THE DISSEMINATION OF MAJOR GEOGRAPHIC ELEMENTS CONTAINED IN THE HIGH SCHOOL GEOGRAPHY PROJECT: A CONTENT ANALYSIS OF GEOGRAPHY INSTRUCTIONAL MATERIALS

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ABSTRACT

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By

Jon Owen Hansen

The Problem

Geographic education is changing. The High School Geography Project is a manifestation of the re-orientation in geographic education. There have been two major influences that have been instrumental in changing school geography: academic geography and the New Social Studies. This study will demonstrate the extent to which geography textbooks reflect academic geography and the New Social Studies.

Procedures

This study compared the content of geography textbooks published between 1964-1968 with the content of geography textbooks published between 1970-1974. Questions and/or activities from textbooks were analyzed along three dimensions: the type of knowledge, the geographic tradition, and the level of intellectual activity. These three dimensions contain the major elements or structure (concepts, principles, and methods of inquiry) of geographic education.

Even though the other hypotheses were not statistically significant, some other conclusions of educational relevance and importance are:

1. Concepts are being stressed more now than facts are.
2. There is a significant increase in the percentage of generalizations and theories.
3. There is a slight increase in the spatial orientation of geography.
4. The area studies or regional geography emphasis is declining in importance.
5. There is a more balanced representation of the geographic traditions in the newer geography textbooks.
6. There is a renewed interest in the man-land tradition.
7. Knowledge or memory level questions and activities have declined dramatically.
8. There are higher levels of intellectual activity required of today's students.
9. There is an increased emphasis on the thinking processes of application and analysis.

All in all, the students in the 1970's are being presented with better geography textbooks than ever before. The student is working with higher levels of knowledge and is using higher level thinking and inquiry skills. In addition, a better balanced representation of the discipline of geography is presented to the student.

A simple random sample of twelve geography textbooks, grades five through twelve, published from between 1964-1968 was compared to a similar random sample of geography textbooks published from between 1970-1974. One hundred questions and/or activities taken from the end of chapters or subsections were systematically sampled from each of the twenty-four textbooks. Each of the one hundred questions and/or activities was categorized three times: according to its level of knowledge, its geographic tradition, and its required level of intellectual activity. In addition, HSGP was analyzed in the same manner as the twenty-four textbooks.

A content analysis technique was used to yield an objective, systematic, and quantitative description of the content of the sampled geography textbooks.

Koch's Split Plot Design was used for the statistical analysis of the data. This design performs both parametric and non-parametric analyses.

Major Findings

Of the fourteen hypotheses tested, only two were statistically significant: (1) there is a difference between 1964-1968 and 1970-1974 geography textbooks in the percentage of FACTS asked for in questions and/or activities presented at the end of chapters or subsections and (2) there is a difference between 1964-1968 and 1970-1974 geography textbooks in the percentage of SYNTHESIS level processes required on questions and/or activities presented at the end of chapters.

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By

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This dissertation is dedicated to my parents, Owen and Marguerite, to whom I am so very grateful.

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CHAPTER I

NATURE AND BACKGROUND OF THE STUDY

The Problem

Geographic education is at a "watershed" in the 1970's. Geographic education (school geography) is changing. The High School Geography Project (HSGP) is a manifestation of the re-orientation in geographic education. There have been two major influences that have been instrumental in changing school geography: academic geography and the "New Social Studies." These influences were developed in the 1960's.

This study will demonstrate the extent to which geography textbooks reflect academic geography and the "New Social Studies." Since textbook producers have been exposed to the ideas of academic geography and the "New Social Studies" for several years, this study will determine the extent to which they have responded to these two influences on geographic education.

Academic geography is research oriented and is the type of of geography that is found on college and university campuses. In the 1950's academic geography was concerned with regional geography; that is, the description of the world's major cultural-political regions.[1] Later in that decade and in the 1960's geographers began to

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[1]Lorrin Kennamer, Jr., "Emerging Social Studies Curricula: Implications for Geography," in Focus on Geography: Key Concepts and

use systems or topics as their frame of reference. They started to use sophisticated quantitative techniques and applied them to geographical problems.[2] This began what John Ball calls the "Era of Spatial Analysis."[3] Spatial geography is a dominant element in academic geography in the 1970's. Academic geographers have also brought a humanistic orientation to the discipline; that is, man sees, uses, and shapes the world to accommodate his needs.[4]

Academic geographers produced the High School Geography Project, which embodies many of the newest developments in academic or professional geography. There is an emphasis on spatial geography in HSGP.

Krug and others point out the advantages of the High School Geography Project:

> The units, in aggregate, indicate the many concerns of modern geography, update the scholarship commonly available to students, and provide intrinsic motivation through internal logic and sophisticated instructional methodology.[5]

Has the influence of HSGP been transferred to geographic textbooks of the early 1970's? Does the school geography of the 1970's reflect the influence of academic geography?

Teaching Strategies, ed. Phillip Bacon (Washington, D.C.: National Council for the Social Studies, 1970), p. 381.

[2]Ibid.

[3]Ibid.

[4]Ibid., p. 384.

[5]Mark M. Krug, John B. Poster, and William B. Gillies, III, "High School Geography Project: An Evaluation," The New Social Studies (Itasca, Illinois: F. E. Peacock Publishing, Inc., 1970), p. 110.

Geography is included in social studies education along with history, anthropology, sociology, political science, economics, and social psychology. Social studies education has changed in both theory and practice in recent years. It is called the "New Social Studies" at the present time.

Krug and his associates suggest several factors which justify the use of the word "New":

1. Innovative and searching inquiry into the social studies curriculum, including objectives, philosophy, and rationale.
2. An intelligent search for new methods of instruction.
3. A systematic and imaginative effort to find new approaches and new ways of teaching social studies on the elementary and secondary school levels. The most exciting element in this endeavor is the joint cooperation, and active collaboration of academicians and social studies educators and teachers.
4. The publication by social studies projects of new teaching materials and the careful testing of same in a variety of schools.
5. An important effort to broaden the traditional history courses by an infusion of social science concepts and modes of inquiry.[6]

Kennamer has outlined some of the major emphases in the New Social Studies:

1. Curricular programs are organized around concepts and generalizations.
2. Programs are treating process as content in the curriculum so the learner can experience how the scholars in each field proceed in their collection of data and the analysis of it.
3. Teaching strategies encourage students to think inductively. The word "discovery" is widely used.
4. Curricula include more topics and problems of societal change as the contemporary world (local, national, and international) receives more attention.
5. Programs no longer have full "coverage" of each social science but rather focus on fewer topics and treat them more in depth.[7]

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[6] Ibid., p. 5.

[7] Kennamer, op. cit., pp. 389-90.

Summarizing, the curriculum reform movement which produced the "New Social Studies" in the 1960's emphasized the "structure" (concepts, principles, and methods) of the various disciplines.

Do geography textbooks of the early 1970's reflect the influence of the New Social Studies? This study will determine the extent to which geographic education has succeeded in adopting various aspects of the New Social Studies.

Purpose of the Study

The primary purpose of this study is to compare the content of geography textbooks published between 1964-1968 with the content of geography textbooks published between 1970-1974. The former are pre-New Social Studies and pre-HSGP, while the latter are post-New Social Studies and post-HSGP. The textbooks will be analyzed along three dimensions: the level of knowledge, the geographic tradition, and the level of intellectual activity. These three dimensions contain the major elements or structure (concepts, principles, and methods of inquiry) of geographic education. Thus, the analysis of 1964-1968 ("old") textbooks and 1970-1974 ("new") textbooks should reflect any significant changes that are occurring in geographic education. With the new emphases of academic geography and the New Social Studies, changes in the "new" geography textbooks are expected.

A secondary purpose of this study is to analyze the High School Geography Project. This analysis should reveal that HSGP (Geography in an Urban Age) reflects modern geography of the 1970's.

Importance of the Study

This study will answer these questions:

1. Has the influence of the New Social Studies, academic geography, and/or the High School Geography Project been disseminated into school geography textbooks?
2. What components of the New Social Studies, academic geography, and/or the High School Geography Project have been disseminated? The level of knowledge? The geographic tradition? The level of intellectual activity?
3. Is there a "new" geography as evidenced by 1970-1974 geography textbooks?
4. Is the "new" geography much changed from the "old" geography as determined by the analysis of geography textbooks?
5. What is the state or condition of geographic education (as contained in textbooks) in the early 1970's?
6. Is there an evaluation instrument that can effectively assess the content of social studies textbooks?

Kennamer speaks of two dangers in the 1970's for school geography:

> If school geography does not represent the best of the discipline of geography, then it will not be acceptable in its own house. Furthermore, if curriculum planners use the old school geography, thinking it represents the field, then school geography will not survive in the emerging social studies curricula.[8]

This study will show if Kennamer's warning of 1970 was heeded.

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[8]Ibid., p. 391.

Hypotheses

Fourteen hypotheses will be tested in comparing "old" textbooks (1964-1968) with "new" textbooks (1970-1974).[9] These hypotheses will be concerned with:

1. the level of knowledge--facts, concepts, generalizations, and theories. It is expected that there will be less emphasis on facts and more stress on concepts and generalizations in the newer textbooks.

2. the geographic tradition--spatial, area studies, man-land, and earth science. It is theorized that there will be more emphasis on spatial geography and less emphasis on the area studies and man-land traditions in the "new" textbooks.

3. the level of intellectual activity--knowledge, comprehension, application, analysis, synthesis, and evaluation. It is anticipated that there will be less emphasis on the knowledge level and more stress on the thinking processes in the 1970-1974 textbooks.

Overview of the Thesis

The content of this chapter begins with a discussion of the problem to be investigated. The purpose of the study and the importance of the study are described. The hypotheses are briefly outlined at the conclusion of Chapter I.

Chapter II consists of a discussion of the changes in geographic education and a review of the research related to this study.

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[9]The hypotheses will be stated in testable form in Chapter III.

The pertinent literature concerning the High School Geography Project is presented. HSGP contains improvements on three dimensions: the structure of knowledge, the geographic traditions, and the level of intellectual activity. These three elements are discussed in the final sections of Chapter II.

The focus of Chapter III is on the research design used in the study. This chapter includes a discussion of the sample and the sampling procedures. Content analysis as a research technique and the rationale for selecting questions and activities are important sections in Chapter III. The fourteen hypotheses of the study are listed. A description of the statistical analysis model used concludes this chapter.

In Chapter IV an analysis of the results is presented. Each hypothesis is examined and the statistical significance is reported.

The summary and conclusions are stated in Chapter V. The research findings are discussed and the conclusions are reported. Implications for further research and recommendations are presented in this chapter.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter includes a review of the changes that have occurred in geographic education in the twentieth century and a consideration of the High School Geography Project. A review of the literature is incorporated into the discussion of three indicators of change in geographic education: the levels of knowledge, the geographic traditions, and the levels of intellectual activity.

Changes in Geographic Education

Since the days of colonial America, there have been many changes of emphases in both academic and school geography. Table 2.1, adapted from Kennamer, illustrates the changes in academic and school geography over the past two hundred years.[1]

At the beginning of the twentieth century, school geography emphasized the physical science aspect of geography. With the advent of general science courses, much of physical geography merged into the science education field. Meanwhile, school geography changed and became concerned with the distribution of physical phenomena on the earth.

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[1]Lorrin Kennamer, Jr., "Emerging Social Studies Curricular Implications for Geography," in Focus on Geography: Key Concepts and Teaching Strategies, ed. Phillip Bacon (Washington, D.C.: National Council for the Social Studies, 1970), pp. 382-83.

Table 2.1.--Change in geography.

Time Period	Academic Geography	School Geography
Colonial America	Descriptive, Mathematical	Descriptive, Mathematical, Use of globes
1820's	Systematic	Descriptive, Locational content
Mid-1800	Rise of physical geography	Descriptive facts within political regions, memorization
1860's	Physical geography, Natural teleology	Physical geography in the high school
1870's	Human element, Deterministic thesis	
1890's	Physical geography	Physiography in high schools
1910's	Physiographic emphasis	
1920's	Physiographic studies Environmental determinism	Rise of general science Decline of physiography
1930's	Morphology of landscape Possibilism--geography as human ecology	Rise of economic and commercial geography
1940's	Descriptive regional geography	Descriptive regional geography Geographical factors meant physical aspects, not human
1950's	Elements of geography: physical and cultural	
1960's	Cultural-historical region	Regional geography, Coverage of the world
1970's	Spatial distribution, spatial interaction	*Spatial characteristics of human earth system, New regional analysis

*Tentative and yet to be determined.

