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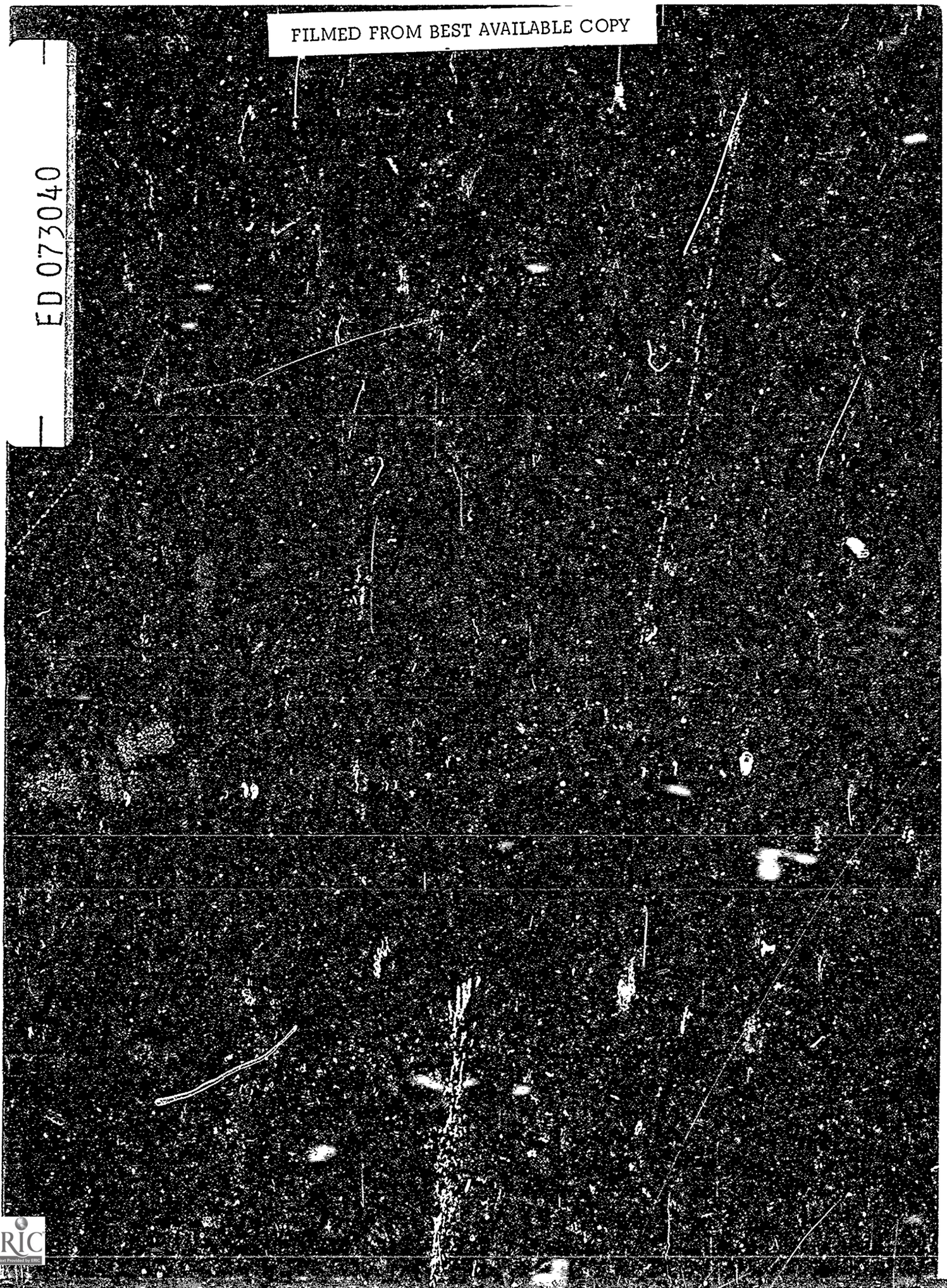
ABSTRACT

The purpose of the study, part of the research and curriculum development of the Anthropology Curriculum Project, was to compare the facilitative effects of pre- and post-organizers on the learning of structured anthropology materials at the sixth-grade level. Organizers were defined, in this thesis, as written material that serves the function of facilitating the incorporation and retention of subject matter. Ausubel's theory that organizers facilitate learning when presented to students in advance of materials to be learned was the basis for this study. The question posed in the study was whether there are significant differences in learning between groups using materials with pre-organizers and those using materials with post-organizers. A textbook, "Cultural Change in Mexico and the United States," was written with identical learning passages in two formats: one contained organizers at the beginning of the text and each chapter (pre-organizers), the other immediately after each chapter and at the end of the text (post-organizers). The twelve sixth grade classes which served as the experimental population were randomly assigned to two groups for separate treatments. Mean class scores were used as the unit of statistical analysis. The study did not produce evidence supporting the research hypothesis that either pre- or post-organizers facilitate learning of structured anthropology materials at the sixth grade level. A related document is SO 005 663. (Author/SJM)



BUCKLEY RICHARD BARNES

The Effects of the Position of Organizers to Facilitate Learning of Structured Anthropology Materials in the Sixth Grade

(Under the direction of MARION J. RICE)

The purpose of the present study was to compare the facilitative effects of pre- and post-organizers on the learning of structured anthropology materials at the sixth-grade level. It grew out of an interest in David P. Ausubel's theory of meaningful, verbal reception learning. Ausubel hypothesized that learning is facilitated when students are presented with appropriate subsumers (organizers) prior to the actual presentation of the learning task.

