the responses of students at the University of Iowa on the two questionnaires to the statement "I enjoy thinking through theories that are based on factual material." This table indicates a number of interesting changes from the pre-course to the post-course questionnaire. Of the 84 people who agreed or strongly agreed with the statement on the

TABLE 13

Comparison of Responses on Pre-Course and Post-Course Questionnaires to Statement "I Enjoy Thinking Through Theories That Are Based on Factual Material" (University of Iowa)

Final Response	Initial Response: Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Totals
Strongly Agree	1	4	4	7	8	24
Agree	1	6	50	33	6	96
Undecided	3	41	57	17	4	122
Disagree	15	62	37	6	2	122
Strongly Disagree	7	11	1	1	0	20
Totals	27	124	149	64	20	384

initial questionnaire, 30 were undecided or disagreed on the final questionnaire. Of the 151 who disagreed or strongly disagreed initially, 56 agreed or were undecided on the post-course questionnaire. Of the 149 who were undecided initially, 54 agreed and 38 disagreed at the end of the course. The group trend was significantly in the direction of more favorable response at the end of the course than at the beginning.

At the University of Cincinnati, students tended initially to disagree with this same statement, but on the final questionnaire indicated more favorable attitudes (see Table 14). Of the 15 people who agreed with the statement on the pre-course questionnaire, 10 agreed at the end of the course; of the 17 who disagreed initially, only 8 disagreed at the end; and of the 25 who were originally undecided, 8 agreed and 8 disagreed at the end of the course.

TABLE 14

Comparison of Pre-Course and Post-Course Reactions to Statement "I Enjoy Thinking Through Theories That Are Based on Factual Material" (University of Cincinnati)

Post-Course Response	Pre-Course Response: Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Totals
Strongly Agree	1	2	3	4	2	12
Agree	0	3	5	2	2	12
Undecided	0	3	9	2	1	15
Disagree	3	3	8	1	1	16
Strongly Disagree	1	1	0	0	0	2
Totals	5	12	25	9	6	57

TABLE 15

Comparison of Pre-Course and Post-Course Responses
to Statement "I Enjoy Thinking Through Theories
That Are Based on Factual Material"
(University of Michigan)

Post-Course Response	Pre-Course Response: Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Totals
Strongly Agree	0	0	0	0	0	0
Agree	0	0	0	0	0	0
Undecided	0	0	0	0	0	0
Disagree	1	9	4	5	8	27
Strongly Disagree	0	2	0	6	6	14
Totals	1	11	4	11	14	41

The situation at the University of Michigan was quite different, as Table 15 reveals. Significantly, all 41 respondents either disagreed or strongly disagreed with the statement on the first semester post-questionnaire, as contrasted with only 12 at the beginning. Whether this has to do with antecedents of students in the course or with transactions in the course cannot be determined from the data at hand. A specially directed investigation could possibly throw light on this question.

Student Perceptions of Selves as Geography Students

In addition to the kinds of data described above, other questionnaire items were designed to determine the students' perceptions of their relation to each of the geography courses. In particular, the concern was with investigating how the student perceives his ability to do certain things, how geography relates to his plans, and other similar questions. These data were treated in the same ways as those already described, i.e., frequency distributions and various contingency tables.

Table 16 summarizes the responses to the item dealing with the student's reading rate in comparison to that of other college students, based on pre-course questionnaire responses. At all three institutions, students tended to consider themselves as average readers when compared to other college students.

When asked about the amount of effort they expected to exert in the geography course, in comparison to other courses, students generally indicated average or above average effort. That is, they reported that they expected to work in their geography course as hard as or harder than in their other courses (see Table 17). As Table 18 indicates, most students went into the course expecting to receive a grade of A or B. Only three respondents reported expecting to receive a grade lower than C. Briefly, then, students generally expected to exert average effort or more and anticipated that their exertions would be rewarded by relatively high grades.

TABLE 16

Geography Course Students' Estimates of Their Reading Rate as Compared to Other College Students

Reading Rate	Institution			Totals
	Iowa	Cincinnati	Michigan	
Very Fast	12	1	0	13
Fast	115	14	7	136
Average	387	80	31	498
Slow	90	17	9	116
Very Slow	13	3	2	18
Totals	617	115	49	781

TABLE 17

Students' Pre-Course Estimates of Effort to Be Exerted in Geography Course

Amount of Effort	Institution			Totals
	Iowa	Cincinnati	Michigan	
1 (Least)	10	1	2	13
2	51	4	3	58
3 (Average)	292	44	27	363
4	223	46	16	285
5 (Most)	33	19	0	52
Totals	609	114	48	771

TABLE 18

Students' Pre-Course Estimates of Grade Expected in Geography Courses

Grade Expected	Institution			Totals
	Iowa	Cincinnati	Michigan	
A	140	13	9	162
B	388	55	29	472
C	60	33	2	95
D	0	2	1	3
E or F	0	0	0	0
Totals	588	103	41	732

The following post-course questionnaire items provided some information about student evaluations of themselves in their relationships to the geography course they were just completing:

1. What is your estimate of your geography reading rate in comparison with how you believe others read geography?
2. How much effort, in comparison to other courses, did you exert on this course?
3. What kind of a grade do you expect to receive from this course?
4. In comparison to all other college courses, how interested were you in this course?
5. Would you recommend this course to others?

Some of the results of comparing responses to pairs of these items are presented here.

Table 19 presents the comparison of reading rate (1) with effort exerted (2) for students at the University of Iowa. Students felt that their geography reading rate was about the same as the reading rate of others. Also, on the average, students reported exerting less effort in geography than in other courses. There seems to be only a very slight relationship between responses to the two items (the tendency being that those who reported exerting less effort to consider themselves faster readers).

TABLE 19

Comparison of Post-Course Estimate
of Geography Reading Rate With Effort Exerted
(University of Iowa)

Effort Exerted	Geography Reading Rate					Totals
	Very Slow	Slow	Average	Fast	Very Fast	
5 (Most)	0	1	4	0	0	5
4	1	13	51	11	1	77
3 (Average)	2	26	166	29	2	225
2	2	30	95	25	4	146
1 (least)	6	12	47	19	6	90
Totals	11	72	363	84	13	543

Those students at the University of Cincinnati who exerted more effort expected to receive higher grades, with one clear exception (see Table 20). Consistent with this finding is the fact that students generally reported exerting average or above effort and expected grades which were primarily A's or B's.

TABLE 20

Comparison of Effort Exerted in Geography Course
With Post-Course Estimate of Grade Expected
(University of Cincinnati)

Grade Expected	Effort Exerted					Totals
	1 (Least)	2	3 (Average)	4	5 (Most)	
A	1	0	1	3	3	8
B	0	0	8	18	2	28
C	0	0	2	0	0	2
D	0	0	0	0	0	0
E or F	0	1	0	0	0	1
Totals	1	1	11	21	5	39

Also at the University of Cincinnati, a comparison was made of reading rate (1) with interest (4). The results of this comparison are presented in Table 21. Most students, regardless of their estimate of their geography reading rate, tended to regard the course as interesting. One observation of note is that people who estimated their reading rate as "very fast" were widely divided in their opinions about the interest of the course.

TABLE 21

Comparison of Geography Reading Rate
With Level of Interest in Geography Course
(University of Cincinnati)

Level of Interest	Reading Rate					Totals
	Very Slow	Slow	Average	Fast	Very Fast	
1 (High)	0	2	5	0	7	14
2	0	4	5	0	9	18
3 (Average)	0	1	6	2	9	18
4	0	1	2	1	4	8
5 (Low)	0	0	2	0	2	4
Totals	0	8	20	3	31	62

A final comparison between items in this category is summarized in Table 22. Almost all students at the University of Michigan, regardless of the grade they expected to receive, said they would recommend the course to others.

TABLE 22

Comparison of Grade Expected (Post-Course)
With Response to Question "Would You Recommend This Course to Others?"
(University of Michigan)

Would Recommend	Grade Expected					Totals
	E or F	D	C	B	A	
Yes	0	2	6	4	4	16
No	0	0	1	0	0	1
Totals	0	2	7	4	4	17

The items in this category which were included on both the initial and the final questionnaire included the following:

1. What is your estimate of your geography reading rate in comparison with how you believe others read geography?
2. What kind of a grade do you expect to receive from this course?
3. How much effort (do you expect to/did you) exert on this course in comparison to other courses?

The following tables present selected comparisons of responses to these items at the beginning and at the end of the course.

Table 23 presents the pre-post comparison of reading rate for students at the University of Iowa. The data presented in this table indicate little change in student estimates of their geography reading rate, on the average. The only percentable trend is towards a clustering in the "average" category on the post-course questionnaire.

TABLE 23

Comparison of Pre-Course and Post-Course Estimates of Geography
Reading Rate in Comparison to (Perceived) Reading Rate of Others
(University of Iowa)

Post-Course Response	Pre-Course Response					Totals
	Very Slow	Slow	Average	Fast	Very Fast	
Very Fast	0	2	2	3	1	8
Fast	0	3	27	28	5	63
Average	3	34	182	38	1	258
Slow	4	25	22	2	0	53
Very Slow	3	1	3	0	0	7
Totals	10	65	236	71	7	389

TABLE 24

Comparison of Pre- and Post-Course Estimates of Effort (to be) Exerted in Course (University of Cincinnati)

Post-Course Response	Pre-Course Response					Totals
	5 (Most)	4	3 (Average)	2	1 (Least)	
5 (Most)	1	1	2	0	0	4
4	1	10	4	0	0	15
3 (Average)	1	4	5	0	0	10
2	0	0	1	0	0	1
1 (Least)	0	0	0	0	0	0
Totals	3	15	12	0	0	30

As the data in Table 24 indicate, there was no noticeable trend with respect to the amount of effort (to be) exerted from beginning to end of course at the University of Cincinnati. Of the 12 people who indicated on the pre-course questionnaire that they would exert average effort on the geography course, 6 indicated that they exerted more effort on the course than they had expected; 5 students indicated "average effort" on both pre- and post-course questionnaires. Of the 15 students indicating between average effort and most effort on the pre-course questionnaire, 10 indicated the same response on the final questionnaire, while 1 student indicated more effort.

Open-Ended Questions

Several open-ended questions were included in the post-course questionnaire (see Appendix D). Responses to these questions were classified and tabulated in an attempt to discover whatever commonalties might exist. Not all students responded to these questions, and the responses which were obtained were in the students' own words. Thus, considerable care must be exercised in interpreting and drawing inferences from these responses.

The information obtained in this way is at best useful primarily to the instructor—but even there the responses will vary in usefulness; e.g., a comment that lectures were "vague and boring" has little value unless the instructor (or the evaluator) can follow up with questions designed to clarify what is meant. Other comments, such as "the readings and lectures were poorly integrated," can suggest specific areas for change—particularly if they are made by a number of different students in a course. (It may be, of course, that the instructor expects the students themselves to supply much of the integration that is lacking. In this case, such a comment might indicate that the instructor had not communicated his intentions effectively.)