After the 1916 Committee on Social Studies of the National Education Association and the 1918 report of the Commission on the Reorganization of Secondary Education, geography was viewed by curriculum planners as social geography.[2] The 1918 report stated that geography was related to good citizenship through its emphasis upon the interdependence of men while showing their common dependence on nature.[3]

In the 1930's and 1940's school geography was concerned with man-land relationships and the notion of environmental determinism. Even though environmental determinism (i.e., the earth shapes man) had been rejected by academic geographers for many years, it was a dominant theme in geographic education until the 1950's.

In 1934 Bowman reported some of his ideas on geographic education that have contemporary relevance:

> The scientific method, that is, the discovery and grouping of phenomena according to laws, is indispensable to the acquisition and organization of some of the items of geographical knowledge. But we must distinguish between science as summarized in "laws" employed in explanation and forecast and the intricately involved facts of human knowledge, thought, and activities, of all of which an exact science can not be made.[4]
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> Because science has grown largely through interest in discovery, the recapture of the sense and thrill of discovery is a

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[2]Ibid., p. 381.

[3]Lorrin Kennamer, Jr., "Improvement of Instruction in Geography," Social Education 29 (November 1965): 452-53.

[4]Isiah Bowman, Geography in Relation to the Social Sciences, Report of the Commission on the Social Studies, Part V, American Historical Association (New York: Charles Scribner's Sons, 1934), p. 224.

> major teaching objective quite apart from any immediate social ends that may be served.[5]

After World War II there was an emphasis on place name geography. Critics of geographic education felt that students should know where the place names that appeared in the news media were located. It was felt that more geography was needed in the schools after the Second World War.

Since the 1940's the concepts of areal differentiation and areal association have been at the forefront of geographic education. In 1945 Ackerman noted: "Geography is areal differentiation. The end of all geographic study, whether regional or systematic, is analysis and description of the whole of areal differentiation for the earth's surface."[6]

The Soviet Union's launching of Sputnik sparked a curriculum reform movement in the late 1950's and the early 1960's. Another "new" geography emerged that was initially based on the "structure" of the discipline. This new curriculum was called the High School Geography Project. This is the latest school geography.

An article in the New York Times described the High School Geography Project:

> Geography, old style, is that subject the student bumps into in elementary school in order to learn the capital of Arizona, the annual rainfall in the Amazon Basin, or the duration of the Laotian monsoons. The new geography is much less descriptive

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[5]Ibid., p. 227.

[6]Edward A. Ackerman, "Geographic Training, Wartime Research, and Immediate Professional Objectives," Annals of the Association of American Geographers 35 (December 1945): 133.

> than the traditional geography, and much more analytical, theoretical, and mathematical.[7]

However, James claims that this statement could have been written at any time during the past century.[8]

Pattison summarized the differences between the old and the new geography:[9]

Table 2.2.--Comparison of old and new geography.

The Old Geography	The New Geography
1. Dominant conception of child as passive and receiving.	Dominant conception of child as active and communicating.
2. Encouragement of rote memorization.	Encouragement of inquiry.
3. Acceptance of observed conditions.	Questioning of observed conditions.
4. Emphasis on static situations.	Emphasis on dynamic, changing situations.
5. Preoccupation with factual detail.	Guiding concern with models and with general principles.
6. Limited use of quantification.	Greatly expanded use of quantification.
7. Restricted relationship to studies outside geography.	Open, cooperative relationship to other fields.

[7] New York Times, January 1968, cited in Preston E. James, "The Significance of Geography in American Education," Journal of Geography 68 (November 1969): 481.

[8] James, op. cit., p. 481.

[9] William D. Pattison, "Regional Geography in the American School: Clarification of an Opportunity," Journal of Geography 67 (October 1968): 402.

The differences between the old and the new geography in Table 2.2 reflect the influences of the New Social Studies and academic geography. Since the High School Geography Project is representative of the new geography, further consideration of it follows.

The High School Geography Project

Many geographers and social studies educators feel that the High School Geography Project represents the best in geographic education in the United States. Financial support for HSGP was provided by the National Science Foundation in the 1960's. The project was discipline centered and relied heavily on the tenets of Bruner's The Process of Education. Bruner notes: "Grasping the structure of a subject is understanding it in a way that permits many other things to be related to it meaningfully. To learn structure, in short, is to learn how things are related."[10]

There are four general claims that can be made for teaching the fundamental structure of a subject:

1. understanding fundamentals makes a subject more comprehensible
2. unless detail is placed into a structured pattern, it is rapidly forgotten
3. an understanding of fundamental principles and ideas appears to be the main road to adequate "transfer of training"
4. by constantly re-examining material taught in elementary and secondary schools for its fundamental character, one is able to narrow the gap between "advanced" knowledge and "elementary" knowledge.[11]

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[10]Jerome S. Bruner, The Process of Education (Cambridge: Harvard University Press, 1960), p. 7.

[11]Ibid., pp. 23-26.

The High School Geography Project was designed to improve the quality of geography in American secondary schools through the development of new instructional materials. These materials reflect the belief that structure, i.e., concepts, principles, and methods of inquiry, is integral to student learning. The HSGP is conceptually organized with attitudinal and skill objectives. The teaching strategies are based on the inquiry or "discovery" method. HSGP evolved with an emphasis on (1) geography as a discipline and (2) the student as an inquiring learner.

In the typical activity in the High School Geography Project: (1) the teacher poses a generalized question or problem, (2) the student is given data, (3) the student interacts with the data and/or with other students to explore the problem, (4) the teacher poses an interpretive question, and (5) the student forms generalizations which illustrate concepts.[12]

The developers of HSGP report:

> By 1980, if the HSGP venture is completely unsuccessful, high school use of geographic ideas will be little changed from 1970. If it is moderately unsuccessful, the course will be taught widely and in substantially its present form. If it is highly successful, it will have generated a series of competitive improvements and internal revisions so that the new course will be rapidly replaced by more effective ones. Geography in an Urban Age is not intended to be a mold in which geographic teaching is frozen. It should be a leaven which will help lighten and lift up the whole loaf of geographic education. It should lead in ferment.[13]

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[12]Donald J. Patton, ed., From Geographic Discipline to Inquiring Student (Washington, D.C.: Association of American Geographers, 1970), p. 22.

[13]Gilbert F. White, "Assessment in Midstream," from Patton, op. cit., p. 2.

The challenge to the researcher is spelled out by the HSGP curriculum revisionists: "To others is left the searching assessment of the longer term impacts of HSGP which may in time reveal how near it came to its goal."[14]

The HSGP has not directly touched many secondary level schools in the United States. Approximately 3.4 percent of all school districts are using some part of the course.[15]

White points out:

> It will be at least five years before it is known whether the materials will come within reach of any substantial number of high school students or of young people being prepared for high school teaching. And it will be longer before the impact of the project materials and processes upon the attitudes and methods of educators and geographers who take the next steps can be judged accurately.[16]

McNee feels that American geographic education will never be the same again due to the profound long-range effects of the HSGP.[17] Hill claims: "Indeed, if has been said that HSGP will be successful if, in a few years, none of the materials will be directly in use but rather that they will have stimulated new materials, approaches, and attitudes in geographic instruction."[18]

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[14]Ibid.

[15]Salvatore J. Natoli, "Report on HSGP Use and Distribution," personal letter to the researcher, October 8, 1974.

[16]White, op. cit., p. 1.

[17]Robert B. McNee, "The Education of a Geographer: 1962-1967," Journal of Geography 67 (February 1968): 75.

[18]A. David Hill, "Strategies of the High School Geography Project for the Colleges: A New Heresy," Journal of Geography 69 (December 1970): 547.

The High School Geography Project curriculum revisionists have forecast changes in geographic education. Three indicators of change in geographic education are described and a review of the literature for each element is presented.

The Structure of Knowledge

There are four categories of knowledge: facts, concepts, generalizations, and theories. Facts are the lowest level of knowledge and theories are the highest. Each category is subsumed by the next higher level.[19]

According to Banks, "Facts consist of specific data about events, objects, people, or other phenomena that can be or have been verified by the senses."[20] Lansing is the capital of Michigan is an example of fact.

A concept is "an abstract word or phrase that is useful for classifying or categorizing a group of things, ideas, or events."[21] Examples of concepts are location, spatial interaction, and cultural diffusion.

A generalization is a statement of a relationship between two or more concepts. In particular, a generalization: pertains to whole classes, is a higher level abstraction than a concept, is based on inference, involves an assertion which can be

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[19]James A. Banks with Ambrose A. Clegg, Jr., Teaching Strategies for the Social Studies: Inquiry, Valuing and Decision-Making (Reading, Massachusetts: Addison-Wesley Publishing Company, 1973), p. 109.

[20]Ibid., p. 76.

[21]Ibid., p. 77.

judged for truth and validity, and is not the verbalized statement or assertion but the body of understanding represented.[22] Examples of generalizations are: (1) The functions a settlement performs are related to its size; and (2) Relationships between man's activities and the surface of the land change over a period of time.

The most advanced form of knowledge is the theory. Banks summarizes various definitions of theories into these four parts: (1) A theory must consist of a set of interrelated lawlike propositions or generalizations that are testable, (2) The propositions must show the relationships between variables or concepts that are clearly defined, (3) The propositions must constitute a deductive system and be logically consistent; unknown principles must be derivable from known ones, and (4) The propositions must be a source of testable hypotheses.[23] Examples of geographic theory include central place theory and the concentric ring theory of city growth.

The New Social Studies is marked by an increasing emphasis on concepts and generalizations. When a student learns concepts and generalizations, he is more apt to remember the knowledge. Factual information is easily forgotten. There are millions of facts that need to be structured into meaningful patterns (concepts and generalizations) in order to be remembered, i.e., learned.

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[22]Marlin L. Tanck, "Teaching Concepts, Generalizations, and Constructs," in Social Studies Curriculum Development: Prospects and Problems, ed. Dorothy McClure Fraser (Washington, D.C.: National Council for the Social Studies, 1969), p. 107.

[23]Banks, op. cit., pp. 103-106.

During the past fifteen years, three dissertations have dealt with the concepts presented in geography textbooks. Schomburg (1966) made a quantitative study of the nine basic geographic concepts developed by the Curriculum Guide Committee of the National Council for Geographic Education: globalism; the round earth on flat paper; the life layer; areal distinctions, differences, and likenesses; the region; resources culturally defined; man the chooser; spatial interaction; and perpetual transformation.[24] Schomburg analyzed geography textbooks at the fourth and sixth grade levels adopted by the state of Texas in 1964-65.[25] He found that nine basic geographic concepts received little emphasis when compared to the total number of paragraphs in each textbook. The concepts were introduced more frequently through statements of the descriptive and declarative types. There was no evidence of a planned procedure used in presentation and re-enforcement of the nine basic concepts by textbook authors.

McFarren (1962) determined some fundamental and significant geographic topics and concepts that should be included in junior high school geography textbooks.[26] The topics he selected were: the nature

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[24]Henry J. Warman, "Major Concepts in Geography," in Curriculum Guide for Geographic Education, ed. Wilhelmina Hill, Geographic Education Series No. 3 (Normal, Illinois: National Council for Geographic Education, 1964), pp. 9-27.

[25]Carl E. Schomburg, "A Study of the Presentation and Reenforcement of Geographic Concepts Found in Selected Geography Textbooks in Adoption in the State of Texas During 1964-1965" (Ed.D. dissertation, University of Houston, 1966).

[26]George A. McFarren, "An Analysis of Selected Junior High School Geography Textbooks in Relation to Their Treatment of Certain Basic Geographic Concepts" (Ph.D. dissertation, Ohio State University, 1962).

of geography, maps and map reading, geographic regions and the regional approach, political geography, urban geography, and conservation. For each of the six topics, McFarren formulated concepts associated with the topic that became his basic criteria in analyzing the content of five popular junior high school geography textbooks. He discovered that none of the textbooks provided satisfactory materials for any of the six topics. However, certain concepts were presented satisfactorily. McFarren concluded that all of the textbooks contained examples of many of the concepts, but failed to present the explanatory materials necessary for "a true comprehension" of the concepts. He noted that more theoretical materials, rather than just factual information, are needed to enable students to comprehend the role of geography in the life of man.

Israel (1970) used Jarolimek's list of "Organizing Ideas from the Disciplines"[27] to determine the extent to which social science concepts were included in fused social studies textbooks.[28] She examined textbooks used in grades four, five, and six in Mississippi. The amount of content relevant to the concepts of Jarolimek was calculated to the nearest one-tenth page. Israel concluded that with the exception of geography, the development of the concepts from the disciplines was inadequate.

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[27]John Jarolimek, Social Studies in Elementary Education, 3rd ed. (New York: Macmillan Company, 1967), p. 445.

[28]Jewel M. Israel, "A Study of the Extent to Which Selected Social Science Concepts Are Included in Intermediate Grade Social Studies Textbooks" (Ed.D. dissertation, University of Southern Mississippi, 1970).