Hypothesis

There is no statistical difference between the adjusted means of groups when one group uses materials with pre-organizers and when another group uses materials with post-organizers.

Procedures

A student textbook, Cultural Change in Mexico and the United States, was written by the investigator as part of his curriculum development and research work with the Anthropology Curriculum Project at the University of Georgia. The textbook was written in two formats. One contained organizers at the beginning of the text and immediately before each chapter and sub-chapter

(pre-organizers), while the other contained organizers immediately after each chapter and sub-chapter as well as at the end of the text (post-organizers). The learning passages were identical in both texts.

Twelve sixth-grade classes from the Savannah-Chatham County Public Schools served as the experimental population. From this available pool the classes were randomly assigned to two groups and then treatments were randomly assigned to groups.

Class mean scores were used as the unit of statistical analysis. A one-way fixed-effects analysis of covariance, with reading vocabulary achievement as the covariate, was used to determine if adjusted mean scores differed significantly between groups on the anthropology achievement tests. The null hypothesis was tested at two time intervals: at the end of 12 instructional lessons and at the end of 24 instructional lessons.

Findings

The findings of the investigation were reported separately for each of the two time intervals. The findings for the main treatment effects were consistent. The study did not produce evidence supporting the research hypothesis that either pre- or post-organizers facilitate learning of structured anthropology materials at the sixth-grade level. The null hypothesis of no statistical difference between adjusted means of the two

treatment groups on the anthropology achievement tests was accepted in each of the two F tests.

Index words: Anthropology, Ausubel, Advance Organizer, Reception Learning, Verbal Learning

THE EFFECTS OF THE POSITION OF ORGANIZERS TO FACILITATE LEARNING OF STRUCTURED ANTHROPOLOGY MATERIALS IN THE SIXTH GRADE

by

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FORWARD

The present study is part of the research and curriculum activities of the Anthropology Curriculum Project at the University of Georgia. Two sets of curriculum materials, The Changing World Today: Case Studies of Modernization in Japan, Kenya, and India, at the third-grade level, and Cultural Change in Mexico and the United States, at the sixth-grade level, were developed between 1970-1972.

In an effort to investigate the facilitative effects of organizers on the learning of anthropological concepts in the elementary grades, two studies were planned and conducted. The present dissertation is a report of the sixth-grade study. For a report of the third-grade study see "A Comparison of the Effects of Organizers on the Learning of Structured Anthropology Materials in the Third Grade" by Elmer U. Clawson, an unpublished doctoral dissertation, University of Georgia, 1972.

The planning phase of the two studies was jointly carried out by the two investigators. Three sections of the two dissertations: background to the study; review of the literature; and recommendations for further

research were written jointly, and both studies were conducted in the Savannah-Chatham County Public Schools.

The studies differed in that the third-grade study consisted of three treatment groups: pre-organizers, post-organizers, and no-organizers, while the sixth-grade study consisted of two treatments: pre-organizers and post-organizers.

Neither study produced evidence to support the hypothesis that pre-organizers facilitate learning of structured anthropology materials in the elementary grades.

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CHAPTER I

BACKGROUND TO THE STUDY

The present study, evaluating the effectiveness of the use of organizers in written materials, is a result of the investigator's participation on the staff of the Anthropology Curriculum Project at the University of Georgia. This Project was funded by the United States Office of Education from 1964-1969 to develop and field test a sequential curriculum in anthropology for grades one to seven. Since 1969 the Project has been carried on under the auspices of the College of Education, University of Georgia. The focus of the Project materials is on the mastery and application of fundamental concepts from anthropology (Rice & Bailey, 1971).

Project materials fall within the realm of subject curriculum (Rice, 1971). The two distinctive characteristics of the subject curriculum, as defined by Smith, Stanley, and Shores are:

> ...the content is chosen and organized in accordance with the needs of the scientist or research specialist, who is interested in the subject for 'its own sake' and consequently orders facts and principles so as to render them most useful in conducting further research in the subject.

> ...this curriculum emphasizes expository discourse and techniques of explanation. ...in which ideas are stated and elaborated so that they may be understood [Smith, Stanley, & Shores, 1957, pp. 231, 233].

This rather imprecise definition provides the curriculum writer with general rather than specific guidelines for curriculum development. The materials used in the present study were developed according to the investigator's interpretation of the structure of the subject curriculum. The content of the materials were selected by Rice and Bailey (1969) and are in accordance with the needs of anthropologists as described by Keesing (1966).

Within the past 2 years the Project has produced curriculum materials that were written according to particular learning theories that are compatible with the subject curriculum approach. One study (Steinbrink, 1970) applied Ausubel's theory of meaningful, verbal reception learning to curriculum development; the other (Gaines, 1971) applied Carroll's Mastery Learning Model. The materials used in the present study were based on Ausubel's theory. His theory is concerned with the psychology of how individuals comprehend, learn, organize, and remember meaningful verbal material. It does not systematically consider affective variables that influence learning such as motivation, emotion, or attitude (Ausubel, 1963, p. xi).