In this evaluation, a number of students at all three institutions said that the lectures were too vague and boring. They commented that the topics should have been integrated better and suggested that this might be accomplished by a better integration of the readings with the lectures. There were

some instances of contradictory comments about the lecture section from students at the University of Iowa. Some said that more concepts and theories should have been presented, while others felt that more theory and fewer examples were necessary. Some students, particularly at the University of Cincinnati, felt that the readings were too complex and difficult. This group felt that the use of more visual aids would have been helpful.

The major evaluative comment about the discussion sections asked for more integration with the lectures. The major concern seemed to be with coordination of lecture material and reading material during the discussion period. Some students also complained that the discussion period was, in fact, just another lecture section and there was no real opportunity for discussion. One could—in evaluating his own course—get data on this point by collecting observations of the discussion-period transactions.

Most students made favorable evaluative comments concerning the usefulness of the course content. Students felt that the content gave them a better understanding of behavior and of cultures, since they now understood why people and things were located where they were. Some of the students related geography to their own field; i.e., if they were business students, they mentioned that this course would enable them to find a better location for their business. Education students commented that the course either prepared them for teaching social science or gave them a broader perspective on the different cultures that they would encounter. (Contrast this with some of the earlier and succeeding comments about the negative reactions of education students to these innovative courses.)

Semantic Differential

One technique which seems to be a potentially valuable one for collecting information about student opinions is the semantic differential. In this evaluation, students were asked to respond to the concept "Geography" by indicating their perceptions of the concept on each of 24 scales. The scales were of the following type:

Good_____:___X_:_____:_____:_____:_____Bad

Thus, if a student felt that geography was moderately good, he would check the second space from the left, as indicated in the example. (Appendix E presents the instructions and complete set of scales for this concept.) Students were asked to respond to this instrument on both the pre- and post-course questionnaires.

The semantic differential has in recent years proved to be a quite valuable technique for getting at the connotative meanings of concepts. Fairly consistently, three dimensions of connotative meaning have been found when factor analytic techniques are applied to semantic differential responses. The primary dimension almost invariably has been described as "evaluation," with "activity" and "potency" being the other two. The semantic differential scales used in this study placed considerable emphasis—as might be expected—on scales which have been well established as related to the evaluative dimension of connotative meaning. (For a more thorough description of the semantic differential, see C. E. Osgood, G. J. Suci, and P. H. Tannenbaum, The Measurement of Meaning, 1957.)

In this section, data are presented with little attempt at interpretation. The intention has been to indicate the kinds of information that can be obtained through use of the semantic differential. It is anticipated that this

information will be of value primarily to the instructor, who can make judgments about the extent to which student perceptions of the field have been changed in a desirable (or undesirable) manner during the course. The instructor can also determine the extent to which student perceptions of the course and the instructor correspond with his own (or his desired) perceptions.

Figure 1 presents the mean profile of students at the University of Iowa for the two administrations of the questionnaire. There were 619 students for the pre-questionnaire, 550 for the post-questionnaire. The value of 4.0 is the "neutral" point on the scale, and is indicated by a horizontal line in Figure 1.

Considering first the pre-course profile, note that students at this time felt that geography was good (mean = 4.94), practical (mean = 5.17), descriptive (3.11), important (5.04), concrete (2.67), meaningful (5.24), important for the future (4.97), comprehensive (5.05), precise (5.14), topical (5.15), vocationally valuable (4.81), scientific (5.12), valuable (5.19), and logical (5.44). On the post-questionnaire, the trend was toward the less desirable adjective on 20 of 24 scales (although in no instance was the evaluation actually negative). In view of this trend, those scales for which the change was positive are noteworthy, however slight the change actually was. Thus, students perceived geography as more analytical and less descriptive (change = .80), more changeable and less stable (change = .69), more complex and less simple (change = .19), and more abstract and less concrete (change = 1.33).

Figure 2 represents pre-course (n = 49), first semester post-course (n = 52), and second semester post-coarse (n = 18) profiles for students at the University of Michigan. Note for this group the very high means on almost all scales, the two exceptions being the "descriptive-analytical" and the "concrete-abstract" scales. The high degree of similarity between pre-course and end-of-first-semester profiles seems to indicate that students' experiences in the course did not have much effect on their perceptions of geography, while the end-of-second-semester profile is noticeably different from the other two, having generally higher means. Two explanations for this change are readily found. First, since students were not required to enroll for both semesters, those whose responses were less positive may have chosen not to take the second semester, so that the changes indicated in Figure 2 are influenced by this self-selection (or perhaps it takes two semesters to get students to change their perceptions). The fact that the first semester treated Europe and the Americas and the second dealt with Asia and Africa opens up the possibility that some of the changes reflect different reactions to different subject matter. A second possibility is that the kind of teaching which can occur in a class of 18 students is so different from what is possible in a class of 50 that the 18 are more favorably disposed toward the subject after a semester. Any one or a combination of these explanations may be correct. It must be recognized, however, that some totally different factors may be involved, factors which have not been suggested here.

Figure 3 represents the profiles for students at the University of Cincinnati. For the pre-course questionnaire, means are based on the responses of 60 students, while those for the end-of-course questionnaire are based on 72 respondents.

At the beginning of the course, these students felt that geography was practical (mean = 5.08), descriptive (3.72), useful (5.38), important (5.28), complex (5.27), concrete (2.66), meaningful (5.37), important for the future

Figure I

Semantic Differential Responses to Concept "Geography"

University of Iowa

Semantic Differential Responses to Concept "Geography"

University of Michigan

Figure 2

Semantic Differential Responses to Concept "Geography"

University of Cincinnati

Figure 3

(5.15), comprehensive (5.45), precise (5.32), topical (5.18), vocationally valuable (5.23), scientific (5.53), valuable (5.53), and logical (5.43).

By the end of the course, seven of these reactions had changed 0.5 scale points or more: from practical towards theoretical (mean change = 1.40), from descriptive towards analytical (mean change = 1.18), from stable towards changeable (1.07), from clear towards unclear (0.96), from concrete towards abstract (1.76), from precise towards vague (1.24), and from vocationally valuable towards vocationally worthless (0.67).

Three other concepts were evaluated using the semantic differential in the end-of-course questionnaire. These were "This Geography Course," "My Lecturer," and "My Laboratory or Discussion Section Instructor." Each of these concepts was evaluated on 26 scales, many of which were different from those used for the concept "Geography" (see Appendix E).

Figure 4 presents the profiles for the three courses on the 26 scales for the concept "This Geography Course." Although all three courses are presented in the same figure, it would not be appropriate to compare the courses with one another in order to judge whether one course was better or worse than another. After all, the courses are very different in intent and content, the contexts in which they were taught are different, and the students enrolled in each course were quite different from those in the other courses.

Inspection of Figure 4 reveals that students at University A (represented by a solid line) felt their course was somewhat bad, boring, scientific, taught in an informal atmosphere, and inferior. None of these judgments is at all extreme: all are within one scale value of the neutral point.

Students at University B (.....) felt their course was good, interesting, important, clear, meaningful, sophisticated, academically integrative, influential, important for future, comprehensive, timely, and logical. Their evaluation was generally more positive than that of students in the other courses, but this observation must be qualified in the same way as the results for the second semester evaluation of "Geography"; i.e., these data are based on the same 18 students who responded to that concept.

Students at University C (-----) rated their course as stable, new, complex, sophisticated, difficult, important for the future, comprehensive, timely, scientific, and deep.

Figure 5 presents profiles illustrating the responses to the concept "My Lecturer." Note that all three profiles portray a person perceived as friendly, organized, sincere, opinionated, fair, and polite. One profile indicates a lecturer who is, in contrast to the others, rated as being quite interesting, a successful teacher, easy to understand, sensitive, and permissive. (Note: It was not considered relevant to identify the instructors represented by these profiles. The profiles are presented to illustrate how data from this semantic differential may be used to show an instructor how his students perceive him.)

In Figure 6 are the profiles of the three groups for the concept "My Laboratory or Discussion Section Instructor." The remarkable feature of this figure is the high degree of similarity across all three courses. (It should be noted that the profile for students at University A represents a composite of ratings of the 12 teaching assistants in that course, while the profiles for the other two courses each represents ratings of a single teaching assistant.) At all institutions, the discussion leaders were rated as friendly, sincere, approachable, careful, fair, sensitive, and polite.

Semantic Differential Responses to Concept "This Geography Course"

Post-Course Questionnaire

Figure 4

Semantic Differential Responses to Concept "My Lecturer"

Post-Course Questionnaire

Figure 5

Semantic Differential Responses to Concept "My Discussion Section Instructor"

Post-Course Questionnaire

Figure 6

Achievement Test Data

In an attempt to assess in some minimal way the existence of "common" knowledge acquired by students in these three courses, the evaluators solicited from the three course authors questions covering what they felt to be some of the basic concepts in geography. The reasoning was that there is a set of concepts which students in any "introduction to geography" course should have acquired. Additionally, each of the three course authors was in the best position to select questions relevant to his own course, and it was anticipated that some of these questions should also be acceptable to the other two authors.

The idea that beginning college geography courses should be expected to produce some commonalty of student learning is an appealing one and possibly reasonable. Perhaps, however, the commonalty should be sought in attitudes and beliefs about geography rather than in knowledges and understandings of a geographical content. The section on semantic differentials does show evidence that beliefs and feelings about geography tend to be common on many points across these three courses. It might be of use in the long-range improvement of college geography to study student outcomes across a wide range of beginning courses in terms of beliefs and feelings about geography.

In this particular study, however, none of the people involved had the advantage we now have of being able to look at real data. It was decided that the commonalty we felt should be there would show in knowledges and understandings of geographical content. Lack of lead-time and of money denied the possibility of a full-blown test development effort for this purpose. Such a development would demand 5 to 10 working days of each of 8 to 10 geographers together with some assistance by test specialists. Items should be developed according to statements of desirable outcomes and the items should be tried out on known groups and the results analyzed for revision purposes. However, since the present venture was seen as a pilot study, it was decided to try a much less commendable but much more feasible approach. The authors were asked to submit items which they already had and which they felt might be appropriate for any "beginning" course. Then each author was shown all items and asked to indicate those which could be appropriate to his course. Finally, those items which had the most agreement were then chosen for the pilot test. Originally 42 items were submitted. The "appropriateness" question cut this number to 16 items. This is not surprising since the submitted items had been developed originally for quite different purposes than that of assessing commonalty across beginning courses. The test appears in Appendix F. Items 2 and 3 appeared to be quite difficult, as only 21.3% and 24.7%, respectively, of the students answered those items correctly. Items 10 and 14 appeared to be the easiest items, as 82.1% and 78.5% of the students answered those items correctly.

The mean score on the test for the total group was 9.37, with a standard deviation of 2.54. Test reliability, determined by the Kuder-Richardson (KR-20) technique, was .507. The coefficient of discrimination was .943. The distribution of scores was negatively skewed, indicating that there were more high scores than low. The score distribution is presented in Table 25.