In sum, the three dissertations have dealt with the presence or absence of certain geographic concepts in textbooks, but no researcher has been concerned with the four types of knowledge: facts, concepts, generalizations, and theories.

Geographic Traditions

In a paper of great significance to geographic educators, Pattison described the four traditions of geography.[29] These traditions were well-known definitions of geography at various times. The four traditions are: a spatial tradition, an area studies tradition, a man-land tradition, and an earth science tradition.

The spatial tradition concerns itself with positioning and layout on the surface of the earth. Mapping is a key aspect in this tradition. Location theory, geometry, movement, distance, form, direction, position, densities, patterns, and dispersions are concepts included in the spatial tradition.

The area studies tradition deals with a region as a "totality." The purpose of area studies is to establish and communicate the individuality of parts of the earth. This tradition characterizes places, whether it be a neighborhood, a nation-state, or a continent.

The man-land tradition is concerned with the significance of habitat in human affairs and the role of man-in-society in changing the face of the earth. Another name for this tradition is cultural or ecological geography, which is the relationship between man and his

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[29]William D. Pattison, "The Four Traditions of Geography," Journal of Geography 63 (May 1964): 211-16.

environment. The concept of environmental determinism was a major part of the man-land tradition for many decades.

The earth science tradition embraces the study of the earth, the waters of the earth, the atmosphere surrounding the earth, and the association between the earth and the sun. This tradition contains, according to Pattison, the most significant concept in the entire geographic heritage: the earth as a unity, the single common habitat of man.[30] This tradition is also known as physical geography; the arrangement and functioning of "natural" things on the earth's surface.

All four traditions have existed in geography since the days of ancient Greece. In this century there have been many changes in content emphasis of geography. After the earth science accent at the turn of the century, geography stressed man-land relationships in the 1920's. In the 1930's and early 1940's, area studies were emphasized. Since the 1950's the spatial tradition has received considerable attention. Kennamer points out that possibly geography has undergone more change in content and emphasis than any other subject in the social studies.[31]

A review of the literature indicates that there have not been any previous studies on the four geographic traditions: spatial, area studies, man-land, and earth science.

The Level of Intellectual Activity and Inquiry

Davis and Hunkins analyzed three fifth grade social studies textbooks in order to determine to what extent questions emphasize the

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[30]Ibid., p. 216.

[31]Kennamer, "Improvement of Instruction," op. cit., p. 452.

higher intellectual processes.[32] One of the three books was a geography book. Using Bloom's Taxonomy of Educational Objectives: Cognitive Domain,[33] they found that 89 percent of the questions were at the knowledge level. Another 9 percent were comprehension level questions and the remaining 2 percent were at the application level. There were no questions at the three highest levels: analysis, synthesis, and evaluation. Davis and Hunkins noted that "since textbooks are the basic instructional material in the classroom, teachers who base their program and evaluate pupil's learning with the questions in these textbooks are simply not fostering the development of pupil's thinking."[34] This study also illustrated the utility of Bloom's Taxonomy, a procedure to be used in this study.

Manson and Clegg point out that "although Bloom's Taxonomy was originally intended to organize educational objectives along a cognitive continuum, it has subsequently proven to be a valuable tool in designing, conducting, and evaluating classroom instruction."[35] Bloom's Taxonomy has been modified into a classroom question classification scheme by Manson and Clegg:[36]

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[32]O. L. Davis, Jr. and Francis P. Hunkins, "Textbook Questions: What Thinking Processes Do They Foster?" Peabody Journal of Education 43 (March 1966): 285-92.

[33]Benjamin S. Bloom, ed., Taxonomy of Educational Objectives: Cognitive Domain (New York: David McKay Company, 1956).

[34]Davis and Hunkins, op. cit., p. 289.

[35]Gary Manson and Ambrose A. Clegg, Jr., "Classroom Questions: Keys to Children's Thinking?" Peabody Journal of Education 47 (March 1970): 303.

[36]Ibid., pp. 304-305.

Category	Expected Cognitive Activity
Knowledge (Remembering)	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.
Comprehension (Understanding)	Student translates, comprehends, or interprets information based on prior learning.
Application (Solving)	Student selects, transfers, and uses data and principles to complete a problem task with a minimum of directions.
Analysis (Analyzing)	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, conclusions, and structure of a statement or a question with an awareness of the thought processes he is using.
Synthesis (Creating)	Student originates, integrates, and combines ideas into a product, plan, or proposal that is new to him.
Evaluation (Judging)	Student appraises, assesses, or criticizes on a basis of specific standards and criteria.

The above categories are cumulative and hierarchical.

Manson suggests that "exclusive use of remembering questions is logically and empirically inconsistent with educational goals related to problem solving, decision making, creativity, and values."[37] Monk concurs: "If we plan to teach for inquiry and problem solving, then our tests (questions) should measure more than recall of knowledge."[38]

Inquiry, according to Crabtree, "involves the processes whereby the learner participates in social science, and acquires the organizing

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[37]Gary Manson, "Classroom Questioning for Geography Teachers," Journal of Geography 72 (April 1973): 25.

[38]Janice J. Monk, "Preparing Tests to Measure Course Objectives," Journal of Geography 70 (March 1971): 162.

principles and analytic tools of a discipline as means to further and continuing inquiries within that field."[39]

The essential steps in the inquiry process are:

1. defining a problem
2. developing a tentative answer, solution, or plan--hypothesizing
3. testing the hypothesis against relevant data
4. drawing a conclusion about the accuracy of the hypothesis
5. applying the conclusion and generalizing.[40]

Beyer summarizes the major differences between inquiry teching and expository teaching:

> Inquiry teaching is quite different from the more traditional expository teaching that characterizes many Social Studies classrooms. Inquiry teaching is process rather than content oriented. It is conceptual instead of factual in emphasis. It is student centered, not teacher centered. It is active not passive. Inquiry teaching does not treat content as an end in itself, but rather uses it to accomplish purposes of more far-reaching significance.[41]

The dividing line between inquiry and non-inquiry processes in questioning using Bloom's Taxonomy is not definite. Clearly, inquiry is beyond the knowledge or memory classification. Application, analysis, synthesis, and evaluation are all categories with an inquiry orientation. Since the categories are cumulative and hierarchical, as

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[39]Charlotte Crabtree, "Supporting Reflective Thinking in the Classroom," in Effective Thinking in the Social Studies, ed. Jean Fair and Fannie R. Shaftel (Washington, D.C.: National Council for the Social Studies, 1967), p. 79.

[40]Barry K. Beyer, Inquiry in the Social Studies Classroom: A Strategy for Teaching (Columbus, Ohio: Charles E. Merrill Publishing Company, 1971), p. 35.

[41]Ibid., p. 159.

the level of intellectual activity increases, the amount of inquiry increases. Therefore, an emphasis on higher level intellectual processes requires the student to use reasoning in order to respond to questions and activities.

Summary

Changes in both academic and school geography have been frequent over the past two hundred years. Geographic education has changed its emphasis several times in this century. Geography as earth science was common at the turn of the century followed by a stress on man-land relations in the 1920's. Area studies dominated in the 1930's and the early 1940's. Since the 1950's spatial geography has been receiving increased attention. The impact of the New Social Studies along with the influence of academic geography has created a new geography. The High School Geography Project is the manifestation of these two influences.

HSGP, according to many educators, represents the best in geographic education in the United States. It began with an emphasis on structure or the essential values of the discipline, and ended with student inquiry. The impact of HSGP is expected to be considerable. This study should provide a partial answer to the extent of the predicted influence of HSGP on geographic education in the early 1970's.

Three indicators of change in geographic education are: the level of knowledge, the geographic tradition, and the level of intellectual activity. These elements were examined.

There are four categories of knowledge: facts, concepts, generalizations, and theories. Facts are the lowest level and theories are the highest. Each category is subsumed by the next highest level. There were three studies completed in the past fifteen years related to the presence or absence of certain geographic concepts in geography textbooks. No research on the four types of knowledge has been undertaken.

Geographic content centers around four traditions which have been well-known definitions of geography at various times. These traditions are: spatial, area studies, man-land, and earth science. There have been no previous studies concerning the four geographic traditions.

Bloom's Taxonomy has been used to analyze textbook questions to determine the level of intellectual activity required. One study found that 89 percent of the questions were at the knowledge level. The six categories are cumulative and hierarchical: knowledge, comprehension, application, analysis, synthesis, and evaluation. Inquiry processes are required at the four highest levels of the classification. As the level of intellectual activity increases, the amount of inquiry increases. Since the New Social Studies reflects an inquiry orientation, educators are becoming increasingly aware of requiring students to think, make decisions, and solve problems.

CHAPTER III

DESIGN OF THE STUDY

This chapter consists of a discussion of the sample of textbooks used and content analysis as a research technique. Chapter III includes the rationale for using questions and activities as well as the procedures used in the study. Information guides for the three research dimensions are presented. The testable hypotheses are stated and the analysis model for the statistical treatment of the data is specified.

The Sample

In this research study three categories of instructional materials will be examined:

1. the Student Resources and the Student Manual for all six units of the High School Geography Project, Geography in an Urban Age
2. geography textbooks used in grades five through twelve published in 1964 through 1968 (pre-HSGP)
3. geography textbooks used in grades five through twelve published in 1970 through 1974 (post-HSGP)

The Student Resources and Student Manuals for the entire HSGP include six paperback books and are considered the "textbook" of HSGP. They will be used as the definition of "the new geography."

Twelve textbooks published from 1964-1968 will be chosen in a simple random sample from books approved for use in Michigan by the State Department of Education. These textbooks are listed under "Geography" and "Social Studies: Basic Curriculum" in Textbooks in Print--1968.[1]

Similarly, twelve geography textbooks published from 1970-1974 will be randomly selected from those textbooks that have been approved by the State Department of Education. These books are also listed in Textbooks in Print--1974.[2]

From each of the twenty-five textbooks selected (twelve "old," twelve "new," and HSGP), one hundred questions and/or activities will be analyzed. Each textbook has questions and/or activities at the end of chapters or subsections of chapters. These questions and/or activities have a variety of names such as Checking the Facts, What Do You Think?, Questions, Using Maps, Developing Concepts, Solving Problems, and Things to Do (see Appendix A). The one hundred questions or activities will be analyzed along three dimensions using an information guide for each dimension.

The twenty-five textbooks contain varying numbers of questions and/or activities ranging from approximately fifty to over three thousand. Almost all of the textbooks have considerably more than one hundred questions or activities. In these cases a systematic sampling technique

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[1] Textbooks in Print--1968 (New York: R. R. Bowker Company, 1968).

[2] Textbooks in Print--1974 (New York: R. R. Bowker Company, 1974).

will be used: the total number of questions and activities in each individual textbook will be divided by one hundred to determine the sequence that will yield a systematic sample. For example, if there is a total of five hundred questions or activities in a textbook, every fifth one would be selected after beginning with a random number between one and five. Thus, if three was the random number, then question or activity #3, 8, 13, 18, ... 493, 498 would be the chosen ones to be analyzed.

If there are less than one hundred questions or activities in a textbook, then there will be fifty chosen in a systematic random sample as above. The totals in each category will be multiplied by two to achieve equivalence with the other textbooks with more than one hundred questions or activities.

Content Analysis as a Research Technique

The geography textbooks and the High School Geography Project will be examined using a content analysis technique.

> Content analysis, while certainly a method of analysis, is more than that. It is a method of observation. Instead of observing people's behavior directly, or asking them to respond to scales, or interviewing them, the investigator takes the communications that people have produced and asks questions of the communications.[3]

The classic definition is Berelson's: "Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication."[4] The other standard

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[3]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, 1964), p. 544.

[4]Bernard Berelson, Content Analysis in Communication Research (Glencoe, Illinois: The Free Press, 1952), p. 18.

definition is: "Content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages."[5]

Historically the primary concern of content analysis was to judge various types of literature against certain standards.[6] According to Carney there are three main purposes for content analysis: (1) to describe some aspect of source materials which are so complex and voluminous that only content analysis can cope with them, (2) to test hypotheses, and (3) to facilitate the making of inferences.[7] The present study will use content analysis to test hypotheses.

Berelson points out three assumptions of content analysis: (1) that inferences about the relationship between intent and content or between content and effect can validly be made, or the actual relationships established; (2) that study of the manifest content is meaningful; and (3) that the quantitative description of communication content is meaningful.[8]

In this study it must be assumed that textbook authors have carefully planned and written about geography as they view it for the respective grade level. Secondly, the use of questions and activities

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[5]Thomas F. Carney, Content Analysis: A Technique for Systematic Reference From Communications (Winnipeg: University of Manitoba Press, 1972), p. 25.

[6]Ole R. Holsti, Content Analysis for the Social Sciences and Humanities (Reading, Massachusetts: Addison-Wesley Publishing Company, 1969), p. 53.