The investigator planned to use three elements of Ausubel's theory; the advance organizer, progressive

differentiation, and integrative reconciliation in the structuring of the curriculum materials used in the present study. Two of these three elements presented no problem and were used as guidelines for structuring the materials. These elements were progressive differentiation and integrative reconciliation.

Progressive differentiation refers to the organization of the instructional sequence. It begins with the most general and inclusive ideas followed by a more detailed and specific explanation. The purpose of organizing materials in this manner is to provide the learner with a way of organizing and categorizing phenomena. The materials used in the present study were structured according to the principle of progressive differentiation.

Integrative reconciliation refers to the process of explicitly exploring relationships between new and previously taught concepts. Its purpose is to point out significant similarities and differences, to clarify real differences, and to reconcile apparent inconsistencies among concepts. The materials used in the present study were written according to the principle of integrative reconciliation.

Problems were encountered when the investigator attempted to write advance organizers according to Ausubel's criteria. These criteria were not operationally defined by Ausubel. Therefore, the investigator defined

and constructed his own organizers. The organizers used in the present study are more abstract, general, and inclusive than the learning task itself, and they provide the learner with organizing elements that take into account the particular content contained in the learning task. They are the investigator's interpretation of Ausubel's (1963, p. 83) expository organizer which is appropriate when presenting learners with concepts that are unfamiliar. Expository organizers present unfamiliar concepts to learners in simple rather than complex terms and are used to present the learner with organizing elements that will facilitate the learning of the concepts. The expository organizer does not rely upon making connections with the learner's cognitive structure, as is the case of subject matter with which the student has some previous knowledge. In such cases a comparative organizer, which takes into account the learner's previous knowledge and associations, is more appropriate than an expository organizer (Ausubel, 1963, p. 83). No claim is made that the organizers used in the present study meet all of the organizer criteria espoused by Ausubel.

Statement of the Problem

The present study was designed to compare the effects of the position of organizers on the learning and retention of structured anthropology materials in grade six.

The treatment unit consisted of five chapters from the student textbook, Cultural Change in Mexico and the United States, Publication Number 72-5, Anthropology Curriculum Project, University of Georgia. The chapters were Culture, Cultural Change, The Cultural Heritage of Mexico and the United States, Changes in Language Traits in Mexico and the United States, and Political Institutions.

The question to be answered in the study was: Are there significant differences in learning between the treatment group using organizers placed immediately before each learning passage (pre-organizers) and the treatment group using organizers placed immediately after each learning passage (post-organizers)?

Definition of Terms

The concept of the organizer was of particular importance in the present study, and a clear definition of it was considered desirable. During the initial stages of the study the investigator attempted to differentiate between Ausubel's definition of the advance organizer and an introductory overview. This attempt was dropped because it was not possible to differentiate between the two. While logical distinctions could be drawn between written criteria for the organizer and overview, several critics raised the question that these distinctions might not translate into practice. The practical distinctions were tested when the investigator wrote an organizer and an

overview according to the criteria. The organizer was more abstract, general, and inclusive than the material in the learning passage that followed, and it was formulated in the language, concepts, and propositions that were presumed to be familiar to the learner. The overview was written at the same level of abstraction, generality, and inclusiveness as the learning passage that followed.

Two judges, a graduate student and a professor in the Department of Social Science Education at the University of Georgia, were asked to identify the organizer and the overview on the basis of the written criteria. They were unable to correctly identify either passage. One of the judges reported that the organizer seemed less abstract than the overview because it was written in the language, concepts, and propositions presumed to be familiar to the learner. The other judge reported that the overview seemed to be as abstract, general, and inclusive as the organizer because both were shorter than the learning passage yet contained the key ideas of the learning passage.

Ausubel only briefly differentiated between the organizer and the overview (Ausubel, 1963, p. 214; 1968, pp. 330-331). He frequently used the term overview when defining the attributes of the organizer (Ausubel, 1963, p. 82).

The attempt to distinguish between organizer and

overview, applying Ausubel's criteria, was therefore abandoned as not having functional utility for the writing of the present curriculum materials.

Because Ausubel did not operationally define the organizer, the investigator devised his own criteria for the organizer and attempted to write them in operational terms. Therefore, no claim is made that the organizers in the present study meet all of Ausubel's criteria. The study attempted to determine whether organizers, as defined below, facilitate learning.

Organizer refers to written material that serves the function of facilitating the incorporation and retention of subject matter. The organizer provides a brief summary of the more detailed material contained in the learning passage.

The written organizers used in the present study had the following characteristics:

1. presented in narrative expository paragraphs the key concepts of the discipline which were explained in detail in the unit;
2. defined the key concepts in simple rather than complex language;
3. illustrated the key concepts with examples which were further developed and enlarged in the unit;
4. introduced the key concepts, with supporting definition, illustrative, and relational material,

in the sequence which the concepts were developed in the unit;

5. arranged the narrative sequence to develop key concepts on the basis of generality and subsumption (major and minor concepts in a cluster, or congerie of related concepts);

6. provided a narrative condensation of the major ideas in the unit;

7. in a terminal position, served as a summary of the unit.