Table 26 shows the mean score and standard deviation for the students by universities. Students at the University of Michigan scored slightly higher than students at the other two universities. It should be noted, however, that only 17 second-semester students at the University of Michigan took

TABLE 25

Distribution of Scores
on Achievement Test for All Students

Raw Score	Frequency
1	1
2	4
3	7
4	11
5	20
6	33
7	57
8	85
9	94
10	100
11	79
12	56
13	49
14	18
15	4
16	1

the achievement test, as contrasted with 85 students at the University of Cincinnati and 517 at the University of Iowa. The possibility that many of the students in this group are atypical has already been discussed. In addition, the fact that these were predominately upperclassmen might be a contributing factor.

At the University of Cincinnati, Item 1 appeared to be particularly easy (87.1% passing the item), while Item 8 appeared to be the most difficult (27.1% correct responses). At the University of Iowa, Item 10 appeared to be the easiest item (82.4% passing), while Item 2 appeared to be the most difficult (19.1% passing). Finally, at the University of Michigan, Items 10, 7, and 11 appeared to be easy (100%, 88.2%, and 82.4%, respectively, passed the items), while Item 8 appeared to be the most difficult (29.4% passing).

As indicated previously, each instructor from the three universities involved in this study submitted items for the achievement test. Tables 27, 28, and 29 group the items by the university at which they were written,

TABLE 26

Achievement Test Means and Standard
Deviations by Universities

University	Mean	SD
University of Cincinnati	9.65	2.31
University of Iowa	9.28	2.57
University of Michigan	10.88	2.18

TABLE 27

Responses to Items Written at University of Cincinnati

Item Number	Percentage of Students Passing		
	University of Cincinnati	University of Iowa	University of Michigan
2	30.6	19.1	41.2
5	76.5	54.0	64.7
8	27.1	24.2	29.4

TABLE 28

Responses to Items Written at University of Iowa

Item Number	Percentage of Students Passing		
	University of Cincinnati	University of Iowa	University of Michigan
7	68.2	65.8	88.2
9	43.5	78.9	64.7
10	76.5	82.4	100.0
11	68.2	67.5	82.4
12	63.5	59.8	52.9
13	58.8	51.8	64.7
14	71.8	79.9	70.6
15	57.6	61.3	64.7
16	71.8	63.2	64.7

TABLE 29

Responses to Items Written at University of Michigan

Item Number	Percentage of Students Passing		
	University of Cincinnati	University of Iowa	University of Michigan
1	87.1	75.2	88.2
3	36.5	30.9	70.6
4	56.5	48.9	70.6
6	70.6	65.0	70.6

and show the percentage of students at each of the universities passing the items.

Students at the University of Michigan tended to do better than students from the other universities on questions written at the University of Michigan. Students at the other universities did not show a systematic tendency to be more successful on items written at their university.

With the possible exceptions of Items 3 and 9, the proportion of students passing each item from each university tended to be clustered in noticeable patterns. If, on a given item, a high percentage of students from one university passed the item, a similarly high percentage of the students from the other universities also passed the item. Differences among the three universities with respect to the percentage of students passing a given item were small.

Instructor Impressions (Interviews)

In evaluating a course, one useful source of data is the instructor's report of his experiences in teaching the course. There are several ways in which one may obtain data about these experiences: checklists to be filled out periodically during the course, a "log" in which the instructor records what he considers to be significant events (and his reactions to them) occurring during the course, or a structured interview shortly after the conclusion of the course, to give just three examples. Of these three, the log is probably the most time consuming and perhaps the most informative, while the checklist takes the least time and is the most restrictive in terms of the information it yields. The post-course interview represents a compromise between the other two, providing more information than the checklist but requiring less time than the log. It was for this reason that this approach was used.

Each of the three course author-instructors was sent the interview questions in advance. Two CIRCE representatives then interviewed each author and his teaching assistant(s). The interviews were recorded and later transcribed.

The following are the questions on which the interviews were based:

1. If you were to teach the course again next term, what changes would you make? Why?
2. What parts of the course did you feel went especially well this time? (Consider such things as instructor enthusiasm, flow of classroom transactions, student interest.)
3. Were there any parts (from single lectures to entire sections) of the course that you consider particularly important and/or relevant but in which student interest was conspicuously absent? If so, can you suggest ways to remedy this?
4. The inverse of 3 – that is, were there parts of the course in which student interest was high but which you considered to be of only marginal importance?
5. Now that you have taught your course, in what ways do you think it is an improvement on traditional courses at this level? (Or is it?)
6. Do you remember any specific classroom transactions as being particularly good or bad? (This should be considered from the point of view of things to be sure to do again or things to avoid by all means in the future.)
7. Having taught the course, would you like to require special prerequisites of students if you were to teach it again?
8. Would you say that the course as you taught it would require more, the same, or less work on the part of a new instructor than most "early" geography courses?
9. What kinds of interest did the course arouse in other members of the faculty, both in your own and other departments on campus (e.g., curiosity, as a basis for modifying their own courses, in order to be able to advise students, or whatever)?
10. Assuming such interest, in what ways was it manifested (formal discussions, group meetings, over a cup of coffee, etc.)?
11. Are you aware of any interest or concern on the part of either students or faculty in future offerings of the course?

These 11 questions were viewed more as guidelines than as a set to be rigidly adhered to. The extent to which the interviews followed these questions varied from very closely to almost not at all. The following pages present summaries of the three interviews.

University of Michigan

Interview with Dr. Ann Larimore and Teaching Fellows Earl Scott and Ed Limoges, University of Michigan
(James L. Wardrop and Thomas J. Bligh, CIRCE, Interviewers)

1. Student Characteristics

The year 1967-1968 was the second year the course had been offered at the University of Michigan. The majority of the students enrolled found out about the course through reading the catalog. Some of them obviously had "quite a rigid preconception of what the course would be like," a conception which differed considerably from the actual course. Evidently, what the students wanted was "a description of the climatic regions of the world and then the customs and the people who live in those places." In other words, many students thought that a world regional geography course should be the kind of course this one was designed to replace.

Other student characteristics which came out in the interview included their difficulty in taking notes while looking at slides (and slides were an integral part of the lectures) and a general difficulty in developing the conceptual and intellectual skills demanded by a course such as this one. Nevertheless, neither the instructor nor the teaching fellows felt that prerequisites for the course would serve any useful purpose.

Among the comments about perceived reactions of students to the course were that it came as "a great discovery" to them that the American norm is not a universal one. This was related to their interest in an "exotic lands and peoples" approach to world regional geography. Also in the same vein, students seemed to find human phenomena intrinsically interesting, while such topics as climate, physiography, and resource use "turned them off."

2. Facilities and Materials

Turning now to a consideration of the facilities and materials involved in the course, it was noted that even though students made considerable use of Goode's World Atlas, they nonetheless seemed to need the security and familiarity of an assigned text. As the course was taught at the University of Michigan, slides were used extensively as a core for lecture presentation, rather than as illustrating what had been described verbally in some detail before. Especially effective, it seems, are aerial-oblique slides (views taken from a low-flying plane, a mountainside, etc.). This emphasis on the use of slides highlighted the difficulty (referred to above) that students had in taking notes during slide presentations. Complicating matters were the kinds of problems of physical setting encountered at almost any university: difficulty with setting up equipment, lighting, shape and size of room, etc.

Dr. Larimore also noted the lack of availability of certain kinds of visual aids. For example, many of the slides she used came from her own collection and others were obtained from sources not generally available.

Another kind of audio-visual aid which could be very useful is the film loop. In general, it seems that there is a need for packaged sets of audio-visual aids, each set focusing on or highlighting a particular concept or region.

3. Content and Method

Any course evolves over a period of time. Each time it is taught, some changes are made. An important purpose of the interviews was to determine what changes the course authors intended to make as a result of their experiences. This world regional geography course is being changed significantly. The major change is a condensation from two semesters into one. There are two major reasons for this change: first, too many students who complete the first semester do not, because of schedule conflicts, time pressures, etc., go on to take the second semester; secondly, a two-semester sequence in world regional geography does not fit the format at the University of Michigan and many other institutions where such a course might be offered. At the time of this interview (June 1968), Dr. Larimore had not yet decided entirely how this condensation was to be effected. Of course, she planned to cut the reading list about in half and reduce the regional coverage. Beyond these changes, she indicated that she might "try to capsulize the first few weeks of global coverage without omitting. If this does not work out, then I shall omit topics."

Other, more specific, changes were also indicated. Included among these were the use of more reprints from the Bobbs-Merrill series and the preparation, by the instructor, of a number of study aids (e.g., checklists of place names). As Dr. Larimore said, "...while they [the students] should be doing [this] for themselves, they don't do it."

There were some other comments about the course which, while not leading to suggestions for change, provide useful information for the evaluator:

a. The sections of the courses dealing with diffusion seemed to have been well received by the students. They especially liked the materials on the patterns of language and linguistic study.
b. The presentation of controversial issues in geography seemed to arouse students' interest. Whenever a topic was discussed about which geographers disagree, an effective technique was to present the various viewpoints emphasizing the vitality and incompleteness of geography as a field of study.
c. "One thing I believe in much more strongly than when I started is that the course [should attempt to] integrate physical and human geography," rather than treating them as separate subdisciplines within the field.
d. Students complained that "things were not taken up in the same order, topic by topic, for every region. It would have been easier to organize. . .notes if they had been." This was done deliberately, in an attempt "to evaluate which of the variables was most significant for the development of the region."

As a consequence of reactions like this, Dr. Larimore concluded that "there seems to be almost an unlimited need for continually going back over the thematic structure of the course and making it explicit to the students." Only the very brightest students can make the systematic theoretical connections themselves; the others need considerable help.

4. Acceptance and Adoption

This course started at Michigan as an experimental course, being taught for the Commission on College Geography. It has now become an integral part of the departmental offerings.

When considering the amount of effort required on the part of an instructor to implement this course, Dr. Larimore commented that a new instructor, who is going to teach three courses a semester probably should not try to use this course. It requires too much time and effort to prepare for it. One of the teaching fellows, Earl Scott, commented that ". . .it would require quite a bit of work on the part of the instructor, mainly because the material that would be used would be varied and not in one textbook. I think this is possibly the [most important] aspect of the course. It means that the instructor, if he's accustomed to using the traditional approach, would be forced to go to a library and read up on his material." From this point of view, it would probably be easier for someone just out of graduate school to prepare for the course.