[7]Carney, op. cit., pp. 65-67.

[8]Berelson, op. cit., pp. 18-21.

in this study is warranted. Teachers assign questions and activities to students after completion of a chapter or section of a chapter. The usual intent of questions and activities at the end of chapters or subsections is to reinforce previous readings in the chapter. Further, questions and activities often reflect some of the major emphases of the reading. Last, the quantitative description of content is meaningful because it will indicate the type of knowledge called for, the geographic tradition aimed at, and the level of intellectual activity required. These three indicators of change are pertinent in viewing a changing and improving geographic education.

"Content analysis stands or falls by its categories. The formulation and the definition of appropriate categories take on central importance. Since the categories contain the substance of the investigation, a content analysis can be no better than its system of categories."[9] Categories should reflect the purposes of the research. They should be exhaustive, mutually exclusive, independent, and derived from a single classification principle.[10]

In content analysis the units of analysis can be a single word or symbol, a theme, a character, a sentence, a question, a paragraph, an activity, or an item (article, film, book, radio program).

There are caveats that Berelson notes in the use of content analysis:

> Content analysis can describe communications, but it cannot evaluate them. Evaluation necessitates the acceptance of a standard or standards, with which the communication content

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[9] Ibid., p. 147.

[10] Holsti, op. cit., p. 95.

> is then compared by means of content analysis. A value judgment must be made in setting up the standard; analysis can then measure performance against the standard.[11]

Also,

> Relatively few ideas are discovered in the actual process of analysis. The hit-or-miss method of analyzing "everything" in a body of content in the hope that "something will turn up" is seldom productive, and is certainly uneconomic. If the problem is not clarified to the point where several worthwhile hypotheses or questions can be formulated, then the projected analysis should be abandoned.[12]

For this study, the warnings of Berelson have been heeded.

Borg and Gall state that the content analysis technique is "very well suited for small-scale educational research projects, and it is surprising that more students do not carry out content analysis studies."[13] In this study, content analysis is viewed as a technique to examine three indices of change in geographic education as reflected in geography textbooks.

The Knowledge Dimension

The first dimension is concerned with the structure of knowledge. Each of the one hundred systematically selected questions or activities from a textbook will be properly placed into one of the four categories of knowledge: facts, concepts, generalizations, or theories. The questions and activities will be categorized by analyzing the emphasis of the question or activity.

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[11] Berelson, op. cit., p. 46.

[12] Ibid., p. 162.

[13] Walter R. Borg and Meredith D. Gall, Educational Research: An Introduction, 2nd ed. (New York: David McKay Company, 1971), pp. 256-57.

Table 3.1 is a useful instrument for the researcher in helping to determine which category a particular question or activity belongs in.

The Geographic Tradition Dimension

This dimension is concerned with the four major traditions of geography. The one hundred questions or activities will be analyzed to determine which tradition was emphasized in the late 1960's and the early 1970's. The major attributes of each of the four traditions are presented in Table 3.2.

The Intellectual Activity Dimension

This dimension deals with the six categories of Bloom's Taxonomy. It will be used to determine the level of intellectual activity required of students in answering questions or in performing activities. The six categories are cumulative and hierarchical: knowledge, comprehension, application, analysis, synthesis, and evaluation. The higher the level, the more inquiry oriented the question or activity is. Table 3.3 is a useful guide that summarizes the major characteristics of the categories in this dimension.

Procedures

Each question and/or activity chosen in the sample of one hundred taken from each geography textbook will be analyzed in three ways. First, the question or activity will be classified into one of the four types of knowledge: facts, concepts, generalizations, or theories. The emphasis of the question or activity will determine which category it is placed in. A mark or tally will be made on the worksheet

Table 3.1.--Information guide for the knowledge dimension.

Structure of Knowledge	Definition	Attributes	Examples	Remarks
Facts	Specific data about events, objects, people or phenomena that can be or have been verified by the senses.	Stated as simple, positive statements. Deal with a single event or condition.	Lansing is the capital of Michigan. Most of Canada has a continental climate.	Context in which learned: reports, observable phenomena, tables, reference books, etc.
Concepts	An abstract word or phrase useful for classifying or categorizing a groups of things, ideas, or events.	Subjective and internalized. Not associated with any particular example of the class, but rather with all possible members of the class. Defines.	Cultural diffusion. Spatial interaction. Great Plains	Not specific or concrete since it refers to an entire class or group of objects. Context in which learned: examples.
Generalizations	Statement of the relationship of two or more concepts. A general statement, idea, or principle.	Pertains to whole classes. Based on inference. Can be tested for truth and validity. Higher level abstraction than a concept. Aims toward universal application.	Urbanization has altered the system of American settlement in a revolutionary way. Through time, functions of locations may change because of technological developments.	Summarizing statements are FACTS derived from a single sample. Can be recast into an if... then form. Key words: varies, increases, declines, influences, etc. Context: cases
Theories	An organization of interrelated generalizations and concepts that fit together in a pattern.	Derived from inference. Can be tested for truth and validity. Constitutes a unity with an identity and meaning of its own.	Location theory Central place theory Spatial structure	Propositions form a deductive system. The highest form of knowledge. Context: situations

Table 3.2.--Information guide for the geographic tradition dimension.

Geographic Tradition	Definition	Key Words	Remarks	Examples
Spatial	Study of spatial relations and spatial analysis which centers on the location of places and the patterns of distribution.	Location, distance, direction, pattern, structure, form, organization of space, movement, position, density, interaction, arrangement.	Mapping is the key. Abstracts certain aspects of reality. Quantified data used. Attempt high order generalizations.	The location and productive activities of a community are key factors in its interaction with other places.
Area Studies	Study of an area or region of the earth's surface that is homogeneous in terms of some specific criteria.	Region, nature of places, differentiation	Distinguished by a point of view. Much miscellaneous information. Inclusive and comprehensive picture of area.	An urban region is made up of many cities and the densely populated areas surrounding them.
Man-Land	Study of the relationships between man and his environment.	Environment, change in the face of the earth, cultural, human, ecological, habitat in human affairs	Dwells on relationships between societies and the earth.	People everywhere identify and use resources in ways that are shaped by their culture.
Earth Science	Study of the surface of the earth, particularly the arrangement and function of natural features.	Earth, waters, atmosphere, earth and sun, physical, landforms, climate, vegetation, animal life, soils, natural things	Descriptive. Identifiable by concrete objects.	Life on the earth is influenced by earth-sun relationships.

Table 3.3.--Information guide for the intellectual activity dimension.

Taxonomy Category	Definition	Key Concepts	Key Words
Knowledge	Ability to recall, to bring to mind the appropriate material.	Memory, knowledge, repetition, description	Define, describe, distinguish, identify, list, name, recall, recognize, show, state, tell, write
Comprehension	Ability to know what is being communicated and to be able to make some use of the materials or ideas contained in it.	Explanation, comparison, illustration, translation	Compare, conclude, contrast, demonstrate, differentiate, distinguish, estimate, explain, extend, extrapolate, fill in, give an example of, hypothesize, illustrate, infer, interpolate, interpret, predict, rearrange, relate, reorder, rephrase, tell in your own words
Application	Ability to use ideas, principles, and generalizations in new situations.	Solution, application, convergence	Apply, build, construct, demonstrate, develop, plan, solve
Analysis	Ability to identify the component parts of an idea and to establish the logical relationships of the parts to the whole.	Logic, induction and deduction, formal reasoning	Analyze, categorize, classify, compare, contrast, detect, discriminate, distinguish, recognize
Synthesis	Ability to draw upon elements from many sources and put these together into a unified organization or whole not clearly there before.	Divergence, productive thinking, novelty	Create, develop, formulate a solution, make up, propose a plan, put together
Evaluation	Ability to make judgment about the value of ideas or procedures, solutions, methods, materials.	Judgment, selection	Choose, decide, evaluate, judge, select, which do you consider

Adapted from Bloom, Banks, Clegg and Manson.

to indicate which type of knowledge the question or activity calls for. Secondly, the same question or activity will be examined to determine its geographic tradition. It will be categorized and marked on the worksheet as belonging to one of the four traditions: spatial, area studies, man-land, or earth science. Last, the same question or activity will be classified according to the level of intellectual activity required to master the knowledge called for. Similarly, a tally will be registered into one of the six categories of intellectual activity: knowledge, comprehension, application, analysis, synthesis, or evaluation. In sum, there will be a total of three hundred tallies marked on the worksheet (Appendix B) for each textbook.

Two examples of questions or activities and the marking procedure are:

1. How is life in your community dependent upon the world's sunny semitropical lands?[14]

For this question one mark or tally would be put into each of these categories on the worksheet--concept, area studies, and comprehension.

2. Make up slogans or sayings that would get people interested in ending pollution.[15]

For this activity one mark or tally would be put into each of these categories on the worksheet--concept, man-land, and application. (See Appendix C.)

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[14]Zoe A. Thralls, Edward L. Biller, and William H. Hartley, The World Around Us, 2nd ed. (New York: Harcourt, Brace and World, 1965), p. 220.

[15]John R. O'Conner, Morris Gall, and Robert M. Goldberg, The Growth of Cities: Their Problems and Promises (New York: Globe Book Company, 1972), p. 348.

Testable Hypotheses

The major purpose of this study is to compare "old" geography textbooks (1964-1968 and pre-HSGP) to "new" geography textbooks (1970-1974 and post-HSGP). In order to determine whether there are any differences between "old" and "new" geography textbooks, the following hypotheses will be tested:

I. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to FACTS.

Symbolically: Ho: $F_O = F_N$

Alternative: H_1: $F_O > F_N$

Key: O = Old
N = New

II. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to CONCEPTS.

Symbolically: Ho: $C_O = C_N$

Alternative: H_1: $C_O < C_N$

III. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to GENERALIZATIONS.

Symbolically: Ho: $G_O = G_N$

Alternative: H_1: $G_O < G_N$

IV. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to THEORIES.

Symbolically: Ho: $T_O = T_N$

Alternative: H_1: $T_O < T_N$

V. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the SPATIAL tradition.

Symbolically: Ho: $S_O = S_N$

Alternative: H_1: $S_O < S_N$

VI. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the AREA STUDIES tradition.

Symbolically: Ho: $AS_O = AS_N$

Alternative: H_1: $AS_O > AS_N$

VII. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the MAN-LAND tradition.

Symbolically: Ho: $ML_O = ML_N$

Alternative: H_1: $ML_O > ML_N$

VIII. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the EARTH SCIENCE tradition.

Symbolically: Ho: $ES_O = ES_N$

Alternative: H_1: $ES_O \neq ES_N$

IX. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require KNOWLEDGE level processes.

Symbolically: Ho: $KB_O = KB_N$

Alternative: H_1: $KB_O > KB_N$

Key: B refers to Bloom's Taxonomy

X. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require COMPREHENSION level processes.

Symbolically: Ho: $CB_O = CB_N$

Alternative: H_1: $CB_O < CB_N$

XI. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require APPLICATION level processes.

Symbolically: Ho: $ApB_O = ApB_N$

Alternative: H_1: $ApB_O < ApB_N$

XII. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require ANALYSIS level processes.

Symbolically: Ho: $AnB_O = AnB_N$

Alternative: H_1: $AnB_O < AnB_N$

XIII. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require SYNTHESIS level processes.

Symbolically: Ho: $SB_0 = SB_N$

Alternative: H_1: $SB_0 < SB_N$

XIV. Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require EVALUATION level processes.

Symbolically: Ho: $EB_0 = EB_N$

Alternative: H_1: $EB_0 < EB_N$

Analysis Model

Since the data will be in the form of categories or ranks, non-parametric statistics should be used for the data analysis according to Borg and Gall.[16] Non-parametric statistics do not make any assumptions about the shape or variance of population scores. Scores may not be normally distributed around a mean as they are in the form of categories. Non-parametric statistics are less restrictive, but they require larger samples to yield the same level of significance as parametric statistics.[17]

The Koch Split Plot Design[18] was determined to be the best statistical test for this study.[19] The Koch design is similar to a

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[16]Borg and Gall, op. cit., p. 311.

[17]Ibid.

[18]Gary Koch, "Some Aspects of the Statistical Analysis of 'Split Plot' Experiments in Completely Randomized Layouts," Journal of the American Statistical Association 64 (June 1969): 485-505.

[19]Mr. Bill Thrash and Steve Olejnik, both of the Office of Research Consultation, and Dr. Maryellen McSweeney, Department of Counseling Personnel Services and Educational Psychology at Michigan State University, served as statistical consultants to the researcher.

repeated measures analysis of variance with the subjects nested within groups. The Koch program yields two statistical tests that are used to determine statistical significance: the Kruskal-Wallis one-way analysis of variance test and the univariate analysis of variance test. The former is a non-parametric measure that is based on rank orders. The latter is a parametric test that makes these assumptions: scores in the population are normally distributed about the mean, population variances are approximately equal, and scores are derived from a measure that has equal intervals.[20] The parametric test is more powerful; that is, more precise than the non-parametric test.