In the review of the literature there are a number of other specific terms that are identified with Ausubel's theory and that pertain to and have importance in the present study.

Cognitive structure is the stability, clarity, and organization of the learner's subject matter knowledge in a given discipline (Ausubel, 1963, p. 76).

Integrative reconciliation is the process of explicitly exploring relationships between new and previously taught concepts (Ausubel, 1963, p. 80).

Progressive differentiation is the sequencing of subject matter beginning with the most general and inclusive ideas first and then followed by a more detailed and specific explanation (Ausubel, 1963, p. 74).

Reception learning is a type of learning in which the task (material to be learned) is presented to the learner

rather than independently discovered by the learner (Ausubel, 1963, p. 1).

Verbal learning is used here in a general sense and is inclusive of written as well as oral understanding of symbolic learning (Ausubel, 1963, p. 1).

This discussion of terminology, especially that of organizer, is pertinent to the review of literature and the need for this study, presented in the next chapter.

CHAPTER II

REVIEW OF THE LITERATURE

Ausubel's Theory of Meaningful, Verbal Reception Learning

The role of the advance organizer can best be understood in the context of Ausubel's theory of meaningful, verbal reception learning. Ausubel (1963, pp. 28-29) listed three principal variables influencing meaningful, receptive learning: 1) the availability, within the learner, of relevant subsuming concepts at an appropriate level of inclusiveness to provide optimal anchorage within the cognitive structure; 2) the extent to which new material is discriminable from the established conceptual system that subsumes it; and 3) the stability and clarity of the subsumers within learners which affects the longevity of new meaningful material in memory.

Ausubel's (1963, p. 24) theory of cognitive organization assumes the existence of a cognitive structure of the learner that is hierarchically organized in terms of highly inclusive conceptual traces under which are subsumed less inclusive subconcepts as well as specific informational data. The major organizational structure is that of progressive differentiation of a given sphere of knowledge

from greater to lesser inclusiveness. The theory includes the assertion that existing cognitive structure is the major factor affecting meaningful learning and retention, and that the acquisition of an adequate cognitive structure has been shown to depend on both substantive and programmatic factors. Substantive factors refer to using for organizational and integrative purposes those substantive concepts and principles that have the widest explanatory power, inclusiveness, generalizability, and relatability to the subject matter content of that discipline. The programmatic factors include the ordering and sequencing of subject matter that best enhance the clarity, stability, and cohesiveness of cognitive structure.

In the theory of meaningful verbal learning a key premise is the assertion that substantive aspects of unfamiliar concepts or information must be related to existing concepts in the cognitive structure. The major factor affecting meaningful learning and retention is the learner's existing cognitive structure. Potentially meaningful material is only meaningful when related to an already existing cognitive structure. The cognitive structure of the particular individual must include the requisite intellectual capacities, ideational content, and experiential background. It is on this basis that the

potentially meaningful material varies with such factors as age, intelligence, and cultural background. It is subsumability within or incorporability by a particular cognitive structure which gives meaning to instructional materials (Ausubel, 1963, p. 23).

Ausubel distinguished between rote and meaningful learning. He characterized rote learning tasks as those tasks which are related to the cognitive structure but only in an arbitrary, verbatim fashion which does not permit the incorporation of derivative, elaborative, supportive, correlative, or qualifying relationships within a relevant system of hierarchically organized ideas and information (Ausubel, 1963, pp. 41-42). He suggested the following as the more flagrant practices which rely on rote verbal learning: 1) premature use of verbal techniques with cognitively immature pupils; 2) arbitrary presentation of unrelated facts without any organizing or explanatory principles; 3) failure to integrate new learning tasks with previously presented materials; and 4) the use of evaluation procedures that merely measure ability to recognize discrete facts, as to reproduce ideas in the same words or in the identical content as originally encountered (Ausubel, 1963, p. 18).

In contrast, meaningfully learned materials are

related to existing concepts in the cognitive structure in nonarbitrary ways which makes possible the understanding of various kinds of significant (e.g., derivative, qualifying, correlative) relationships.

The relative level of abstraction of subject matter content becomes an important pedagogical consideration in determining at what level pupils are introduced to different subject matter. Bruner (1960, p. 1) cautioned that in devising instruction for the young, one would be ill-advised to ignore what is known about growth, its constraints and opportunities. Jean Piaget has contributed much research on the study of cognitive processes. Piaget's theory is developmental; he contends that the thinking of all children tends to go through the same stages, and, on the average, when they are the same age. Children in the sixth grade normally fall within the age span which Piaget identifies as the concrete operations stage. This stage is characterized as the one in which the child uses logical operations, but the content of his thinking is concrete rather than abstract (Stendler, 1966, pp. 7-13).