Perhaps the best way to summarize Dr. Larimore's reactions to and experiences with this course is in her own words:

> Despite the initial horror at the idea of covering the whole world in one quarter or one semester, I definitely think there is a reason for having the course in the curriculum—an intellectual reason—that too few American students are oriented toward an explicit world view. Geography is one of the few disciplines that is equipped to do this. Almost no other social science can do this because they deal almost entirely in terms of American culture. Anthropology is perhaps the other discipline in which it is possible. But anthropologists have not been nearly so interested as geographers have been recently in the question of prediction and overriding theoretically-based, mathematically-expressed models and some of the techniques and approaches you need in order to do this. I think that with the increasing world involvement of the United States and the United States citizens, this kind of general education course has more place in the curriculum than it has had traditionally. I also think that this course is worth the effort. I believe—and I use that rather than, say, "I'm convinced" or "I feel that it has been demonstrated"—but I really believe that there is value in a varied approach; in other words, one of the things that is built into this particular course is that the student from the very beginning is exposed to more than one conception of geography of the world through the varied readings and through the presentation of scholarly controversy in lectures. In contrast, as soon as you begin to build a course around a single textbook (Even if it is a textbook by a collection of authors, it is edited by one person.) you get a monolithic approach, you do not get any kind of impact of the great diversity that there is in ways of interpreting the world. If someone wanted to implement this course, I am not sure that these materials we have collected together are enough to do it. Maybe they are. Maybe it takes more materials really to make it implementable for many people, but I think it is a question of gradual development. It is going to take several years to develop. You have to expect to spend—each year—a period of time preparing a particular

section of the course. Maybe in one year you devote a couple of weeks to improving your reading list and revising it, and another year you say, "Well, I'm going to spend a week rewriting the lecture that I give on Asia." You have to do it by sections. So your first effort is inevitably going to be uneven, but you can certainly systematically improve it as you go along. I think that there are general ideas which can be incorporated in other people's courses, even if they didn't use all this formula.

University of Cincinnati

Interview with Dr. Robert McNee and Teaching Assistant
Miss Dorothy Sonntag, University of Cincinnati
(James L. Wardrop and Margaret H. Pjojian, CIRCE, Interviewers)

The experimental geography course at the University of Cincinnati, "Introduction to Geographic Behavior," was introduced during the year 1967-1968. In this interview, the instructor and his teaching assistant expressed their overall impressions of the course and the reactions they received from students and others more indirectly concerned with the endeavor. Suggested modifications were discussed, indicating ways in which the course could be improved for any future presentations.

One of the main problem areas for students involved reading assignments and the general nature of the course. A major difficulty seems to have been that many students had not previously been exposed to such a "concept-centered" course, and they therefore were quite uncertain as to what performance was expected of them. In other academic situations, students had succeeded in postponing reading assignments until exam time, at which time they would "cram" in order to pass. Unfortunately, they discovered that this means of studying was ineffective in this learning situation, particularly in the second semester, when no exams were given. The main emphasis in the course was on discussion and interpretation, not merely on recall of facts. At the beginning of the course, students repeatedly appeared in class without having completed the required readings. Thus, discussion was impossible. The instructors concluded that more allowance should be made for the study habits that students bring with them to the classroom. An attempt must be made to modify those habits so as to make them more consistent with the objectives of the course. If this course were taught again, the instructor recommends preparing a 10-15 page handout each quarter indicating in greater detail how the readings and lectures are to be related to each other and to the discussion groups. He feels that such a syllabus would provide the student with the guidance and security needed to cope with such a novel situation.

In general, the reading materials used were not well received by the students. Many found the reading assignments "a little too heavy," and disliked the two paperbacks assigned. "The course as originally planned was going to use all reprints from Bobbs-Merrill. Bobbs-Merrill has had these for years but not in geography. They were supposed to be ready in time for this course, but they weren't. So then I made different plans." Dr. McNee said that, in future presentations of the course, there would be substitutions of reprints for the areas the paperbacks were meant to cover.

A highlight of the course was the assignment, in the second semester, of two major term papers requiring a great deal of thought on the part of the students. Students were asked to respond to a series of loosely structured, open-ended questions requiring them to compare, contrast, and relate what they learned through the readings. "They did pretty well with that," so Dr. McNee concluded that "right off in the fall quarter I should have had short assignments of that sort to get them busy trying to relate these readings to each other. Then they would have been better able to discuss. The papers would be a good means of making students relate the readings to one another and apply them to real-life situations."

Most of the work in small groups in the fall quarter and much of the winter consisted of various types of activities such as plotting data and using maps.

> Then toward spring, we just weren't getting as much discussion as we wanted. so we dropped some of the planned activities and substituted discussion. I think if we had it to do over, we would have maybe half the discussion in the fall linked to homework assignments.... In other words, we would have about the same activities in the small groups throughout the year but in a different sequence. In the fall quarter, I think I would do a little bit more to force them also to get out in the field—not field work assignments as a group—I think most of those are a waste of time—but sort of homework assignments that would force them to check more on reality in relation to documentation.

There seem to have been no special difficulties concerning such aspects of the course as sequence, content and topics covered, and once students "got into the course and knew what they were doing a little bit and understood the problems," they "rather enjoyed this approach, what we were doing. Many of them said as much."

Particularly at the beginning of the course, the grades of upperclassmen were much higher than those of freshmen and sophomores. However, towards the end of the course, this was not the case. Miss Sonntag, teaching assistant for the course, said:

> I don't think the others came down so much as the fact that the freshmen came up. We were getting what their true abilities were toward the end. At the beginning this was more or less hidden because of their inability to cope with the problems of the course—the external problems, not the ones that were built into the course, but the ones that were in themselves.

Among the activities well received by the students was one involving the concept of central-place theory. The concept was first introduced in relation to the city, with the hope that transfer would occur and that the students could apply their knowledge of it to the country. This transfer failed to occur, possibly because the students had "certain previous learnings about the country that just weren't true. They might have been true in 1868, but not in 1968." While trying to think of a way to aid in such transfer, Dr. McNee received a Christmas letter from relatives in southern Minnesota, describing places his relatives had recently visited and the activities they engaged in while there. "With a little extra input about what [Dr. McNee] knew about the family, [he] constructed a little activity for the students that involved their plotting on a map the frequencies with which people went to these points and what for. Then they had to write a little essay relating this

to central-place theory." The activity was successful because the letter was something the students could relate to, probably because of its "homey flavor" and the time of year when it was received. This particular activity was outstanding also in that it "broke the ice," after which "things started going a little better." Another activity that was successful was a game situation involving locating a manufacturing plant, with this particular exercise being extended to include the world scene.

Unfortunately, those enrolled in the course did not understand the importance of the lectures concerning the iron-steel complex. With respect to this problem, Dr. McNee said:

> I think if that were to ever go over very well with this particular bunch of students, they'd have to have some groundwork laid for them—maybe a lot of groundwork—in terms of the real significance of technology. I think that's something that a typical freshman coming to college—or even a typical college graduate—really doesn't have any conception of. In social studies we discuss these inventions and various things as isolated events, not how they are related to each other, and students don't see that where a blast furnace is also will be where hundreds of thousands of people are going to be. It's this connection of people and technology which they don't really get. So I think I'd either have to drop that or else delve in quite a bit more—lead up to it so they would see the point.

Another problem-area for students concerned an exercise in which they were to map the process of diffusion of paper. Miss Sonntag said:

> The funny thing was that very few of them actually understood diffusion. Actually, this was one of the exercises in which they did the poorest. I think they thought it was going to be too simple, and they didn't give any thought to it. The ones who did sit down and give it some thought really got something out of it, because they saw how the thing worked then. But too many of them just thought, "Oh, well, this is going to be simple," and they just put a bunch of lines in there. They were completely wrong. When they got their papers back, they were pretty unhappy about the whole thing.... One person commented to me on the exercise. He said, "This looked awfully simple when you first start it, but if you're really going to answer this properly you're going to have to think about it." He was right; it did take some thinking. But not many people realized this.

The attitude of many of the students was negative throughout a great deal of this course. Many of those in Education were constantly worrying that such a course was not preparing them for what they considered to be the role of the teacher. They kept asking, "But how am I going to teach this to my third [or fourth, etc.] graders?" What most of the students expected and wanted was a traditional approach to teaching geography. The instructors stated that people are forever talking about how revolutionary students of today are, but they (the instructors) would characterize most of those in their classes as being quite conservative. Because of the problems encountered with Education majors, Dr. McNee remarked that perhaps a traditional approach would be better for such students. However, "this definitely is the program for a regular arts and science group."

Some students complained that they were not doing as well as they should in the course because they did not have the proper academic background. The instructors dismissed such statements as unwarranted, and said they do not think there should be any formal prerequisites for the course except perhaps that students "had had experiences like this before." They also stressed the point that the course should be an elective and not required.

In terms of the amount of work such a course demands from the instructor, the conclusion was reached that this would be related to the instructor himself:

> There's a very strong attempt in the course to link it up with what...has been going on with the field of geography in the last ten years. ...It would depend a lot on the kind of graduate school that he went to. ...If the instructor is someone who is just completing his graduate work or has been out a year or two from a relatively well-rounded graduate program, I don't think this would be necessarily any more work for him than a more traditional course. If, on the other hand, he is someone who has been around longer and has been giving the introductory course within a traditional framework, then I think it would be a lot more work for him because the whole approach—not just in terms of the teaching of the conception of what geography is—would be different.

The success of anyone new attempting to present this course would depend a great deal on how familiar he is with current literature in the field, because the course relates closely to the literature. In addition, the course would have to be updated regularly in accordance with what is being written in the field, although the general approach would remain unchanged.

Because this course has a "rather elaborate framework," anyone unfamiliar with its overall design would be unable to teach it. Anyone knowledgeable about current writings, however, should experience no great difficulties.

Since this course was presented by the department chairman, it had more influence on what other faculty members in the department of geography did in their courses than it might have otherwise. Others in the department, seeing that he favored "curricular change and experimentation," felt encouraged to experiment on their own. This course seems to have "helped establish a climate in the department in favor of experimentation and innovation." Although Dr. McNee, because of other responsibilities, will be unable to present this course again, he feels that many of the basic ideas behind this experimental course will probably get "woven into the regular courses." Even though the course itself may not appear again as taught this time, parts of it will likely appear in the courses of others in the department.

The instructors interviewed agreed that such a course could not possibly be presented in one semester. A one-semester presentation would be possible only by eliminating certain parts, such as de-emphasizing aspects like the urban stress. Such a procedure would be inadvisable, however, because both instructors agreed that it would lead to a traditional approach, with its typically disparate study of "lists of strange places and things." Perhaps the developers of this course were too ambitious. If so, a solution might be to "reduce the number of topics covered and do a better job with them."

Throughout the course the instructors continually discussed problems each was encountering. Miss Sonntag said:

> At the very beginning when we were first working on those map exercises, I think we were getting to the point where we might have been in danger of just stressing this a little too much. But we talked it over, and we realized that this was happening, so we made some changes—some rapid changes—in our thoughts. We did do this all along. When we felt that maybe something was being stressed a little too much, we were flexible enough to change. I think this did come from the fact that we would sit down and talk about what kind of problems we had. When we felt that there was a danger of maybe overstressing something, we weren't averse to changing our course in midstream, so to speak—which is what we did obviously in the last quarter. We completely switched away from what we had been doing, the approach we had been taking, to this other approach.