A beneficial attribute of Koch's Split Plot Design is that two sets of results are given. A researcher who is uncertain whether the parametric assumptions are met or not can use Koch's design and obtain two sets of "p" values (the level of significance). In this study, both measures will be used. A "p" value of .05 or less will be the level of statistical significance for this study.

Koch points out:

> The results of non-parametric analysis are consistent with those of the parametric one. Since these procedures require assumptions which are much less restrictive than the usual ones and since they are applied directly to the relevant data, the analyst can be reasonably confident in his interpretation of their results.[21]

The Kruskal-Wallis one-way analysis of variance test yields an asymptotic chi square. If the chi square is greater than 3.841, then the "p" value will be equal to or less than .05.

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[20]Borg and Gall, op. cit., p. 311.

[21]Koch, op. cit., p. 503.

In the univariate analysis of variance test, an F value is generated. If the value of F is greater than 4.30, then the "p" value will be equal to or less than .05.

A hypothetical example of a data matrix, which will be punched on computer cards, is:

		Spatial	Area Studies	Man-Land	Earth Science
Old	Book 1	20	40	25	15
	2	33	17	27	23
	3	9	58	19	14
	4	18	43	20	19
	5	19	19	44	18
	6	15	30	45	10
New	7	32	31	27	10
	8	12	17	30	41
	9	43	19	11	27
	10	22	28	31	19
	11	20	16	32	32
	12	25	25	25	25

Summary

Chapter III has dealt with the research design. Three types of geographic instructional materials will be analyzed: the High School Geography Project, "old" geography textbooks (1964-1968), and "new" geography textbooks (1970-1974). These textbooks will be randomly sampled from those textbooks approved by the Michigan State Department of Education and also listed in Textbooks in Print. These books will constitute the random sample of "old" and "new" geography textbooks. The entire HSGP will be analyzed. In each of the textbooks, one hundred questions and/or activities will be randomly chosen

by systematic sampling. A content analysis technique will be used to examine the one hundred questions and activities.

Content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages. Questions and activities presented at the end of chapters or subsections will be the unit of analysis in this investigation.

Three aspects of geographic education will be studied: the knowledge dimension, the geographic tradition dimension, and the intellectual activity dimension. Information guides to assist the researcher are provided for each dimension.

The classification procedure is to analyze each of the one hundred questions and/or activities in three ways. A tally mark for each question is registered in:

a. one of the knowledge categories--facts, concepts, generalizations, or theories

b. one of the geographic tradition categories--spatial, area studies, man-land, or earth science

c. one of the intellectual activity categories--knowledge, comprehension, application, analysis, synthesis, or evaluation.

A total of three hundred tallies will be marked for each textbook on its individual worksheet.

Fourteen null hypotheses are presented in written and symbolic form. These will form the basis for the study. Also fourteen alternate hypotheses are listed and they are primarily directional.

The analysis model is Koch's Split Plot Design. It yields two tests of statistical significance:

1. Kruskal-Wallis one-way analysis of variance, a non-parametric measure, and
2. univariate analysis of variance, a parametric test.

In this study both tests will be used to obtain "p" values. A "p" value of .05 or less will be the level of statistical significance for the study.

CHAPTER IV

ANALYSIS OF THE DATA

The hypotheses of this study focused on three indicators of change in geographic education: the type of knowledge, the geographic tradition, and the level of intellectual activity. These hypotheses were presented in Chapter III. In this chapter, the hypotheses are analyzed and the results of the study are reported.

The data are based on a sample of twenty-four geography textbooks, grades five through twelve (see Appendix D). Twelve of the sampled textbooks were published from 1964-1968 and are classified as "old" textbooks. The other twelve were published from 1970-1974 and are classified as "new" textbooks. The High School Geography Project was also analyzed and will be informally compared to the other textbook groups.

Tables 4.1 through 4.14 summarize the statistical analysis of each hypothesis. Three types of statistics are utilized:

1. the percentage of questions and/or activities presented at the end of chapters or subsections for both "old" and "new" textbooks reflecting the type of knowledge, geographic tradition, or level of intellectual activity

2. the Kruskal-Wallis one-way analysis of variance statistics with an asymptotic chi square and the corresponding "p" value

3. the univariate analysis of variance (ANOVA) with an F value and the corresponding "p" value.

A discussion of the other findings not related to the specific hypotheses concludes this chapter.

The Hypotheses

The fourteen hypotheses are concerned with comparing "old" and "new" geography textbooks on three dimensions of geographic education. All hypotheses are stated in the null form (Ho = null hypothesis). The null hypothesis states that there is no difference in the percentage of questions and/or activities presented at the end of chapters or subsections between "old" and "new" geography textbooks for the various categories of each dimension. Two different tests for statistical significance have been computed using the Koch program to determine whether to reject or not reject the null hypothesis.

The first test is the Kruskal-Wallis one-way analysis of variance measure. It is a non-parametric technique. If the asymptotic chi square is greater than 3.841, then the null hypothesis should be rejected because "p" will be equal to or less than .05 (the level of statistical significance for this study).

A second measure is the univariate analysis of variance test, a parametric test. If the value of F is greater than 4.30, then the null hypothesis should be rejected because "p" will be equal to or less than .05 (the level of statistical significance for this study).

The univariate analysis of variance test is the more powerful (more precise) test and it usually has a lower "p" value than the Kruskal-Wallis measure.

Hypothesis I

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to FACTS.

Symbolically: Ho: $F_O = F_N$ Key: O = Old
N = New

Table 4.1.--Comparison of "old" and "new" geography textbooks on facts.

	Old	New	
Percentage*	46.33	33.92	
Chi Square =	2.7122	p = .0958	Not significant
F =	4.4988	p = .0431	Significant

*In this and subsequent Tables 4.2-4.14, the abbreviated term "percentage" will be used in lieu of the phrase "percentage of questions and/or activities presented at the end of chapters or subsections that. . . ."

Of the fourteen hypotheses, this is the only one in which there is a conflict between the two tests of statistical significance. The Kruskal-Wallis test does not reject the null hypothesis, but the more statistically powerful univariate ANOVA test rejects it. Because the latter test is more precise, the null hypothesis on facts will be rejected. There is a statistically significant difference in the percentage of facts presented at the end of chapters or subsections as questions and/or activities when comparing 1964-1968 geography textbooks with the 1970-1974 geography textbooks.

Alternative: H_1: $F_O > F_N$

It was theorized that the more recent geography textbooks would place less emphasis on factual information. The hypothesis is confirmed statistically and educationally. The proportion of facts decreased by over twelve percentage points in the six years between the two groups. Further, HSGP has approximately two and one-half times less stress on facts than the older textbooks had. (See Table 4.17 for HSGP data.)

Hypothesis II

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to CONCEPTS.

Symbolically: Ho: $C_O = C_N$

Table 4.2.--Comparison of "old" and "new" geography textbooks on concepts.

	Old	New	
Percentage	46.17	54.00	
Chi Square =	1.0213	p = .3134	Not significant
F =	1.0905	p = .3084	Not significant

The data in Table 4.2 show that p is greater than .05 and thus the null hypothesis is not rejected. The difference between the percentage of concepts presented in "old" and "new" geography textbooks

is not statistically significant when examining questions and/or activities at the end of chapters or subsections.

Alternative: H_1: $C_O < C_N$

This hypothesis predicted that the newer geographic materials would assign more emphasis to concepts. The 1970-1974 textbooks had nearly an eight percentage point positive differential in concepts over their older counterparts, which is of educational importance. Concepts comprise over one-half of the knowledge type asked for in questions and activities in the early 1970's geography textbooks. In addition, HSGP includes substantially more concepts than the newer textbooks.

Hypothesis III

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to GENERALIZATIONS.

Symbolically: Ho: $G_O = G_N$

Table 4.3.--Comparison of "old" and "new" geography textbooks on generalizations.

	Old	New	
Percentage	7.50	11.67	
Chi Square =	1.4868	p = .2206	Not significant
F =	1.8338	p = .1867	Not significant

The null hypothesis could not be rejected because, as the information in Table 4.3 indicates, p is greater than .05. Thus, there is no difference statistically between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that deal with generalizations.

Alternative: H_1: $G_O < G_N$

It was postulated that there would be a higher percentage of generalizations in the "new" textbooks. Although the hypothesis is not statistically significant, there is a practical educational importance to the increase of four percentage points over the earlier textbooks. That represents a 56 percent actual increase from 1964-1968. HSGP did not show an increase in generalizations over the "old" textbooks.

Hypothesis IV

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to THEORIES.

Symbolically: Ho: $T_O = T_N$

Table 4.4.--Comparison of "old" and "new" geography textbooks on theories.

	Old	New	
Percentage	0.00	0.42	
Chi Square =	2.0870	p = .1449	Not significant
F =	1.5363	p = .2264	Not significant

Since p is greater than .05, the null hypothesis is not rejected. Statistically, there is no significant difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that refer to theories.

Alternative: H_1: $T_O < T_N$

Although the hypothesis on theories is not statistically significant, it turned out as predicted. "Old" textbooks had none, "new" textbooks had five (0.42 percent) and HSGP had 1 percent. There is a slight trend toward the knowledge of theories in geography textbooks. The educational importance of the slight change is open to debate as only two of the twelve "new" geography textbooks contain theories.

In summarizing the information collected on the knowledge dimension, it is apparent that the newer textbooks reflect more of an idea orientation than an information orientation. There is more emphasis on concepts and generalizations, particularly concepts, than previously. Since the New Social Studies is concerned with concepts and generalizations, this pattern was expected. Geographic theories are even receiving some attention in the newer textbooks, while they were totally absent from older books. Since ideas (concepts, generalizations, and theories) are more easily remembered than factual information, the trend away from facts is especially important. The tendency toward a reduced emphasis on factual information has improved the quality of geography presented in textbooks.

Hypothesis V

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the SPATIAL tradition.

Symbolically: Ho: $S_O = S_N$

Table 4.5.--Comparison of "old" and "new" geography textbooks on the spatial tradition.

	Old	New	
Percentage	24.58	28.17	
Chi Square =	.1635	p = .6890	Not significant
F =	.3987	p = .5408	Not significant

Both of the p values are much greater than .05, so the null hypothesis is not rejected. The statistics show that there is no statistical difference between 1964-1968 and 1970-1974 geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are part of the spatial tradition.

Alternative: H_1: $S_O < S_N$

It was theorized that there would be more emphasis placed on the spatial tradition of geography in the more recent instructional materials. There is a slight trend in this direction, but it is not statistically significant. All three types of textbooks studied ("old," "new," and HSGP) are within four percentage points of each other.

Hypothesis VI

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the AREA STUDIES tradition.

Symbolically: Ho: $AS_O = AS_N$

Table 4.6.--Comparison of "old" and "new" geography textbooks on the area studies tradition.

	Old	New	
Percentage	50.83	42.58	
Chi Square =	.5222	p = .5229	Not significant
F =	.8670	p = .6354	Not significant

The data in Table 4.6 indicate that the null hypothesis is not rejected because the values of p are greater than the .05 level of significance. Therefore, there is no statistical difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the area studies tradition.

Alternative: H_1: $AS_O > AS_N$

It was hypothesized that the older textbooks would stress the area studies tradition. This hypothesis, although not statistically significant, is confirmed by the data. There is approximately an eight percentage point decrease from 1964-1968 to 1970-1974 in area studies. In addition, HSGP is seven percentage points less than the newer textbooks.

Hypothesis VII

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the MAN-LAND tradition.

Symbolically: Ho: $ML_O = ML_N$

Table 4.7.--Comparison of "old" and "new" geography textbooks on the man-land tradition.

	Old	New	
Percentage	17.58	21.08	
Chi Square =	.1204	p = .7289	Not significant
F =	.4314	p = .5247	Not significant

The null hypothesis is accepted because, as the data in Table 4.7 indicate, p is greater than .05. Thus, there is no evidence of a statistical difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the man-land tradition.

Alternative: H_1: $ML_O > ML_N$

The only hypothesis that is not supported statistically or theoretically is the man-land tradition proposal. It was incorrectly postulated that "old" textbooks would have a greater man-land emphasis than "new" textbooks. The hypothesis was incorrect for both the 1970-1974 textbooks (by 3.5 percentage points) and for HSGP (by over ten percentage points). The man-land orientation, which was prevalent

in the 1920's, is apparently making a slight comeback in the 1970's.

Hypothesis VIII

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are associated with the EARTH SCIENCE tradition.

Symbolically: $ES_O = ES_N$

Table 4.8.--Comparison of "old" and "new" geography textbooks on the earth science tradition.