Ausubel recognized these developmental processes and developmental stages and cautioned that during the concrete stage, which roughly covers the elementary school period,

children are restricted by their dependence on concrete empirical experiences to a semi-abstract, intuitive understanding of abstract propositions. He pointed out that such learners cannot meaningfully comprehend verbally or symbolically expressed propositions without the aid of concrete-empirical props (Ausubel, 1963, p. 146). There is little disagreement that readiness influences the efficiency of the learning process and often determines if an intellectual skill or type of school material is learnable at all at a particular stage of development. Readiness is a function of both general cognitive maturity and of more particularized learning experience (Ausubel, 1963, p. 134).

The concept of readiness refers to the adequacy of existing capacity to handle a learning task. Whether or not readiness exists depends on both maturation and prior learning experience. Maturation is not the same as readiness but merely one of the two principal factors (the other being learning) that contributes to or determines the organism's readiness to cope with new experiences (Ausubel, 1963, p. 32).

It was Ausubel's contention that at any given stage in the learner's differentiation of a particular sphere of knowledge it is unlikely that the teacher can depend on the

spontaneous availability of the most relevant subsuming concepts. He further contended that the most efficient way of facilitating retention is to introduce appropriate subsumers prior to the actual presentation of the learning task (Ausubel, 1963, p. 29).

Ausubel's concept of introducing subsumers prior to instruction is not substantially different from that of Herbart and Morrison. They had earlier hypothesized that providing students with relevant information prior to instruction facilitates learning. The nineteenth century philosopher Herbart believed that the teacher should not present anything completely new to the student. He cautioned that the teacher must provide the learner with connecting links to that which has been previously taught (Compayré, 1907, p. 59). This should be done, he advised, bit by bit to widen the student's circle of thought, taking careful account of the precise structure of that particular child's mind at each point (Dunkel, 1970, p. 13).

> He [the teacher] will announce and recapitulate beforehand what is going to be said, and also going to be read . . . in popular language, avoiding the use of too many new and technical words . . . Thus the intellect of the pupil, inclined in the right direction, will be disposed to listen, and the instruction, thrown on to a well-prepared soil, will bear the fruit which he expected [Compayré, 1907, p. 62].

In a subsequent consideration of the introduction of

new materials, Morrison pointed out that new ideas must have a point of connection in the existing experience of the learner, and that it is probably impossible to acquire new ideas or abilities without this connecting link. He advised that new materials be introduced to students with a sketch containing the essence of the matter with a minimum of detail (Morrison, 1926, pp. 248-249).

Ausubel (1963, p. 29) concurred that the most efficient way to facilitate retention is to introduce organizers prior to the actual presentation of the learning task. The introductory materials thus become advance organizers for the reception of new material.

An understanding of Ausubel's concept of the advance organizer is crucial in understanding his theory of meaningful, verbal reception learning. He stated:

> The strategy advocated in this treatise for deliberately manipulating cognitive structure so as to enhance proactive facilitation or minimize proactive inhibition involves the use of introductory materials (i.e., organizers) prior to the presentation of the actual learning task. These advance organizers consist of introductory material at a higher level of abstraction, generality, and inclusiveness than the learning task itself. The function of the organizer is to provide ideational scaffolding for the stable incorporation and retention of the more detailed and differentiated material that follows in the learning passage, as well as to increase discriminability between the latter and related, interfering concepts in cognitive structure [Ausubel, 1963, p. 29].

Ausubel further clarified the characteristics of the advance organizer by stating that:

> The advantage of deliberately constructing a special organizer for each new unit of material is that only in this way can the learner enjoy the advantage of a subsumer which both (a) gives him a general overview of the more detailed material in advance of his actual confrontation with it, and (b) also provides organizing elements that are inclusive of and take into account most relevantly and efficiently both the particular content contained in this material and relevant concepts in cognitive structure. It thereby makes use of established knowledge to increase the familiarity and learnability of new material [Ausubel, 1963, p. 82].

Ausubel (1963, p. 214; 1968, pp. 330-331) attempted to distinguish between organizers and overviews or summaries commonly found in textbooks. Overviews and summaries are typically written at the same level of abstraction and generality as the learning materials and accomplish their effects through repetition, selective emphasis on key words or central concepts; in contrast, organizers are written at a higher level of abstraction and generality, and provide relevant subsuming concepts.

The present investigator attempted to operationally differentiate between advance organizers and introductory overviews but found it difficult to understand the concept of abstraction as discussed by Ausubel. Nowhere does he define the term operationally or give specific

illustrations. In one context he stated that the advance organizer is to be more abstract than the material that follows while at the same time it is to be formulated in terms of language, concepts, and propositions already familiar to the learner with appropriate illustrations (Ausubel, 1963, p. 214). It would appear that these two criteria are contradictory, one being abstract and the other concrete.

Two types of advance organizers were defined by Ausubel (1963, p. 83). In the case of completely unfamiliar material, an expository organizer is used to provide subsumers that primarily furnish ideational anchorage in terms that are familiar to the learner. In the case of relatively familiar material, a comparative organizer is used to 1) integrate new concepts in cognitive structure and 2) to increase discriminability between new and existing concepts which are essentially different but confusable.

While Ausubel discussed these two types of organizers in general terms, he did not define them operationally. Further, he did not use specific examples with illustrative material. As a result, the concept of the advance organizer remains vague.