At the end of the interview, Miss Sonntag commented:

> The only thing I would like to say is that if the course had ended after one quarter, I would have been terribly discouraged. When it finally got to the end I was much more encouraged. At the end of the first quarter it was really frustrating, but after we read the term papers, it was very much more encouraging.

University of Iowa

Interview with Dr. Kennard Rumage and Teaching Assistants Robert Hall, John Harlin, Paul Krause, Robert Kunkel, and Robert Norris, University of Iowa (James L. Wardrop and Thomas J. Bligh, CIRCE, Interviewers)

"Introduction to Geography—A Spatial Approach" was taught to approximately 600 students. The course was organized into one lecture and twelve discussion groups. Lectures were given once weekly, and discussion sections met twice a week. Most students took the course as partially meeting their social science requirement. One possible reason for some of the dissatisfaction they expressed with the course may lie in the fact that, according to Dr. Rumage, "I don't think you can describe [for the catalog] the course in a meaningful fashion," so that students were not sure what to expect from the course.

As an introductory course, it had no prerequisites. There was general agreement that none were needed, although the considerable use of mathematical and statistical techniques would make some acquaintance with statistics useful.

As a result of the experiences with the course, the author has made or is considering several changes in both content and organization. These changes are based in part on student reactions to the course as it was presented. To put the following comments in perspective, consider this comment from one of the teaching assistants: "I don't think any of us had any argument about what we taught—it was how we taught it and connected it together."

The problem of continuity seems to have been a major one throughout the course. The students had difficulty perceiving the overall structure of

the course and the connections between various parts. Much of this interview (or, more accurately, "recorded staff meeting") was devoted to considering various solutions to this problem. One suggestion was that the students seemed to need "a nice piece-by-piece outlined organization of the course." Another suggestion was that a good textbook could provide the missing linkages between various parts of the course, but, as Dr. Rumage pointed out, there is no text currently available that would fit the format of this course. As an alternative to a text, it was suggested, greater use could be made of the Bobbs-Merrill reprints (with the further suggestion that Bobbs-Merrill be encouraged to expand their list of available materials). One problem with this approach is that it would require considerable reorganization of the course.

It was noted that students expressed considerable interest in those parts of the course dealing with physical problems (climate, topography, etc.). About half of the students felt that this was the best part of the course, although a significant minority failed to see how it related to the remainder. One suggested solution to this problem was to divide the course into two parts (in deed if not in name): "Introduction to Physical Geography" and "Introduction to Cultural Geography."

The one suggestion which was most favorably received was that Geography: Its Scope and Spirit, by Jan Broek, be used to introduce students to geography as a discipline. The book could be covered in one or two weeks and used as a springboard for the rest of the materials. It would provide students with a common background and give them an overview of the field.

Other changes in the actual content of the course were also discussed. It was indicated that too many topics were being covered in too short a time. "...we're trying to cover the whole field of geography in fourteen weeks," commented one teaching assistant. Particularly in the second half of the course, "we cover central place theory in one week, internal structure of the city in one week, spatial interaction in one week, spatial diffusion in one week, networks in one week." Specific changes in content included the complete omission of the material on sampling. As Dr. Rumage pointed out:

> ...When you think about sampling, how can you use sampling if people don't have statistics and do it in one period? If you are going to deal with sampling and make it significant, then you are going to have to take at least a week to do it, and you have to give them some meaningful examples of sampling. ...[The students] couldn't care less about sampling, apparently, most of them.

Another tentative change is the elimination of a section on location. Location "should be an integral part of the whole thing, should be structured right in through all the subject matter" (Rumage).

In spite of these problems the staff felt that the course was a good one—an improvement over the more traditional approaches to introductory geography. As one teaching assistant noted:

> I think we are developing in this course the sophistication...of inquiring "why?" instead of just describing it as it is. For geography to survive as a science or to claim its position in science, this is [essential]. ...We have to be able to tell them why... things happen. This is what the course is.

One reason suggested for student dissatisfaction with the course is that a great deal of time is spent talking about statistical and mathematical measurements, but these—except for a few very simple ones—are never really elaborated on. "We just tell them the result, without explaining how the results were arrived at."

It is hoped that the addition of another lecture the next year (so that there will be two lectures and two discussions per week) will provide the opportunity for better relating the various sections of the course and for treating the various concepts in greater detail and with more examples. Other suggested changes include the use of laboratory—rather than or in addition to discussion-sections; smaller discussion groups, which would require more teaching assistants; and the use of television to present the large group lectures.

Teaching assistants commented on the fact that they were much more effective in stimulating student interest in those topics they themselves were interested in and familiar with. Some of the problems of lack of discussion were attributed to the inadequacies of the teaching assistants to handle the material well, and it was suggested that, for a course with as large an enrollment as this one, it would be useful to have a "seminar" to train the teaching assistants. The problem was somewhat less severe than it might have been because of the relative latitude they were allowed in their selection and treatment of topics.

In discussing student reactions, the staff indicated that students keyed their behavior to the exams. Since the exams were prepared primarily by the teaching assistants, students felt that the large-group lectures and the readings were for the most part irrelevant. It was also pointed out that teachers (and Education majors) were unhappy with the nature of the course and would have preferred a more traditional course which they could translate directly for use in their own classes.

Dr. Rumage felt that this course would definitely require more work on the part of the instructor than would most introductory geography courses. The instructor must be prepared for every lecture; he cannot talk "off the cuff," both because of the organization of the course around concepts and because of its broad scope. Within the geography department at the University of Iowa, there was much support for this course as the kind that should be offered, especially because it provides students with the kind of background they need to go on to more advanced courses in the department. One teaching assistant mentioned that the geology department recommends that their students take this course. Finally, Rumage suggested that people are more likely to use parts of this course than to adopt the entire course.

Summary

A number of common concerns emerged from the three course evaluations. It may be that these concerns will be encountered in the initial tryout of almost any new course. The major difficulty encountered by students at all three institutions seems to have been the absence of a textbook. Students seem to need the security, the organization, and the continuity that a textbook provides. Yet, the course authors were agreed that in no case was there a text available which could appropriately be used in their courses. One of the consequences of this lack of a textbook seems to have been that each of the author-instructors found it necessary to devote considerable time and effort to providing students with material (either in lectures or handouts) to help them organize and structure the course content.

The second common problem was related to the role of teaching assistants (discussion leaders) in the three courses. In each course, the demands on these assistants (TA's) were considerable. They had to be prepared to talk about many topics, some of which they knew little about. As in many courses (be they new or traditional), the TA's were able to do a better job and evoke more student interest when discussing those topics in which they were themselves interested and about which they knew more. Whether the fact that these were innovative courses made these assistants more aware of this problem or whether such an awareness was stimulated by the evaluation process cannot be determined. In any case, one of the major concerns of the TA's was with how to handle this difficulty. Suggested solutions included allowing the TA's more latitude in their selection of discussion topics (University of Michigan) and a pre-course training session for TA's to prepare them better for their jobs (University of Iowa). This was less a problem at the University of Cincinnati, where only one TA was involved, than at Michigan (two TA's) or Iowa (12 TA's).

Other problems were encountered at only two of the three institutions. Notably, instructors at both the University of Cincinnati and the University of Iowa indicated that students in the College of Education (and school teachers returning to take courses) were quite dissatisfied with the innovative courses and would have preferred the more traditional world regional course. (This same reaction was reported at the University of Michigan, but not as coming particularly from students in Education.)

"Introduction to Geographic Behavior" was taught to slightly over 100 students at the University of Cincinnati. It was organized into two lecture and one discussion sections per week. About 68% of the students enrolled in the course were education majors taking it to fulfill a degree requirement. Because of their career plans, these students were dissatisfied with the content of this course and seemingly would have preferred a traditional "world regional" course. Additionally, the fact that this group was taking the course because it was required may have had an adverse effect on their attitudes.

Although the author-instructor felt that the content and the problem-solving approach were definite improvements over the traditional introductory course (except, possibly, for the education students who might have been better in a traditional course), one of the major difficulties was getting students to adjust their study habits to fit the needs of this course. The major difficulty seems to have been that students did not read assignments

before class. Since the class was intended to involve primarily a discussion of the problems raised during reading, this lack of preparation was a serious problem. The solution which seemed effective involved requiring the students to write short papers integrating material from several readings.

At the University of Iowa, over 600 students were enrolled in "Introduction to Geography–a Spatial Approach." These students were primarily (71%) freshmen and sophomores, mostly (70%) in the College of Liberal Arts and Sciences, and only a small percentage (16%) indicated at the conclusion of the course that they might take any more geography courses. (Only 5% responded that they would "probably" take another geography course, and 11% indicated they "might.") Students were taught in one lecture and two smaller discussion sections per week. All students attended the same lecture but were split into a dozen discussion groups. Perhaps because the course was designed to cover a large number of topics in a limited amount of time, continuity seems to have been the major problem encountered in its teaching. This was especially true during the second half of the course. Much of the discussion during the interview focused on possible ways of providing the linkages between topics which were needed.

At the University of Michigan, nearly 60 students were enrolled in the first semester of "World Regional Geography" and only 18 in the second semester. This decrease in enrollment resulted in part from the fact that a two-semester elective course is difficult for many students to schedule. This is particularly true for juniors and seniors who have less flexible schedules than do underclassmen. At Michigan the majority of the students were juniors and seniors, so that this factor may have been an important one. Because the two-semester sequence does not fit the format at the University of Michigan, the course has now been changed to a one-semester offering.

APPENDIX A. Student Pre-Course Questionnaire

The Association of American Geographers' Commission on College Geography, in conjunction with the Center for Instructional Research and Curriculum Evaluation of the University of Illinois, is gathering information on four college geography courses being taught at four different universities.

On several occasions throughout this term you are being asked to provide feedback information on this course. To provide some anonymity of responses, but at the same time to enable the center for Instructional Research and Curriculum Evaluation to assemble information from different questionnaires, please record your mother's maiden name when requested.

Information derived from these questionnaires will be used to improve geography courses here and also elsewhere in the country. Please be frank in making your responses. Your cooperation is appreciated.