	Old	New	
Percentage	7.00	8.17	
Chi Square =	.0008	p = .9753	Not significant
F =	.2029	p = .6607	Not significant

Since p is greater than .05, the null hypothesis is not rejected. There is no statistical difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that are a part of the earth science tradition in geography.

Alternative: H_1: $ES_O \neq ES_N$

No direction for an anticipated change was expressed for the earth science tradition hypothesis. The change was very small (about one percentage point) in a positive direction. HSGP was another three percentage points higher than the newer textbooks on this tradition.

Basically, there is very little difference in the past ten years in the emphasis given to the earth science orientation as expressed in geography textbooks in the form of questions and activities appearing at the end of chapters or subsections.

In sum, the data gathered concerning the four geographic traditions indicates that the newer textbooks are slightly more balanced in their presentation than the older books. HSGP has the most balanced presentation of the four orientations. The expected spatial emphasis of academic geography did not materialize in the study to any significant extent. The area studies orientation continues to dominate the other traditions, but its influence is diminishing somewhat. Surprisingly, there was an educationally important pattern toward an increase in the man-land tradition of geography. The relatively weak showing of the earth science tradition bears out the tendency to teach earth science as part of science education.

Hypothesis IX

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require KNOWLEDGE level processes.

Symbolically: $KB_O = KB_N$

Key: B refers to Bloom's Taxonomy.

Table 4.9.--Comparison of "old" and "new" geography textbooks on knowledge level processes.

	Old	New	
Percentage	54.58	40.92	
Chi Square =	2.7110	p = .0959	Not significant
F =	3.3050	p = .0795	Not significant

Both of the p values are slightly higher than .05, so the null hypothesis cannot be rejected. There is no statistically significant difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require knowledge level abilities.

Alternative: H_1: $KB_O > KB_N$

The ninth hypothesis theorized that there would be a decrease in knowledge level intellectual processes over time. Although the hypothesis is not quite statistically significant, there is a practical educational relevance to the findings. There is a decrease of over thirteen percentage points (actually a 25 percent reduction) from 1964-1968 to 1970-1974. HSGP has only about one-third of the emphasis on knowledge level processes than the older textbooks had. This trend away from memory learning is consistent with the New Social Studies and modern pedagogy.

Hypothesis X

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require COMPREHENSION level processes.

Symbolically: Ho: $CB_O = CB_N$

Table 4.10.--Comparison of "old" and "new" geography textbooks on comprehension level processes.

	Old	New	
Percentage	31.75	35.00	
Chi Square =	.2708	p = .6094	Not significant
F =	.4081	p = .5361	Not significant

The data in Table 4.10 show that the null hypothesis is not rejected because the values of p are greater than the .05 level of significance. There is no statistically significant difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require comprehension level processes.

Alternative: H_1: $CB_O < CB_N$

It was hypothesized that comprehension level intellectual processes would increase in the "new" geography books. The postulate is not statistically significant, but an educationally important increase is indicated. The change is 3.25 percentage points or approximately a 10 percent increase. HSGP has over half (54 percent) of its questions and activities at the comprehension level.

Hypothesis XI

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require APPLICATION level processes.

Symbolically: Ho: $ApB_O = ApB_N$

Table 4.11.--Comparison of "old" and "new" geography textbooks on application level processes.

	Old	New	
Percentage	7.33	9.92	
Chi Square =	1.4175	p = .2320	Not significant
F =	1.1976	p = .2856	Not significant

For this hypothesis the null is not rejected, because the significance level is well above the .05 level. Therefore, there is no statistically significant difference between the pre-HSGP and post-HSGP geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require application level processes.

Alternative: H_1: $ApB_O < ApB_N$

For the application level, it was postulated that there would be more emphasis on this thinking process over time. The hypothesis is confirmed in an educational sense, but not statistically. Although all three groups are within three percentage points of each other, the "new" textbooks have 35 percent more application level activities than the older textbooks do.

Hypothesis XII

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require ANALYSIS level processes.

Symbolically: Ho: $AnB_O = AnB_N$

Table 4.12.--Comparison of "old" and "new" geography textbooks on analysis level processes.

	Old	New	
Percentage	4.58	9.75	
Chi Square =	1.6275	p = .1994	Not significant
F =	3.3843	p = .0762	Not significant

Since p is greater than .05, the null hypothesis is not rejected. There is no statistical difference between pre-New Social Studies and post-New Social Studies geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require analysis level processes.

Alternative: H_1: $AnB_O < AnB_N$

The hypothesis for analysis level processes stated that there would be a percentage increase from 1964-1968 to 1970-1974. The postulate is not statistically significant, but it is of educational or practical importance. Twice as many questions and/or activities are at the analysis level for both "new" textbooks and HSGP than there are for the older textbooks.

Hypothesis XIII

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require SYNTHESIS level processes.

Symbolically: Ho: $SB_O = SB_N$

Table 4.13.--Comparison of "old" and "new" geography textbooks on synthesis level processes.

	Old	New	
Percentage	0.67	2.83	
Chi Square =	5.2757	p = .0206	Significant
F =	7.3478	p = .0123	Significant

The data in Table 4.13 indicate that p is less than .05 in both tests and thus the null hypothesis is rejected. Therefore, there is a statistically significant difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require synthesis level processes.

Alternative: H_1: $SB_O < SB_N$

At the synthesis level, the educational and statistical significance of the hypothesis is verified. The newer textbooks were hypothesized to contain more synthesis level processes than the older books. An inspection of the data reveals a 323 percent increase over time for the sampled textbooks. HSGP also has significantly more synthesis processes than the older textbooks.

Hypothesis XIV

Ho: There is no difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require EVALUATION level processes.

Symbolically: Ho: $EB_O = EB_N$

Table 4.14.--Comparison of "old" and "new" geography textbooks on evaluation level processes.

	Old	New	
Percentage	1.08	1.58	
Chi Square =	.6314	p = .5671	Not significant
F =	.5706	p = .5358	Not significant

The data in Table 4.14 show that the null hypothesis is not rejected because p is greater than the .05 level of significance. There is no statistically significant difference between 1964-1968 and 1970-1974 geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that require evaluation level processes.

Alternative: H_1: $EB_O < EB_N$

It was hypothesized that newer textbooks would have more evaluation level activities than older textbooks. While not statistically significant, there is a 46 percent increase (.5 percentage point) in evaluation processes. This educationally important difference is stronger for HSGP, which has approximately six times more evaluation level processes than the 1964-1968 geography textbooks had.

In conclusion, the findings concerning the intellectual activity dimension indicate that the levels required of students in the newer textbooks is increasing. As the level of intellectual activity increases, the amount of inquiry increases. The New Social Studies stresses inquiry learning as one of its major characteristics. Therefore, as expected, the newer geography textbooks do reflect the inquiry methodology of the New Social Studies. In the newer textbooks knowledge level processes are used on approximately 41 percent of the questions and activities compared to over 54 percent for older textbooks. The decrease in knowledge processes means that there is an increase in the thinking processes. While the synthesis and evaluation level categories are less than 5 percent of the total for new books, they are increasing in importance. The relatively strong showing of application and analysis processes (9-10 percent each) is educationally significant. Textbook authors are requiring students to do more thinking in the question and activity sections at the end of chapters or subsections.

Other Findings

The results of this study differ somewhat from those of Davis and Hunkins.[1] They found that 89 percent of the questions from one geography textbook were at the knowledge level of intellectual activity. The textbook they examined was a 1964-1965 vintage text at the fifth grade level. The present study indicated that approximately 55 percent

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[1] O. L. Davis, Jr., and Francis P. Hunkins, "Textbook Questions: What Thinking Processes Do They Foster?" Peabody Journal of Education 43 (March 1966): 287.

Table 4.15.--Summary of the tests of statistical significance for the hypotheses.

Hypothesis & Category	Statistic	p	Decision
I--Facts	CS*= 2.7122	.0958	Do not reject Ho
	F = 4.4988	.0431	Reject Ho
II--Concepts	CS = 1.0213	.3134	Do not reject Ho
	F = 1.0905	.3084	Do not reject Ho
III--Generalizations	CS = 1.4868	.2206	Do not reject Ho
	F = 1.8338	.1867	Do not reject Ho
IV--Theories	CS = 2.0870	.1449	Do not reject Ho
	F = 1.5363	.2264	Do not reject Ho
V--Spatial	CS = 0.1635	.6890	Do not reject Ho
	F = 0.3987	.5408	Do not reject Ho
VI--Area Studies	CS = 0.5222	.5229	Do not reject Ho
	F = 0.8670	.6354	Do not reject Ho
VII--Man-Land	CS = 0.1204	.7289	Do not reject Ho
	F = 0.4314	.5247	Do not reject Ho
VIII--Earth Science	CS = 0.0008	.9753	Do not reject Ho
	F = 0.2029	.6607	Do not reject Ho
IX--Knowledge	CS = 2.7110	.0959	Do not reject Ho
	F = 3.3050	.0795	Do not reject Ho
X--Comprehension	CS = 0.2708	.6094	Do not reject Ho
	F = 0.4081	.5361	Do not reject Ho
XI--Application	CS = 1.4175	.2320	Do not reject Ho
	F = 1.1976	.2856	Do not reject Ho
XII--Analysis	CS = 1.6275	.1994	Do not reject Ho
	F = 3.3843	.0762	Do not reject Ho
XIII--Synthesis	CS = 5.2757	.0206	Reject Ho
	F = 7.3478	.0123	Reject Ho
XIV--Evaluation	CS = 0.6314	.5671	Do not reject Ho
	F = 0.5706	.5358	Do not reject Ho

* = Chi square.

Table 4.16.--Alternative (to the null) hypotheses, percentages of "old" and "new" textbooks for the hypotheses, tendencies, and statistical significance.

Hypothesis & Category	Alternative Hypothesis	% Old	% New	Tendency Toward Alternative	Statistical Significance
I--Facts	$F_O > F_N$	46.33	33.92	Yes	Yes
II--Concepts	$C_O < C_N$	46.17	54.00	Yes	No
III--Generalizations	$G_O < G_N$	7.50	11.67	Yes	No
IV--Theories	$T_O < T_N$	0.00	0.42	Yes	No
V--Spatial	$S_O < S_N$	24.58	28.17	Yes	No
VI--Area Studies	$AS_O > AS_N$	50.83	42.58	Yes	No
VII--Man-Land	$ML_O > ML_N$	17.58	21.08	No	No
VIII--Earth Science	$ES_O \neq ES_N$	7.00	8.17		No
IX--Knowledge	$KB_O > KB_N$	54.58	40.92	Yes	No
X--Comprehension	$CB_O < CB_N$	31.75	35.00	Yes	No
XI--Application	$ApB_O < ApB_N$	7.33	9.92	Yes	No
XII--Analysis	$AnB_O < AnB_N$	4.58	9.75	Yes	No
XIII--Synthesis	$SB_O < SB_N$	0.67	2.83	Yes	Yes
XIV--Evaluation	$EB_O < EB_N$	1.08	1.58	Yes	No

Table 4.17.--Comparison of the percentages for "old," "new," and HSGP textbooks on the hypotheses.

Hypothesis & Category	Hypothesis	% Old	% New	% HSGP
I--Facts	$F_O > F_N$	46.33	33.92	18
II--Concepts	$C_O < C_N$	46.17	54.00	74
III--Generalizations	$G_O < G_N$	7.50	11.67	7
IV--Theories	$T_O < T_N$	0.00	0.42	1
V--Spatial	$S_O < S_N$	24.58	28.17	26
VI--Area Studies	$AS_O > AS_N$	50.83	42.58	35
VII--Man-Land	$ML_O > ML_N$	17.58	21.08	28
VIII--Earth Science	$ES_O \neq ES_N$	7.00	8.17	11
IX--Knowledge	$KB_O > KB_N$	54.58	40.92	20
X--Comprehension	$CB_O < CB_N$	31.75	35.00	54
XI--Application	$ApB_O < ApB_N$	7.33	9.92	9
XII--Analysis	$AnB_O < AnB_N$	4.58	9.75	9
XIII--Synthesis	$SB_O < SB_N$	0.67	2.83	2
XIV--Evaluation	$EB_O < EB_N$	1.08	1.58	6

of "old" textbook questions and/or activities call for knowledge level processes. The presence of activities along with questions will affect the results somewhat. Four of the twelve 1964-1968 textbooks had between 68 percent and 82 percent knowledge level questions and/or activities. Thus, the Davis and Hunkins findings are not totally inconsistent with the results of the present research.

A significant discovery was concerned with the total number of questions and activities found in the textbooks.

Table 4.18.--Comparison of the total number of questions and/or activities found at the end of chapters or subsections in the textbooks.