Related Research

A review of research pertaining to advance organizers indicates that most studies have 1) reported conflicting results as to the facilitative effect of advance organizers, 2) not attempted to operationally define the concept of advance organizer, 3) investigated the effects of the advance organizer at the college level, 4) been designed to limit classroom interaction during the study, 5) been of a short duration; from one to four class periods, and 6) not been in social studies. A summary of these studies is reported in Table 1. Studies are organized according to findings: those finding significance in favor of written organizers and those finding no significance in favor of written organizers. Studies using multi-media organizers are presented separately from those using written organizers.

Studies reporting facilitative effects of advance organizers. There is a body of research evidence supporting the contention that advance organizers do, in fact, facilitate learning. Ausubel (1960), using 120 college seniors in educational psychology as subjects, compared a 500 word expository advance organizer with an historical passage of the same length. Both introductory passages and the learning passage dealt with metallurgy, a topic

TABLE 1

Previous Investigations of the Facilitative Effects of Organizers

Studies Reporting a Facilitative Effect of Advance Organizers

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Ausubel	1960	Expository vs. historical passage	120	College: Metallurgy	1 class period	Non-sig.; pre-organizer almost sig. at .01.
Ausubel and Fitzgerald	1961	Expository, comparative, and historical introduction	155	College: Religion	3 class periods plus posttest and delayed posttest	Comparative organizer sig. .05 on posttest. Both organizers sig.: expository .05, comparative .02 on delayed posttest (10 days).
Ausubel and Fitzgerald	1962	Expository vs. introductory passage	143	College: Endrocrinology of Pubescence	2 class periods	Total group non-sig. When blocked by SCAT verbal ability scores, sig. .01 in favor of organizer with students in lower one third group.

TABLE 1 (Cont'd)

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Ausubel and Youssef	1963	Advance organizer vs. historical and biographical passage	162	College: Religion	30 minutes per day for 4 days	Organizer sig. .01 when verbal ability held constant. When knowledge of Christianity held constant, advance organizer was sig. .05.
Groteluescher and Sjogren	1968	Earlier version of the organizers used below	48 Graduate Education Students	College: Mathematics	1 individually arranged session	Advance organizers facilitated learning especially when materials were presented in a partially sequenced manner.
Groteluescher and Sjogren	1968	Three experimental organizers and one historical	24 gifted adults	Adults: Mathematics	1 individually arranged session	Advance organizers facilitated learning especially when materials were presented in a partially sequenced manner.

TABLE 1 (Cont'd)

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Allen	1969	Advance organizer vs. introduction	212	Junior High: Social Studies	4 days	Advance organizer facilitated learning of above-average students on the delayed posttest (3 weeks).
Neisworth and others	1969	Advance organizer vs. motivational introduction	184 at each level	Normal Elementary and EMR Adolescents: Science	4 days	Advance organizer sig. on posttest and delayed posttest (14 days) with normal elementary. No. sig. difference among EMR adolescents on posttest or delayed posttest.
Steinbrink	1970	Daily advance organizer vs. no daily advance organizer	156	Elementary: Social Studies	5 weeks	Advance organizer sig. on posttest.

TABLE 1 (Cont'd)

Studies Reporting No Facilitative Effects of Advance Organizers

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Woodward	1966	Advance organizer and post-organizer	27	College: Mathematics	?	Non-sig.
Bauman, Glass and Harrington	1969	Advance, post- and no-organizer	34	College: Psychology	1 class period	Post-organizer sig. .05.
Bauman, Glass and Harrington	1969	Advance, post- and no-organizer	21	College: Statistics	1 class period	Post-organizer sig. .005 when advance and post-organizers were compared. No sig. difference .10 when scores of pre- and post-organizers were averaged and compared with no-organizer.

TABLE 1 (Cont'd)

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Bauman, Glass and Harrington	1969	Advance, post- and no-organizer	21	College: Statistics	1 class period	Post-organizer sig. .05 when advance and post-organizers were compared. No sig. difference .10 when scores of pre- and post-organizers were averaged and compared with no-organizer.
Jerrolds	1967	Advance organizer, modified advance organizer, no-organizer	84	High School: Reading (espionage)	1 class period	No sig. difference among groups on posttest or delayed posttest (4 days). Students who scored below the 49th percentile on the ITBS not included.
Neisworth	1967	Advance organizer vs. introduction	180	High School: Accidental poisoning	4 days	No sig. difference on posttest and on delayed posttest (20 days).

TABLE 1 (Cont'd)

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Schulz	1966	Advance organizer vs. no-organizer	376	Elementary: Science	20 weeks	No statistically sig. difference on the posttest or the delayed posttest (10 weeks).
Studies Using Multi-Media Organizers						
Scandura and Wells	1967	Organizer in the form of a game vs. nistorical introduction	104	College: Mathematics	1 class period	Organizer in the form of a game sig. .05.
Weisberg	1970	2 types of visual advance organizers, one written expository organizer, and no-organizer	96	Elementary: Science	1 class period	Both visual organizers sig. .05. No sig. difference between written expository organizer group and control group.