Mother's Maiden Name_____.
Last First

Biographical data:

1. Age:_____ Marital status: ____ Single ____ Divorced
____ Married ____ Widowed

2. Sex:___M___F Year in College: ____ Fr ____ Soph
____ Jr ____ Sr

3. College:
   - ____ College of Agriculture
   - ____ College of Commerce and Business
   - ____ College of Education
   - ____ College of Engineering
   - ____ College of Fine and Applied Arts
   - ____ College of Journalism and Communications
   - ____ College of Liberal Arts and Sciences
   - ____ Other (Please specify): _____

4. Major:_____
   Minor:_____

5. Circle your cumulative grade point average:
   A A- B+ B B- C+ C C- D+ D D- E

6. Circle your CEEB math score: (If unknown, check here:____)
   300 350 400 450 500 550 600 650 700 750 800

7. Circle your CEEB verbal score: (If unknown, check here:___)
   300 350 400 450 500 550 600 650 700 750 800

8. In what courses are you currently enrolled?

Department and Course Number	Class Hours per Week	Course Title	Instructor

9. What is your university status?

___ Presently a full-time student and always have been a full-time student

___ Presently a full-time student but have previously (check as many as appropriate):____ been a part-time student

____ held a full-time job

____ been in military service

___ Presently a part-time student carrying___ class hours per week and

___ hours of work

___ Presently auditing this course but am a___ full-time student

___ part-time student

10. Which career objectives would you classify yourself as pursuing? Choose two of the following career categories. Place a "1" in the category which is most appropriate, and a "2" in front of the category that adds additional information:

___ architect
___ artist (including performing arts)
___ behavioral scientist or social scientist, not including geographers
___ biological scientist (including medicine)
___ businessman
___ educator
___ engineer
___ farmer
___ geographer
___ geologist
___ historian
___ housewife
___ journalist
___ lawyer
___ linguist
___ mathematician
___ philosopher
___ physical scientist (not including geology)
___ other (please specify):

_____

11. Circle the number of college courses that you have taken in each area:

Anthropology	1	2	3	4	5	6	More than 6
Economics	1	2	3	4	5	6	More than 6
Geography	1	2	3	4	5	6	More than 6
Geology	1	2	3	4	5	6	More than 6
History	1	2	3	4	5	6	More than 6
Mathematics	1	2	3	4	5	6	More than 6
Sociology	1	2	3	4	5	6	More than 6

List prior courses in geography, by title, as best you can remember:

High School Courses or Courses Having Geography Units	College Courses	Hours of Class per Week

12. In comparison to other college students, are you a

___ very fast reader

___ fast reader

___ average reader

___ slow reader

___ very slow reader

13. On the following page there is a series of scales, all of which are relevant to "geography." On each respective scale we would like you to indicate your overall impression of "geography." The words at the two ends of each scale are opposite in meaning. Place your "X" on the scale at the point which describes your impression of "geography." The following illustration of one such scale, "good-bad," explains the meaning of the possible alternative responses.

If you feel your impression of geography is very closely related to one end of the scale, you should place a mark as follows:

Good X : ___ : ___ : ___ : ___ : ___ : ___ Bad

OR

Good ___ : ___ : ___ : ___ : ___ : ___ : X Bad

If you feel that geography is quite closely related to one or the other end of the scale (but not extremely), you should mark as follows:

Good ___ : X : ___ : ___ : ___ : ___ : ___ Bad

OR

Good ___ : ___ : ___ : ___ : ___ : X : ___ Bad

If you feel that geography is only slightly related to one side as opposed to the other (but not really neutral), then you should mark as follows:

Good ___ : ___ : X : ___ : ___ : ___ : ___ Bad

OR

Good ___ : ___ : ___ : ___ : X : ___ : ___ Bad

The direction toward which you check, of course, depends upon which end of the scale seems most characteristic of "geography." If you consider your impression of "geography" to be neutral on the scale, both sides of the scale equally associated, then place your mark in the middle space:

Good ___ : ___ : ___ : X : ___ : ___ : ___ Bad

Important: Place your marks in the middle of the spaces, not on the boundaries:

GEOGRAPHY

good__:__:__:__:__:__:__bad

theoretical__:__:__:__:__:__:__practical

analytical__:__:__:__:__:__:__descriptive

useful__:__:__:__:__:__:__useless

stable__:__:__:__:__:__:__changeable

boring__:__:__:__:__:__:__interesting

important__:__:__:__:__:__:__unimportant

simple__:__:__:__:__:__:__complex

clear__:__:__:__:__:__:__unclear

concrete__:__:__:__:__:__:__abstract

meaningless__:__:__:__:__:__:__meaningful

sophisticated__:__:__:__:__:__:__unsophisticated

difficult to learn__:__:__:__:__:__:__easy to learn

academically isolated__:__:__:__:__:__:__academically integrative

respected discipline__:__:__:__:__:__:__disreputable discipline

not important for the future__:__:__:__:__:__:__important for the future

comprehensive__:__:__:__:__:__:__narrow

precise__:__:__:__:__:__:__vague

out of date__:__:__:__:__:__:__topical

vocationally worthless__:__:__:__:__:__:__vocationally valuable

scientific__:__:__:__:__:__:__unscientific

worthless__:__:__:__:__:__:__valuable

penetrating__:__:__:__:__:__:__superficial

logical__:__:__:__:__:__:__illogical

14. Do you have any relatives or friends who are professional geographers?

___ Yes ___ No

15. Compared to your other courses, how much did you know about the subject matter content of this course at the time you registered for it?

___ A great deal

___ Some but not a great deal

___ A little

___ Almost nothing

___ Nothing

16. Where did you obtain your information about the content and nature of this particular course? (Check as many as appropriate)

___ Friend who had previously taken the course

___ A member of the Geography Department

___ Staff member in another department: Department_____

___ My adviser

___ The college catalog

___ Other (please specify): _____

17. A. When you signed up for this lecture section of Introduction to Geography, did you do so (check as many as appropriate)

___ because you knew who would be doing the lecturing

Describe your impression of your lecturer as it was when you registered for this course:

easy___:___:___:___:___:___:___difficult

boring___:___:___:___:___:___:___interesting

___ because you wanted to have a geography course that met during this class period

___ because you had to have a geography course that met during this class period

___ because no other geography courses were available

___ other (please specify): _____

B. Answer if appropriate:

When you signed up for this discussion or laboratory section of Introduction to Geography, did you do so (check as many as appropriate)

___ because you knew who would be teaching the section

Describe your impression of your teaching assistant as it was when you registered for this course:

easy___:___:___:___:___:___:___difficult

boring___:___:___:___:___:___:___interesting

___ because you wanted to have a geography section that met during this class period

___ because you had to have a geography section that met during this class period

___ because no other geography sections were available

___ other (please specify):_____

18. How much effort, in comparison to other courses, do you expect to exert on this course?

1	2	3	4	5
least effort		average effort		most effort

19. What grade do you expect to receive in this course?

___ A

___ B

___ C

___ D

___ E (or F)

20. A. Does your curriculum, or do your present career plans, require that you take at least one geography course?___Yes___No If you answered "Yes," please complete the following:

Are you taking this particular course to fulfill this requirement?___Yes___No

Would you have enrolled in this course if you had not had to do so?___Yes___No

B. Are you taking this course because it is a prerequisite for another course?___Yes___No

C. Are you required, by your curriculum or career objectives, to take additional courses in geography?___Yes___No

If "Yes," are you taking a geography sequence in preference to another sequence?___Yes___No
If so, please specify the sequence:_____

If "No," at present do you have time in your future schedule for courses in geography?___Yes___No

D. Do you think you will sign up for additional courses in geography after you have completed this one?

Probably Yes	Maybe Yes	Don't Know	I Don't Think So	Probably No
_____	_____	_____	_____	_____

E. Given unlimited time in your schedule, do you think you would sign up for additional courses in geography?___Yes___No

21. By circling the appropriate code in front of each of the following statements, indicate your feeling about the statement—that is, the extent to which it applies to you.

				SA	I strongly agree
				A	I agree
				U	I feel undecided or ambivalent about it
				SD	I strongly disagree
SA	A	U	D	SD	I like to view colored slides
SA	A	U	D	SD	I like to study maps
SA	A	U	D	SD	I find it easy to memorize facts and figures
SA	A	U	D	SD	I like to travel
SA	A	U	D	SD	I like to formulate my own implications from factual materials
SA	A	U	D	SD	I enjoy mastering factual material
SA	A	U	D	SD	In the past I have enjoyed the study of geography
SA	A	U	D	SD	I enjoy field trips
SA	A	U	D	SD	I know a great deal about reading maps
SA	A	U	D	SD	I enjoy thinking through theories that are based on factual material
SA	A	U	D	SD	I find it easy to read and master large quantities of descriptive material
SA	A	U	D	SD	I find it easy to think things through on a theoretical basis

22. The following are a variety of objectives and goals of various geography courses.

By circling the appropriate response, indicate your valuing of these objectives and goals according to the following key:

VI A very important objective for me

I An important objective but less so than some

S A satisfactory objective but less so than some

N Definitely not important to me

R An objective I actually would reject as a waste of effort

VI I S N R To learn enough special geographic terms so that we can read geographic materials with understanding

VI I S N R To learn to think in terms of the globe as a whole rather than just our own small part of it

VI I S N R To get some needed course credits without straining myself

VI I S N R To learn about zones of conflict among the major political powers

VI I S N R To learn to distinguish between frivolous or insignificant questions about geography and serious or significant questions

VI I S N R To understand recent theoretical advances in the interpretation of social science data

VI I S N R To learn to use maps effectively

VI I S N R To fulfill a requirement

VI I S N R To increase general knowledge

VI I S N R To learn how various places on the earth are linked with each other

VI I S N R To learn the capitals of the principal countries and states

VI I S N R To learn how and why the various parts of the world depend on each other

VI I S N R To learn the boundaries of various countries and states

VI I S N R To understand world-wide relationships in patterns of human and natural phenomena

VI I S N R To understand the migration of culture groups and their reasons for occupancy of their selected habitats

VI I S N R To learn about the modern metropolis as both the focus and mirror of present-day civilization

VI I S N R To develop a sophisticated understanding of geographic terms in common usage

VI I S N R To learn what geographers consider to be valid evidence in the forming of answers to geographic questions

VI I S N R To learn how to ask meaningful questions about geographic distributions on the earth's surface

VI I S N R To understand theories of why things are where they are and the significance of their location

VI I S N R To learn how various peoples have tried to adjust the natural features of the earth to meet their needs as they perceive them

VI I S N R To learn about the role of natural catastrophies such as earthquakes and volcanoes in man's activities

VI I S N R To learn to understand the earth as a stage on which the drama of man and his civilization is played out

VI I S N R To learn how political considerations set constraints on the way man uses the earth

VI I S N R To learn how the various countries of the earth are both alike and different from each other

VI I S N R To learn how natural, social, economic, and political processes occurring in the same geographic area affect and modify each other

VI I S N R To get answers to geographic questions we have been wondering about since childhood

VI I S N R To be able to see that individual areas can be seen as components of a single world system

VI I S N R To learn various place names

VI I S N R To understand the modern metropolis as a geographic phenomena

1. How long did it take you to fill out this questionnaire? _____

2. Did you object to being asked to fill out this questionnaire?___Yes___No

3. Comments about the questionnaire: _____

_____

Thank you for your cooperation.

APPENDIX B. Student Post-Course Questionnaire

This is the follow-up questionnaire to the one you took at the beginning of this term. Some of the questions on this questionnaire will be similar to those on the questionnaire you filled out before. Do not bother to think about how you answered them at that time. Answer them as you feel right now.

The Commission on College Geography, under the auspices of the Association of American Geographers, and the Center for Instructional Research and Curriculum Evaluation of the University of Illinois appreciate your cooperation.