	"Old"	"New"	HSGP
	3053	1431	370
	2006	776	
	1299	474	
	1097	418	
	964	413	
	963	150	
	945	149	
	780	147	
	734	120	
	510	114	
	370	52	
	244	50	
Totals	12,965	4,294	
Average	1,080.42	357.83	

The data in Table 4.18 indicate that there were over three times as many questions and/or activities in the older textbooks than in the newer ones. Teachers in the 1960's had hundreds of questions at their command for students to respond to. Many of the questions and activities required little or no thinking; the student simply searched for the appropriate section in the text to find the answer spelled out.

Newer textbooks have fewer questions as this study has shown. Since there is more emphasis on inquiry or thinking required in newer books, students need more time to respond to the questions and activities. They would not have time to answer the enormous number of questions and activities that the earlier geography textbooks featured. The newer texts are marked by an increased interest in dealing with concepts and generalizations using inquiry processes, while the older geography textbooks had an emphasis on providing as much factual information as possible for students to commit to memory or at least be exposed to.

An examination of the titles or names of question and activity sections in textbooks reveals a considerable difference in emphasis between "old" and "new" geography books. (See Appendix A.)

In the 1964-1968 textbooks the following titles of question and activity sections were typical: Text Questions, Checkup, Problems, Map Activities, Projects, True and False Statements, Checking the Facts, Places to Locate, and Test Yourself. However, there were some inquiry type titles: Discovering Facts, Exploring Ideas, Using New Ideas, Developing Skills and Ideas, Thinking Things Thru, Seeing Relationships,

and Organizing Your Ideas. Approximately 25 percent of the total number of titles dealt with inquiry operations in the older textbooks.

The 1970-1974 textbooks had approximately 43 percent of the total number of titles of question and activity sections concerned with inquiry operations. Some of the titles that reflect modern geography were: Inquiry Activities, Validating Activities, Identifying Concepts, Developing Concepts, Generalizations, Applying Concepts, Investigating as a Geographer, and Using Urban Skills.

Summary

In this chapter, fourteen hypotheses were presented and analyzed. Two tests of statistical significance for each hypothesis were shown: Kruskal-Wallis one-way analysis of variance and univariate ANOVA.

Two of the fourteen hypotheses had statistically significant differences. One of these (Hypothesis I) was not statistically significant when using the Kruskal-Wallis test, but was significant when the more powerful parametric ANOVA test was used.

The major findings of the study are:

1. There is a statistically significant difference between "old" (1964-1968) and "new" (1970-1974) geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that

   a. refer to FACTS

   b. require SYNTHESIS level intellectual processes.

2. There is no statistically significant difference between "old" and "new" geography textbooks in the percentage of questions and/or activities presented at the end of chapters or subsections that

a. refer to CONCEPTS, GENERALIZATIONS, and THEORIES
b. are associated with the SPATIAL, AREA STUDIES, MAN-LAND, and EARTH SCIENCE geographic traditions
c. require KNOWLEDGE, COMPREHENSION, APPLICATION, ANALYSIS, and EVALUATION level intellectual processes.

Even though only two of the fourteen hypotheses were statistically significant, most of the hypotheses were of educational relevance. An inspection of Table 4.16 shows that twelve of the fourteen hypotheses followed the predicted tendency or direction. One hypothesis (the earth science tradition) was postulated to change, but with no specific direction indicated. Therefore, thirteen of the fourteen outcomes were as predicted.

The lack of statistical significance for most of the hypotheses should not misguide geographic and social studies educators. There are tendencies for most hypotheses that are of educational importance. The trend toward conceptual knowledge, the decline of the area studies tradition, and the decrease in knowledge level processes are all very educationally important.

An examination of the data in Table 4.17 indicates the trends in geographic education as measured by textbooks over the past ten years. Table 4.17 also reveals how the "new" geography textbooks

differ from the High School Geography Project. School geography has changed over the past decade and it does reflect the influences of the New Social Studies and academic geography.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter contains a summary of the thesis and a listing of the major findings of the study. The implications for future research, limitations of the study, and recommendations conclude Chapter V.

Summary

This study compared the content of geography textbooks published between 1964-1968 with the content of geography textbooks published between 1970-1974. Questions and/or activities from textbooks were analyzed along three dimensions: the type of knowledge, the geographic tradition, and the level of intellectual activity. These three dimensions contain the major elements or structure (concepts, principles, and methods of inquiry) of geographic education. The analysis of "old" (1964-1968) geography textbooks and "new" (1970-1974) geography textbooks should reflect any significant changes that are occurring in school geography, at least to the extent that an analysis of questions and activities can measure these changes. The anticipated changes in geographic education are primarily due to the influences of the New Social Studies and academic geography.

Changes in both academic and school geography have been frequent over the past two hundred years. Geographic education has changed its emphases several times in this century. Geography as

earth science was common at the turn of the century, followed by a stress on man-land relations in the 1920's. The area studies orientation dominated in the 1930's and the early 1940's. Since the 1950's spatial geography has been receiving increased attention.

The High School Geography Project, published in 1970, represents the best in geographic education according to many educators. Produced by academic geographers, HSGP was launched with an emphasis on the structure or the essential values of the discipline and ended with student inquiry. Today, it represents a significant departure from traditional geography textbooks. HSGP contains three elements or indicators of change in geographic education: It emphasizes higher levels of knowledge, it presents a more balanced representation of geographic traditions with an increased emphasis on spatial geography, and it requires higher levels of intellectual activity. Thus, HSGP may be viewed as a mixture of academic geography and the New Social Studies.

A review of the research for the past fifteen years has revealed a paucity of geographic education studies concerned with: (1) the type of knowledge, (2) the geographic tradition, and (3) the level of intellectual activity. Three researchers[1] were concerned

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[1]Carl E. Schomburg, "A Study of the Presentation and Reenforcement of Geographic Concepts Found in Selected Geography Textbooks in Adoption in the State of Texas During 1964-1965" (Ed.D. dissertation, University of Houston, 1966); George A. McFarren, "An Analysis of Selected Junior High School Geography Textbooks in Relation to Their Treatment of Certain Basic Geographic Concepts" (Ph.D. dissertation, Ohio State University, 1962); Jewel M. Israel, "A Study of the Extent to Which Selected Social Science Concepts Are Included in Intermediate Grade Social Studies Textbooks" (Ed.D. dissertation, University of Southern Mississippi, 1970).

with the presence or absence of certain geographic concepts in textbooks, but no researcher has dealt with the four types of knowledge: facts, concepts, generalizations, and theories. Similarly, there have been no previous studies on the four geographic traditions: spatial, area studies, man-land, and earth science.[2] Several researchers[3] have used Bloom's Taxonomy of Educational Objectives: Cognitive Domain[4] on geography textbook questions to determine the level of intellectual activity. They noted that approximately 90 percent of the questions were at the knowledge level; that is, thinking processes were not required for most of the questions. Further, there have not been any studies comparing school geography over time.

A simple random sample of twelve geography textbooks, grades five through twelve, published from between 1964-1968 was compared to a similar random sample of geography textbooks published from between 1970-1974. One hundred questions and/or activities taken from the end of chapters or subsections were systematically sampled from each

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[2]William D. Pattison, "The Four Traditions of Geography," Journal of Geography 63 (May 1964): 211-16.

[3]O. L. Davis, Jr., and Francis P. Hunkins, "Textbook Questions: What Thinking Processes Do They Foster?" Peabody Journal of Education 43 (March 1966): 285-92; Delmer D. Hearn, "Cognitive Operations Fostered by Questions in the Narrative and Captions of the Texas State-Adopted Textbooks for Grade Six, 1966-67" (Master's thesis, University of Texas, 1967); Carl E. Schomburg and Jack M. Sheridan, "Evaluation of Geographic Learning in the Elementary School," in Evaluation in Geographic Education, ed. Dana G. Kurfman (Belmont, California: Fearon Publishers, 1970), pp. 27-39.

[4]Benjamin S. Bloom, ed., Taxonomy of Educational Objectives: Cognitive Domain (New York: David McKay Company, 1956).

of the twenty-four textbooks. Each of the one hundred questions and/or activities was categorized three times: according to its level of knowledge, its geographic tradition, and its required level of intellectual activity. In addition, HSGP was analyzed in the same manner as the twenty-four textbooks.

A content analysis technique was used to yield an objective, systematic, and quantitative description of the content of the sampled geography textbooks. The units of analysis were the questions and activities listed at the end of chapters or subsections in the textbooks. Information guides for each dimension assisted the researcher in the attempt at objectivity and consistency.

Koch's Split Plot Design was used for the statistical analysis of the data. This design performs both parametric and non-parametric analyses. Significance levels ("p") are presented for each hypothesis using both parametric and non-parametric statistics.

Findings

Fourteen hypotheses were tested comparing "old" and "new" geography textbooks on three indicators of change in geographic education. Two of the hypotheses were statistically significant:

1. There is a statistically significant difference between "old" and "new" geography textbooks in the percentage of FACTS asked for in questions and/or activities presented at the end of chapters or subsections.
2. There is a statistically significant difference between "old" and "new" geography textbooks in the percentage of

SYNTHESIS level processes required on questions and/or activities presented at the end of chapters or subsections.

The other twelve hypotheses were not statistically significant. They dealt with comparing "old" and "new" geography textbooks on the percentages of concepts, generalizations, and theories; the four geographic traditions; and the levels of Bloom's Taxonomy, excluding synthesis.

Despite the discovery that only two of the fourteen hypotheses were statistically significant, most of the results have educational relevance. After analyzing the geography textbooks, some conclusions of educational importance are:

1. Concepts are being stressed more now than facts are.
2. There is a significant increase in the percentage of generalizations and theories.
3. There is a slight increase in the spatial orientation.
4. The area studies emphasis is declining in importance.
5. There is a more balanced representation of the geographic traditions in newer geography textbooks.
6. There is a renewed interest in the man-land tradition.
7. Knowledge or memory level processes have declined dramatically.
8. There are higher levels of intellectual activity required of today's students.
9. There is an increased emphasis on the thinking processes of application and synthesis.

Implications for Future Research

The other social studies disciplines could use the same content analysis methodology for determining the level of knowledge (Dimension #1) and the level of intellectual activity (Dimension #3) in their subject areas. One researcher[5] did a study on economics textbooks to determine their conceptual content. The study dealt with counting the number of pages devoted to each of four major categories of economic education: political-economic, principles, institutional, and consumer. This procedure is somewhat related to Dimension #2 in the present study.

Content analyses of social studies textbooks would be useful in determining the extent to which the books of a given discipline reflect both the New Social Studies and the academic discipline.

This study could be replicated in about six years to indicate the changes occurring in geographic education as reflected in textbooks published between 1976 and 1980. A chronology of the changes and trends in geographic education could be established over a long period of time by replicating this study every six years, if it was felt that there were sufficient significant changes occurring in the field. The report could be published every sixth year in Social Education as a part of a regular annual feature called "What's Happening With Textbooks: Name of the Social Studies Discipline."

Likewise, the time dimension could be extended back through time. Textbooks published in 1900, 1910, 1920, 1930, 1940, 1950, 1960,

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[5]Roy H. Laner, "A Content Analysis of Selected Secondary School Economics Textbooks" (Ed.D. dissertation, Ball State University, 1973).

and 1970 (or some such pattern) could be compared much as was done in this study. Some very interesting findings from the comparisons would probably result from the investigation.

Another research idea is to present the profile of the "typical" geography textbook for various levels of education. There appears to be a striking similarity in the content of geography textbooks at both the junior high and senior high school levels. It seems as if the identical information is repeated in the same manner in nearly every "old" and in some "new" geography textbooks. For example, Chapter 1 deals with longitude and latitude and is followed by a short introduction to physical geography in Chapter 2. Next, the textbooks describe the regions in this basic pattern: Anglo-America, Western Europe, Eastern Europe and the Soviet Union, Asia, Latin America, Africa, and Australia and New Zealand. Nearly every textbook examines the same information; such as, the fiords of Norway, the polders of The Netherlands, the Great Wall of China, the orange groves of California, and the Sydney Bridge in Australia.

Teachers' guides are sources of information about textbook content and methodology, but often there is a gap between the pronouncements in the teachers' guide and the textbook. A study of various teachers' guides and the associated textbook could prove to be revealing. Scholarship in either the guide or textbook could end up being improved by the results of such a study.

Limitations of the Study

This study has several limitations which may account for the lack of significant findings. For example, some of the sampled

textbooks published from 1970-1974 may not necessarily reflect the influence of the New Social Studies and/or academic geography. Because the New Social Studies emerged in the mid-1960's, possibly some of the earlier books in the 1970-1974 sample did not exhibit many of the characteristics of the New Social Studies. Perhaps some of the textbook authors did not accept the tenets of the New Social Studies. Similarly, some of the 1970-1974 textbooks (especially those published early in the time span) may not have reflected the influence of academic geography and the High School Geography Project. HSGP was published in 1970, but it had been talked about for several years previous to 1970. Perhaps some textbook authors had not been aware of HSGP or had not accepted the ideas embodied in HSGP. In addition, there is a possibility that some of the 1964-1968 textbooks could reflect the New Social Studies. Some of the books published in 1967 and 1968 may have had a New Social Studies orientation.