TABLE 1 (Cont'd)

Investigator	Year	Type of Organizer	Number of Subjects	Level and Subject Area	Length of Study	Results
Livingston	1970	Advance organizer (simulation game) vs. no-organizer	22	Elementary: Geography	1 class period	No sig. difference.
Livingston	1970	Advance organizer (simulation game) vs. no-organizer	40	High School: Geography	1 week	No sig. difference.
Livingston	1970	Advance organizer (simulation game) vs. no-organizer	32	Elementary: Geography	1 week	No sig. difference.
Barron	1971	Graphic organizer, prose organizer, and no-organizer	?	High School: Astronomy	1 class period (30 minutes)	No sig. difference at any grade level.

found to be unfamiliar to the subjects on a pretest. Ausubel reported that the expository advance organizer was written at a much higher level of generality, abstraction, and inclusiveness than the learning passage; the historical passage was written to create interest among the subjects and did not relate directly to the concepts that were tested. The treatment was administered in one 35 minute period and the posttest was administered 3 days later. The difference between means of the experimental and control groups was, according to Ausubel, almost significant at the .01 level in favor of the group using the expository advance organizer.

Ausubel and Fitzgerald (1961), using university undergraduate students, compared the effectiveness of three types of introductory passages; a comparative organizer, an expository organizer, and an historical introduction. The comparative organizer pointed out explicitly the differences and similarities between the material to be learned, Buddhism, and material which was already familiar to the learner, Christianity. The comparative organizer was designed to increase discriminability between the two sets of concepts. The expository organizer presented the principal Buddhist doctrines at a high level of abstraction, generality, and inclusiveness without making

reference to Christianity. The historical introduction, which was intended solely as a control treatment, presented historical and human interest information. It contained no comparisons between the religions. The treatment lasted 3 days and was immediately followed by a posttest. A delayed posttest was administered on the tenth day following the treatment. On the posttest the comparative organizer was found to be statistically significant ($p<.05$) when compared with the expository organizer and the historical introduction. On the delayed posttest both the expository and the comparative organizers were significant ($p<.05$, $p<.02$) when compared with the historical introduction.

Ausubel and Fitzgerald (1962), again using college undergraduates as subjects, compared the effectiveness of an expository organizer and an introductory passage in a study of the endrocrinology of pubescence. A comparison of the means of the total experimental group with the total control group produced nonsignificant results ($p<.07$). Using verbal ability scores on the SCAT as a basis for blocking, they found significant results for the lower one-third group in favor of the expository organizer ($p<.01$).

Ausubel and Youssef (1963), using 162 senior college students as subjects, compared the effect of the advance

organizer and a nonideational passage of historical and biographical nature. The treatment lasted 4 days including a posttest. It was followed by a delayed posttest 10 days after completion of the treatment. They reported significance in favor of the advance organizer ($p<.01$) when verbal ability was held constant by means of analysis of covariance. When knowledge of Christianity was held constant the performance of the advance organizer group was significantly higher at the .05 level.

In the four studies by Ausubel and his collaborators the control groups used introductory passages which did not relate directly to the concepts to be learned, while the experimental groups used organizers which were directly related to the concepts to be learned. The differences between or among treatments may have resulted from the introduction of extraneous concepts which may have interfered with the learning of the concepts from the learning passage, rather than from any facilitative effects of the advance organizers.

Groteluescher and Sjogrer (1968) conducted two studies, one with 24 intellectually gifted adults and the other with 48 graduate education students. They compared three experimental treatment groups and one control treatment group. The experimental treatments contained key

ideas in the study of mathematics while the control treatment consisted of historical and descriptive information about units of measurement.

The authors concluded from both studies that experimental treatment materials not only facilitated the learning of new materials but also facilitated transfer, especially when the learning material was presented in a partially sequenced manner. While Ausubel and Fitzgerald (1962) found that the advance organizer facilitated learning for those students whose SCAT scores were in the lower one-third of the distribution, Groteluescher and Sjogren (1968) concluded from their study that the advance organizer facilitated learning for intellectually gifted adults and graduate students.

Allen (1969), using 212 ninth-grade students as subjects, compared the effects of an advance organizer introduction and a non-advance organizer introduction in social studies. The advance organizer, according to Allen, was written at a higher level of abstraction, generality, and inclusiveness than the non-advance organizer; however no clear definition of either was provided. The treatment lasted for 4 class periods with the posttest administered on the fifth day. A delayed posttest was administered 3 weeks following the treatment. Allen concluded that the

advance organizer enhanced learning for above average students as measured on a delayed posttest but that it had no facilitative effect with less able students. These findings are in conflict with those of Ausubel and Fitzgerald (1962).

Neisworth and others (1969) compared the effectiveness of a 200 word advance organizer with a motivational introduction of similar length in science. They used 184 educable mentally retarded (EMR) adolescents and 184 intellectually normal elementary grade students. The treatment lasted for 4 class periods. A delayed posttest was administered 14 days after the treatment. They reported no significant difference between the advance organizer group and the control group with the EMR students. They did find a significant difference ($p<.05$) in favor of the advance organizer group on the posttest and on the delayed posttest for the intellectually normal children.