Mother's Maiden Name_____
Last First

1. Did you change your major after the beginning of this term or semester?

___Yes___No If so, to what?_____

2. Which career objectives would you classify yourself as pursuing? Choose one of the following career categories and check the category which is most appropriate.

___Architect

___Artist (including performing arts)

___Behavioral scientist or social scientist, not including geographers

___Biological scientist (including medicine)

___Businessman

___Educator

___Engineer

___Farmer

___Geographer

___Geologist

___Historian

___Housewife

___Journalist

___Lawyer

___Linguist

___Mathematician

___Philosopher

___Physical scientist (not including geology)

___Other (please specify):

_____

Does this differ from the first of this term or semester?___Yes___No

3. Not only do people differ in their reading speeds in general, but a person tends to read different kinds of material at different rates. What is your estimate of your geography reading rate in comparison with how you believe others read geography?

___Very fast

___Fast

___Average

___Slow

___Very slow

4. [For the purposes of this Technical Paper, Item 4 was removed from this questionnaire and printed separately as Appendix E, Semantic Differential Instructions and Scales from Post-Course Questionnaire.]

5. Did you study with others in this class for: If so, was it beneficial?

Midterm Exam	___Yes ___No	___Yes ___No
Final Exam	___Yes ___No	___Yes ___No
Quizzes	___Yes ___No	___Yes ___No
Projects	___Yes ___No	___Yes ___No

6. While taking this course, did you use (check as many as appropriate)

___Other people's notes

___Outline series

___Test files

___Your own outlines of textbooks or readings

___Your class notes

7. Before you took this course, how much about the subject-matter content did you know?

___A great deal

___Some but not a great deal

___A little

___Almost nothing

___Nothing

8. How much effort, in comparison to other courses, did you exert on this course?

1	2	3	4	5
least effort		average effort		most effort

9. What kind of a grade do you expect to receive from this course?

___A

___B

___C

___D

___E (or F)

10. Answer this question only if you were required by your curriculum to take this course.

	Yes	No
A. Would you have enrolled in this course if you had not had to do so?	_____	_____
B. Are you required to take additional courses in geography?	_____	_____
C. Are you taking a geography sequence?	_____	_____

11. Answer this question only if you were in no way required to take this course.

A. Do you think you will take additional courses in geography after you have completed this one?

Probably Yes	Maybe Yes	Don't Know	I Don't Think so	Probably No
_____	_____	_____	_____	_____

B. Given unlimited time in your schedule, do you think you would take additional courses in geography? ___Yes ___No

12. Would you recommend this course to others? ___Yes ___No

13. I think this course needs

_____	: _____	: _____	: _____	: _____	factual material
much less		same amount of		much more	
_____	: _____	: _____	: _____	: _____	conceptual material
much less		same amount of		much more	

14. I think this course needs

_____	: _____	: _____	: _____	: _____	integration of factual and conceptual materials
no more		some more		much more	
_____	: _____	: _____	: _____	: _____	integration of readings and lectures
no more		some more		much more	
_____	: _____	: _____	: _____	: _____	integration of readings and discussions
no more		some more		much more	
_____	: _____	: _____	: _____	: _____	integration of lectures and discussions
no more		some more		much more	

15. Indicate whether prior travel improves performance in this course.

___Yes ___No

16. In comparison to all other college courses, how interested were you in this course?

_____	_____	_____	_____	_____
most interested		average interest		least interested

17. Of the courses I took this term, this course was the

_____	_____	_____	_____	_____
hardest		average		easiest

18. Considering the nature of the subject matter, do you think that this geography course had

___Too much reading

___About the right amount of reading

___Too little reading

19. A. Check the names of those sections of the world in which you have traveled: _____None outside USA

	No. of Countries Visited	Months in Residence
___North America (outside of U.S.A.)	_____	_____
___South America	_____	_____
___Europe	_____	_____
___Africa	_____	_____
___Middle East	_____	_____
___Islands in Pacific (include Japan and Australia)	_____	_____
___Far East	_____	_____

B. In approximately how many of the 50 states have you traveled?

_____	_____	_____	_____	_____	_____
0-5	6-10	11-15	16-20	21-25	More than 25

C. In relation to other people your age, do you consider yourself

___Very well traveled

___Well traveled

___Not so well traveled

20. Number of examinations?

_____:_____:_____
too few about right too many

21. Are the questions in examinations ambiguous?

_____:_____:_____:_____:_____
never seldom occasionally often always

22. Examinations' length?

_____:_____:_____
too short about right too long

23. Examinations' difficulty?

_____:_____:_____
too easy about right too difficult

24. Examinations' coverage of course content?

___Very thorough and complete

___Reasonably complete

___Average

___Somewhat inadequate

___Very incomplete

25. The instructor in this course was _____ friendly.

_____:_____:_____:_____:_____
extremely quite usually seldom never

26. Was class time well spent?

_____:_____:_____:_____:_____
always usually sometimes seldom never

27. Do you feel that personal help was available for students in this course?

_____:_____:_____:_____:_____
always usually sometimes seldom never

28. [Identical to Item 21 of the pre-course questionnaire, Appendix A.]

29. [Identical to Item 22 of the pre-course questionnaire, Appendix A.]

APPENDIX C. List of Objectives Used in Form Y of University of Cincinnati Pre- and Post-Course Questionnaires*

The following statements have been considered by various people as possible objectives and goals of geography courses. By circling the appropriate response, indicate *your* valuing of these objectives and goals according to the following key:

VI A very important objective for me

I An important objective but less so than some

S A satisfactory objective but not highly important

N Definitely not important to me

R An objective I actually would reject as a waste of effort

VI I S N R To be able to see that individual areas can be seen as components of a single world system

VI I S N R To learn various place names

VI I S N R To understand the modern metropolis as a geographic phenomena

VI I S N R To learn currently accepted principles governing the location of supermarkets

VI I S N R To be able to distinguish between those sorts of questions about the earth for which the geographers are highly confident of their answers and those sorts of questions which the geographers consider still unanswered

VI I S N R To learn what parts of the earth are generally favorable to human habitation and what parts are unfavorable

VI I S N R To learn enough about geography to be able to teach it

VI I S N R To learn something about the earth in spite of the harassment of examinations, grading, and other routine features of college education

VI I S N R To learn how to observe and interpret what we see in our daily geographic environments

*Form X of the University of Cincinnati questionnaire was identical to the one used at the other two institutions. On both the pre-course and the post-course questionnaires, Forms X and Y differed only with respect to the list of objectives included.

VI	I	S	N	R	To learn how people make locational decisions and how these decisions are affected by individual insights, culture, and group dynamics
VI	I	S	N	R	To learn how the military and political strength of the various countries is (or is not) related to their geography
VI	I	S	N	R	To learn how climate and other natural forces control human behavior
VI	I	S	N	R	To learn why factories are located as they are
VI	I	S	N	R	To learn about the role of transportation in linking the various parts of the world together
VI	I	S	N	R	To learn about the significance of scale in interpreting geographic evidence such as maps
VI	I	S	N	R	To learn why various areas specialize in the growing of certain crops (examples: wheat in the Wheat Belt, rice in China, etc.)
VI	I	S	N	R	To learn how to formulate geographic hypotheses and how to test these hypotheses
VI	I	S	N	R	To learn what geographers do (their techniques of investigation)
VI	I	S	N	R	To learn how man is ultimately dependent on the earth and how dangerous it is for man to forget this
VI	I	S	N	R	To learn how the spread of industrialization has affected the way the various parts of the earth are used
VI	I	S	N	R	To learn how mountains and other land forms determine human destiny
VI	I	S	N	R	To know more about people, conditions, and activities in specific places
VI	I	S	N	R	To learn concepts of different regions of the world
VI	I	S	N	R	To learn how a given environment may be used similarly or differently by successive waves of settlers
VI	I	S	N	R	To be able to integrate our thinking about man and his world so that man is seen as a part of nature rather than separated from it
VI	I	S	N	R	To make travel more meaningful
VI	I	S	N	R	To learn geographic importance in current events
VI	I	S	N	R	To learn enough special geographic terms so that we can read geographic materials with understanding
VI	I	S	N	R	To learn to think in terms of the globe as a whole rather than just our own small part of it
VI	I	S	N	R	To get some needed course credits without straining myself

APPENDIX D. Open-Ended Questions Included in Post-Course Questionnaire

Mother's Maiden Name_____
Last First

In the previous fill-in questionnaire you have had an opportunity to indicate your feelings toward various aspects of this geography course. The following three questions have been provided to enable you to comment freely on other aspects of the course, including suggestions for future improvements. Please write your answers to these questions in the space provided. If you need more space, feel free to use the backs of these pages. Careful thought in answering will be appreciated.

1. Please suggest improvements in the content or method of presentation of the lectures.

2. Please suggest improvements in the content or method of presentation of the laboratory section or discussion.

3. In what ways will the content of this course be useful to you?

APPENDIX E: Semantic Differential Instructions and Scales from Post-Course Questionnaire

At the top of each of the following four pages are four concepts. These concepts are "Geography," "This Geography Course," "My Lecturer," and "My Laboratory or Discussion Section Assistant."

If you feel that your impression of the concept at the top of the page is very closely related to one end of the scale, you should place a mark as follows:

Good___X:___:___:___:___:___:___: Bad

OR

Good___:___:___:___:___:___:___X: Bad

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should mark as follows:

Good___: X :___:___:___:___:___: Bad

OR

Good___:___:___:___:___:X :___: Bad

If you feel that the concept is only slightly related to one side as opposed to the other (but not really neutral), then you should mark as follows:

Good___:___: X :___:___:___:___: Bad

OR

Good___:___:___:___: X :___:___: Bad

The direction toward which you check, of course, depends upon which end of the scale seems most characteristic of the concept. If you consider your impression of the concept to be neutral on the scale, both sides of the scale equally associated, then place your mark in the middle space:

Good___:___:___: X :___:___:___: Bad

IMPORTANT: Place your marks in the middle of the spaces, not on the boundaries.