A second limitation of the study is the absence of data concerning the relative importance or the popularity of the various sampled textbooks. If one or two textbooks in either sample account for a substantial percentage of the total number of geography textbooks sold, then the data in this study should be weighted accordingly to reflect the importance of certain books. Certainly, a more accurate reading of any changes in geographic education could be presented if sales information was available to the researcher. However, publishing companies generally keep their sales figures secret and the information was not available to this researcher. A researcher could ask the various publishers to rank order the five best sellers in

geography textbooks at the different grade levels to receive a sketchy impression of which textbooks are the most popular and the most widely used. Therefore, the lack of sales information is a limitation of the study; each textbook was treated as being equal in importance. The possibility of equal sales of geography textbooks is unlikely.

A third limitation of the study involves the multiple authorships of textbooks. Often the questions and/or activities at the end of chapters or subsections are written by a different person than the author(s) who wrote the subject matter content in the body of the textbooks. In some cases there is an absence of collaboration between the content author(s) and the question and/or activity writer. In other cases, there is a lack of coordination or harmony between the questions and activities presented and the textual body. Thus, a problem in the study is that there may be little relation between the content and intent of the major author(s) and the questions and/or activities written by a minor author.

A final limitation of the study was in confining the analysis of questions and/or activities to those that appear at the end of chapters or subsections. Increasingly, there are many inquiry type questions in the text. An analysis of questions within the body of the text could give a different perspective to the researcher.

Recommendations

1. More geographic training is needed by geography teachers. Teachers of geography should have a background in the four geographic traditions, because school geography textbooks are presenting a more balanced representation of all four traditions. The basic concepts,

generalizations, and theories of geography should be taught as a part of the college curriculum that is fundamental to prospective geography teachers. A specialized course in geographic education should be required because newer textbooks are putting more emphasis on spatial geography as well as on ecological and urban problems. Without specialized courses featuring content and methodology, a teacher may be and may feel somewhat inadequate. One survey course in geography, one social studies methods course, and several history courses are not adequate college training for a geography teacher.

2. Since newer textbooks are requiring higher level intellectual processes, teachers should use oral and written questions that maintain or improve the quality of the thinking processes required by the basic geography textbook. Therefore, a college course in questioning strategies should be included in the curriculum for any prospective social studies teacher. It could be a part of a social studies block of courses or included as part of a measurement sequence. Too often Bloom's Taxonomy is not mentioned until the advanced stages of graduate study.

3. A curriculum coordinator for a state, county, or school district should use an instrument similar to the one used in the study to assess curriculum materials. The level of knowledge contained in social studies textbooks is important for learners. Likewise, the level of intellectual activity needed for answering questions or performing activities can have a profound influence on the student's intellectual life. The ability to think (as opposed to only recalling information) is a vital survival skill. Facts are quickly forgotten,

but concepts are remembered. Therefore, it is the duty of curriculum coordinators and curriculum decision-makers to assess textbooks critically on these two important dimensions of education. To do less than this is to cheat the students and the citizenry.

4. Textbook authors need to give the students an opportunity to think. Memory or knowledge level questions require few thinking processes. As Sanders points out: "The textbook is highly refined and as near perfection as a human mind is capable of making it--but the author does the thinking."[6] Open-ended inquiry questions where students can use the resources of the textbook as well as other sources of information are most desirable. Textbook authors will have to change their styles of writing, but it can be done.

5. The writers of questions and activities at the end of chapters often do so with little consideration for the student-learner. The questions and activities should require the student to think, be focused on concepts and generalizations, and be interesting to the student. While this is a large task for textbook authors, it is vitally important.

HSGP authors selected powerful ideas and created varied ways of teaching the ideas by using the appropriate data.[7] This is the best way for textbook writers to participate in educating students.

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[6]Norris M. Sanders, Classroom Questions: What Kinds? (New York: Harper and Row, 1966), p. 158.

[7]Nicholas Helburn, "The Developmental Process: A Personal View," in From Geographic Discipline to Inquiring Student, ed. Donald J. Patton (Washington, D.C.: Association of American Geographers, 1970), p. 37.

Geography textbooks are improving. There is more emphasis on concepts and generalizations. The level of intellectual activity is getting higher. All in all, students in the 1970's are presented with better geography textbooks than ever before. This study has pointed out some of the reasons why school geography is improving through a content analysis of textbooks.

APPENDICES

APPENDIX A

TITLES OF QUESTION AND ACTIVITY SECTIONS IN GEOGRAPHY TEXTBOOKS

APPENDIX A

TITLES OF QUESTION AND ACTIVITY
SECTIONS IN GEOGRAPHY TEXTBOOKS

1964-1968 ("Old") Textbooks	1970-1974 ("New") Textbooks
Activities to Enjoy	Applying Concepts
Activities With the Globe	Applying Geographic Concepts
Among Ourselves	At This Point in Your Study
Building Social Studies Skills	Be a Geographer
Building Your Vocabulary	Before You Go On
Can You Explain the Meaning Of?	Can You Do This?
Can You Locate?	Checkup Time
Can You Prove It?	Class Project
Chapter Check-Up	Compare and Contrast
Checking the Facts	Developing Concepts
Checking Up	Developing Skills and Ideas
Correct These Statements	Do Research
Define	Do You Know?
Developing Skills and Ideas	Do You Remember?
Discover by Doing	Examining a Foreign Region
Discovering Facts	Focus on the Concept
Enrichment Activities	Generalizations
Exploring Ideas	Grasping Geography
Extending Your Horizons	Identifying Concepts
Find Out and Report	Inquiry Activities
Follow-Up	Investigating as a Geographer
Gaining Skills	Investigation
Graph	Just For Fun
Learning More	Let's Get Involved
Let's Look at Maps	Looking at the Evidence
Let's Pretend	Maps and Globes
Map Activities	Map Study
Organizing Your Ideas	Matching Game
Places to Locate	On Your Own
Problems	Questions
Projects	Review of the Concept
Puzzle	Reviewing the Chapter
?	Search on Your Own
Questions and Activities	Skill Development
Question Box	Terms and Phrases to Know
Questions for Discussion	Test Yourself
Questions for Study	Things to Do
Questions to Talk Over	Things to Think About
Questions to Think About	Things to Try

1964-1968 (continued)

Seeing Relationships
Solving Problems
Summing Up
Test Yourself
Text Questions
Things to Do
Things to Think About
Things You Might Enjoy Doing
Things You Might Like to Do
Think
Thinking Things Through
True and False Statements
Understanding Maps
Understanding What You Have Read
Using New Ideas
We and They
Words to Understand
Working With Maps
Your Geography Workshop

1970-1974 (continued)

Think for Yourself
Thinking About Geography
Thinking as a Geographer
To Talk About
Understanding the Unit
Understanding What You Have Read
Using Maps
Using Urban Skills
Using What You Know
Using Your Map Skills
Validating Activities
What Do You Think?
Words in Geography
You Match the Words
You See for Yourself

APPENDIX B

WORKSHEET FOR EVALUATING TEXTBOOKS

APPENDIX B

WORKSHEET FOR EVALUATING TEXTBOOKS

Title: Date Published:

Author:

Facts

.....

Concepts

.....

Generalizations

.....

Theories

Spatial

.....

Area Studies

.....

Man-Land

.....

Earth Science

Knowledge

.....

Comprehension

.....

Application

.....

Analysis

.....

Synthesis

.....

Evaluation

APPENDIX C

A MATRIX OF EXAMPLES OF QUESTIONS AND ACTIVITIES RELATED TO THE KNOWLEDGE DIMENSION AND THE INTELLECTUAL ACTIVITY DIMENSION

APPENDIX C

A MATRIX OF EXAMPLES OF QUESTIONS AND ACTIVITIES RELATED TO THE KNOWLEDGE DIMENSION AND THE INTELLECTUAL ACTIVITY DIMENSION

	Facts	Concepts	Generalizations
Knowledge	Name the five Pacific Coast States	Define: "water balance."	What did the author say about the relationship between landforms and population?
Comprehension		State in your own words the characteristics of the Mediterranean climate.	Predict some of the ways changes in accessibility will alter patterns of city growth.
Application		Construct a salt map of the Puget Sound region.	What do you suppose would happen if the population of your city would suddenly triple?
Analysis		How has the composition of Japan's imports changed? What might this mean?	Analyze the data presented regarding the location of a factory and discriminate between useful and unimportant information.
Synthesis		What solutions can you propose to combat air pollution over our cities?	Draw a picture showing what might happen to a city if there were no planning, zoning, and laws.
Evaluation		Select the best location for the largest city on "Mystery Island."	Which do you consider the most important factor in the location of a factory? Why?

Adapted from Manson, op. cit., p. 29.

APPENDIX D

TEXTBOOKS USED IN THE STUDY

BY GRADE LEVELS

APPENDIX D

TEXTBOOKS USED IN THE STUDY
BY GRADE LEVELS

1964-1968 Textbooks

High School:

James and Davis, The Wide World: A Geography

Pounds and Taylor, World Geography

Secondary (slow learner):

Schwartz and O'Conner, Exploring a Changing World

9th grade:

Bradley, World Geography

Junior High:

Carls and others, Our United States in a World of Neighbors

Israel and others, World Geography Today

Kolevzon and Heine, Our World and Its Peoples

Thralls and others, The World Around Us

1970-1974 Textbooks

High School:

James and others, Man on the Earth: An Introduction to Geography

MacGraw and Phelps, The Rise of the City: An Urban Approach to World Geography

Secondary (slow learner):

O'Conner and others, The Growth of Cities: Their Problems and Promises

7-10th grade:

Latour, Inquiry Experiences in Geography

Junior High:

Bacon, Regions Around the World

Kimble, Man and His World

6th grade:

Brandwein and others, The Social Sciences: Concepts and Values

Clark and others, People and Culture

5-6th grade:

Joyce and others, Exploring Regions of Latin America and Canada

5th grade:

Drummond, Journeys Through the Americas

Hanna and others, In the Americas

Preston and Tottle, In These United States and Canada

6th grade (continued):

Davis and others, Learning About Countries and Societies

Hanna and others, Investigating Man's World: Regional Studies

King and others, Using the Social Studies: Concepts in Social Science

McCall and others, Man--His World and Cultures

APPENDIX E

DATA MATRIX

APPENDIX E

DATA MATRIX

Textbooks		Knowledge				Tradition				Intellectual Activity					
		F	C	G	T	S	AS	ML	ES	K	C	Ap	An	S	E
	1	32	65	3	0	21	56	18	5	68	27	5	0	0	0
	2	16	76	8	0	28	50	17	5	42	37	12	4	1	4
	3	37	60	3	0	37	51	9	3	28	46	22	0	1	3
	4	59	40	1	0	39	57	3	1	68	29	3	0	0	0
	5	40	50	10	0	15	43	23	19	56	27	8	8	1	0
"Old"	6	34	61	5	0	16	66	15	3	46	32	11	8	1	2
	7	63	12	25	0	22	39	29	10	72	24	2	2	0	0
	8	73	20	7	0	25	52	14	9	42	46	2	9	1	0
	9	54	41	5	0	9	74	11	6	82	10	5	3	0	0
	10	64	29	7	0	27	32	25	16	63	24	5	6	1	1
	11	47	46	7	0	46	10	40	4	36	47	11	6	0	0
	12	37	54	9	0	10	80	7	3	52	32	2	9	2	3
	13	27	66	7	0	25	39	17	19	66	18	8	5	1	2
	14	35	56	9	0	34	56	10	0	32	56	1	2	3	6
	15	21	72	7	0	10	61	26	3	36	24	14	15	9	2
	16	16	71	12	1	31	17	43	9	73	20	2	5	0	0
	17	38	60	2	0	20	54	11	15	34	51	9	4	2	0
"New"	18	30	68	2	0	8	86	4	2	60	12	16	4	6	2
	19	43	35	22	0	13	17	53	17	43	36	8	8	4	1
	20	49	32	15	4	45	8	34	13	1	40	20	33	4	2
	21	49	43	8	0	12	67	21	0	22	43	14	17	3	1
	22	38	36	26	0	38	56	6	0	30	42	10	16	2	0
	23	44	30	26	0	52	23	17	8	57	33	5	5	0	0
	24	17	79	4	0	50	27	11	12	37	45	12	3	0	3
	HSGP	18	74	7	1	26	35	28	11	20	54	9	9	2	6

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