GEOGRAPHY

good__:__:__:__:__:__:__bad

theoretical__:__:__:__:__:__:__practical

analytical__:__:__:__:__:__:__descriptive

useful__:__:__:__:__:__:__useless

stable__:__:__:__:__:__:__changeable

boring__:__:__:__:__:__:__interesting

important__:__:__:__:__:__:__unimportant

simple__:__:__:__:__:__:__complex

clear__:__:__:__:__:__:__unclear

concrete__:__:__:__:__:__:__abstract

meaningless__:__:__:__:__:__:__meaningful

sophisticated__:__:__:__:__:__:__unsophisticated

difficult to learn__:__:__:__:__:__:__easy to learn

academically isolated__:__:__:__:__:__:__academically integrative

respected discipline__:__:__:__:__:__:__disreputable discipline

not important for the future__:__:__:__:__:__:__important for the future

comprehensive__:__:__:__:__:__:__narrow

precise__:__:__:__:__:__:__vague

out of date__:__:__:__:__:__:__topical

vocationally worthless__:__:__:__:__:__:__vocationally valuable

scientific__:__:__:__:__:__:__unscientific

worthless__:__:__:__:__:__:__valuable

penetrating__:__:__:__:__:__:__superficial

logical__:__:__:__:__:__:__illogical

THIS GEOGRAPHY COURSE

Good : : : : : : : Bad

Theoretical : : : : : : : Applied

Stable : : : : : : : Changeable

New : : : : : : : Old

Boring : : : : : : : Interesting

Important : : : : : : : Unimportant

Simple : : : : : : : Complex

Opaque : : : : : : : Transparent

Clear : : : : : : : Unclear

Meaningless : : : : : : : Meaningful

Sophisticated : : : : : : : Naive

Peripheral : : : : : : : Central

Difficult : : : : : : : Easy

Academically isolated : : : : : : : Academically integrative

Reputable discipline : : : : : : : Disreputable discipline

Influential : : : : : : : Uninfluential

Not important for the future : : : : : : : Important for the future

Comprehensive : : : : : : : Narrow

Untimely : : : : : : : Timely

Vocationally worthless : : : : : : : Vocationally valuable

Scientific : : : : : : : Unscientific

Deep : : : : : : : Superficial

Logical : : : : : : : Illogical

Formal atmosphere : : : : : : : Informal atmosphere

Harmonious : : : : : : : Dissonant

Inferior : : : : : : : Superior

MY LECTURER

Serious ___ : ___ : ___ : ___ : ___ : ___ : ___ Humorous

Deliberate ___ : ___ : ___ : ___ : ___ : ___ : ___ Impulsive

Friendly ___ : ___ : ___ : ___ : ___ : ___ : ___ Unfriendly

Boring ___ : ___ : ___ : ___ : ___ : ___ : ___ Interesting

Organized ___ : ___ : ___ : ___ : ___ : ___ : ___ Unorganized

Progressive ___ : ___ : ___ : ___ : ___ : ___ : ___ Regressive

Prohibitive ___ : ___ : ___ : ___ : ___ : ___ : ___ Permissive

Successful teacher ___ : ___ : ___ : ___ : ___ : ___ : ___ Unsuccessful teacher

Easy to understand ___ : ___ : ___ : ___ : ___ : ___ : ___ Difficult to understand

Unconventional ___ : ___ : ___ : ___ : ___ : ___ : ___ Conventional

Sincere ___ : ___ : ___ : ___ : ___ : ___ : ___ Insincere

Objective ___ : ___ : ___ : ___ : ___ : ___ : ___ Subjective

Approachable ___ : ___ : ___ : ___ : ___ : ___ : ___ Unapproachable

Careful ___ : ___ : ___ : ___ : ___ : ___ : ___ Careless

Opinionated ___ : ___ : ___ : ___ : ___ : ___ : ___ Unopinionated

Unfair ___ : ___ : ___ : ___ : ___ : ___ : ___ Fair

Excitable ___ : ___ : ___ : ___ : ___ : ___ : ___ Calm

Hard grader ___ : ___ : ___ : ___ : ___ : ___ : ___ Easy grader

Inconsistent ___ : ___ : ___ : ___ : ___ : ___ : ___ Consistent

Insensitive ___ : ___ : ___ : ___ : ___ : ___ : ___ Sensitive

Influential ___ : ___ : ___ : ___ : ___ : ___ : ___ Uninfluential

Sophisticated ___ : ___ : ___ : ___ : ___ : ___ : ___ Naive

Aggressive ___ : ___ : ___ : ___ : ___ : ___ : ___ Defensive

Negative ___ : ___ : ___ : ___ : ___ : ___ : ___ Positive

Active ___ : ___ : ___ : ___ : ___ : ___ : ___ Passive

Polite ___ : ___ : ___ : ___ : ___ : ___ : ___ Rude

MY LABORATORY OR DISCUSSION SECTION INSTRUCTOR

serious ___ : ___ : ___ : ___ : ___ : ___ : ___ humorous

deliberate ___ : ___ : ___ : ___ : ___ : ___ : ___ impulsive

friendly ___ : ___ : ___ : ___ : ___ : ___ : ___ unfriendly

boring ___ : ___ : ___ : ___ : ___ : ___ : ___ interesting

organized ___ : ___ : ___ : ___ : ___ : ___ : ___ unorganized

progressive ___ : ___ : ___ : ___ : ___ : ___ : ___ regressive

prohibitive ___ : ___ : ___ : ___ : ___ : ___ : ___ permissive

successful teacher ___ : ___ : ___ : ___ : ___ : ___ : ___ unsuccessful teacher

easy to understand ___ : ___ : ___ : ___ : ___ : ___ : ___ difficult to understand

unconventional ___ : ___ : ___ : ___ : ___ : ___ : ___ conventional

sincere ___ : ___ : ___ : ___ : ___ : ___ : ___ insincere

objective ___ : ___ : ___ : ___ : ___ : ___ : ___ subjective

approachable ___ : ___ : ___ : ___ : ___ : ___ : ___ unapproachable

careful ___ : ___ : ___ : ___ : ___ : ___ : ___ careless

opinionated ___ : ___ : ___ : ___ : ___ : ___ : ___ unopinionated

unfair ___ : ___ : ___ : ___ : ___ : ___ : ___ fair

excitable ___ : ___ : ___ : ___ : ___ : ___ : ___ calm

hard grader ___ : ___ : ___ : ___ : ___ : ___ : ___ easy grader

inconsistent ___ : ___ : ___ : ___ : ___ : ___ : ___ consistent

insensitive ___ : ___ : ___ : ___ : ___ : ___ : ___ sensitive

influential ___ : ___ : ___ : ___ : ___ : ___ : ___ uninfluential

sophisticated ___ : ___ : ___ : ___ : ___ : ___ : ___ naive

aggressive ___ : ___ : ___ : ___ : ___ : ___ : ___ defensive

negative ___ : ___ : ___ : ___ : ___ : ___ : ___ positive

active ___ : ___ : ___ : ___ : ___ : ___ : ___ passive

polite ___ : ___ : ___ : ___ : ___ : ___ : ___ rude

APPENDIX F: Achievement Test Items

1. Which of the following will NOT cause world population to become increasingly clustered in the future?

   1. Cities will contain a higher proportion of the population.
   2. Everyone will want to live in warm climates.
   3. Industry and services will employ a greater percentage of world population.
   4. Marginal agricultural land will be abandoned as agriculture becomes commercialized.
   5. None of the above is a correct response.

2. Which of the following statements about industrialization in Japan is most true?

   1. Post-war (1950-1965) industrialization in Japan was basically very different from pre-war trends.
   2. Japan lost its pre-war sources of coal and iron ore on the mainland of Asia and hence its steel industry was unable to grow in the post-war period.
   3. Flat land is very scarce in Japan and so most of its heavy industry has had to be located on the coast, particularly on filled land; such locations have been a severe handicap to the Japanese in competing with other nations.
   4. Nearly all of Japanese industrial exports tend to be of the labor-intensive type, such as cameras, radios, toys, and clothes.
   5. Japanese manufacturing is already highly concentrated in a few major conurbations; current trends indicate continuing concentration rather than dispersion.

3. Which of the following would be least likely to inhibit the uniform spread of a phenomenon?

   1. Mountains.
   2. Population distribution.
   3. Religious beliefs.
   4. Transportation network.
   5. Mono-lingual population.

4. Crop distributions are NOT limited by

   1. Climatic requirements.
   2. Dietary traditions.
   3. Soil conditions.
   4. Relative land values.
   5. None of the above is a correct response.

5. The migration from rural areas to urban areas in the Western world has been caused primarily by

   1. A decline of old rural values.
   2. The increase in population, forcing farmers off the land to find a living elsewhere.
   3. Trends in technology gave higher productivity to urban occupations.
   4. The production from the land could not be increased so some people had to leave the land.
   5. The attraction of cities as centers of entertainment and culture.

6. Which of the following language groupings have NOT expanded their areas of dominance?

   1. Indo-European.
   2. Afro-Asian.
   3. Chinese.
   4. Basque.
   5. None of the above is a correct response.

7. In a rate-of-diffusion situation, the role of barriers may show up in

   1. Rate of acceptance.
   2. Areal extent of diffusion.
   3. Diffusion pattern.
   4. Equilibrium level.
   5. All of the above.

8. One of the following maps uses the concept of a statistical surface in its construction and interpretation; the others do not. Which is that one?

   1. A dot map of the U. S. population.
   2. A street map of Detroit.
   3. A map of the world showing countries, with each country shown in a different color.
   4. A contour map of Cleveland.
   5. A dot map of corn production in Iowa.

9. If a topographic map with a contour interval of 20 feet is redrawn at the same scale but with a contour interval of 10 feet,

   1. The spacing between the contour lines is increased.
   2. The precision in showing elevation is increased.
   3. The vertical exaggeration on a profile is increased.
   4. The accuracy in showing horizontal distance is increased.
   5. The depression contours can be eliminated.

10. Line "AB" is a road drawn on a topographic map having a contour interval of 20 feet. In traveling from A to B, one would

   1. Drive down into a valley and up again.
   2. Drive uphill and down again.
   3. Drive up a long hill from A to B.
   4. Drive down a long hill from A to B.
   5. Either 1 or 2 is correct.

11. "Regions" are used in geography because

    1. They mean the same thing to all geographers.
    2. They never change over time.
    3. They are teaching and analytical devices for reducing the complexity of areas.
    4. They are concrete objects.
    5. All of the above are correct.

12. If we are interested in maximizing spatial interaction, we must take into consideration

    1. Minimizing the friction of distance.
    2. Maximizing the friction of distance.
    3. Maximizing intervening opportunities.
    4. Minimizing complementarity.
    5. None of the above.

13. When referring to regions, it usually may be said that single and multiple factor regions

    1. Always deal with physical phenomena.
    2. Are classification schemes of the surface of the earth and the phenomena thereon.
    3. Are separations of the surface of the earth based on unique cultural features.
    4. Seldom exist next to each other.
    5. None of the above.

14. The area of circulation of a daily metropolitan newspaper is best characterized as

    1. A single-criterion region.
    2. A multiple-criteria region.
    3. A Standard Metropolitan Statistical Area.
    4. A nodal region.
    5. A paper state.

15. Christaller's Central Place Theory is concerned with

    1. Only the magnitude of functions.
    2. The distance and time it takes to travel from one center to another.
    3. 1 and 2 above.
    4. The size, number, and distribution of service centers.
    5. None of the above.

16. The idea of "hierarchy," as is used in the Central Place Theory, is best illustrated by the observation(s) that

    1. Smaller centers are located closer together than larger ones.
    2. Larger cities will have a larger tributary area.
    3. There is no change in the number of functions as one "goes up the hierarchy."
    4. Both 1 and 2 are correct.
    5. All of the above are correct.

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