Steinbrink (1970) used six intact social studies classes of rural Black fifth and sixth grade students in his study. He stated that his experimental group was given a conceptual advance organizer and daily advance organizers. The control group received the conceptual organizer at the end of the unit and did not receive daily

advance organizers. The study was conducted over a 5 week instructional period, which was considerably longer than most others reviewed. Steinbrink found a significant difference ($p<.05$) in favor of the advance organizer. However, the use of individual students rather than class means as the unit of statistical analysis has been questioned because of possible violation of independence (Glass & Stanley, 1970, pp. 505-508). Other limitations of the study were the lack of randomization and the fact that students in the experimental classes were much better readers than those in the control classes, as measured by the Metropolitan Reading Test.

Studies reporting no facilitative effects of advance organizers. In addition to the studies described above which resulted in conclusions supporting the facilitative effect of advance organizers, studies have been reviewed which did not find this to be the case.

Woodward (1966), using 27 college students, compared the facilitative effects of advance and post-organizers. He found no significant difference between the two treatment groups.

Bauman, Glass, and Harrington (1969) conducted three studies with college students to investigate the effects of the position of an organizer on learning. Each

treatment was 1 class period in length including the post-test. They found that the post-organizer groups scored significantly higher ($p<.05$) than the advance organizer groups on the posttests in all three studies and concluded that placing the organizer after a lesson has a greater facilitative effect than does the advance organizer. In contrast to the results of the other studies reviewed, Bauman, Glass, and Harrington found statistically significant results in favor of a post-organizer treatment group.

Jerrolds (1967), using 84 ninth-grade students as subjects, compared the effectiveness of an advance organizer, a modified advance organizer, and a control group using no organizer. He reported that the advance organizer was formulated on the basis of Ausubel's description. The modified advance organizer was constructed around main ideas and concepts. Students who scored below the fortieth percentile in reading on the Iowa Test of Basic Skills were dropped from the sample. No significant differences were found between the effects of the advance organizer and the modified advance organizer groups nor were the results for either of the advance organizer groups found to differ significantly from those of the control group.

Neisworth (1967), using 180 educable mentally retarded adolescents, compared the advance organizer with an introductory passage. The topic under study was accidental poisoning. The treatment lasted for 4 days plus the posttest. A delayed posttest was administered 20 days later. Neisworth found no significant difference in achievement between groups.

Schulz (1966), using 376 sixth-grade students of above average ability as subjects, compared a group that received two advance organizers based on Ausubel's criteria with a group that did not receive organizers. The subject was science. The treatment period was considerably longer than all others reviewed; it lasted 20 weeks. The first advance organizer was provided at the beginning of the study and the second one 12 weeks later. The present investigator believes that the organizers in Schulz's study were spaced too far apart to be a fair test of their ability to facilitate learning. Therefore, it was not surprising to find that the results were not significant. No statistically significant difference was found on the posttest and on the delayed posttest among any subgroups in the sample. Subgroups were based on sex, ability, and background information. It should be noted that Schulz concluded that organizers do facilitate learning when

pupils lack the processing skill necessary to reorganize information independently into suitably clear inclusive and stable cognitive structure even though his statistical differences were not significant.

Studies using multi-media organizers. The concept of organizer has been utilized in studies using media other than narrative materials. Scandura and Wells (1967), using as subjects 104 college students majoring in elementary education, compared the use of an advance organizer in the form of a game with an historical introduction. The function of the game (organizer) was to present the structure of a mathematical group in terms familiar to the subjects. The experiment was conducted during 1 class period. The investigators reported that the organizer was superior to the historical introduction ($p<.05$). Instructional time was not held constant between groups; the organizer group took an average of 12% less time than the group that used the historical introduction.

Weisberg (1970), using as subjects 96 eighth-grade science students, compared the use of three types of advance organizers with a control group that used no organizer. Two of the three advance organizers were visual in nature. One of these was in the form of a graph and the other was in the form of a map. The third advance

organizer was in written expository form. Weisberg worked with individual students outside the classroom. He reported both visual organizers to have a significant facilitative effect ($p<.05$) on learning. The effect of the written expository advance organizer was nonsignificant when compared with the control group. A limitation of Weisberg's study is that his results are generalizable only to individual tutoring situations, not to group instruction.

Livingston (1970) conducted three studies in three different classrooms: two eighth-grade classes and one high school class. He used a simulation game designed to teach economic geography as a pre-organizer. Livingston compared the pre-organizer group with a matched control group that did not use the simulation game as a pre-organizer. The duration of his studies varied. One lasted 1 class period; the content of the lesson was in a filmstrip. In the other two studies the instruction was a 1 week treatment; the content was textbook materials. In each study the control group scored higher, but not significantly higher, than the pre-organizer groups.

Barron (1971) tested three treatment conditions: a graphic organizer, a prose organizer, and a control group. He defined the graphic organizer as a visual and verbal

presentation of the key vocabulary in a new learning task in relation to subsuming and/or parallel terms that presumably were part of the cognitive structure of the learner. The prose organizer was a written expository organizer. The sample consisted of classes in grades 6 through 12. The treatment was the same for all grades. The treatment lasted 1 class period at each grade level. Analysis of the data did not show a significant difference in favor of the organizer treatments at any grade level. Barron's study was significant to the present investigator because it took into account Ausubel's requirement that organizers be at the proper level of abstraction. This was accomplished by the inclusion of a wide range of grade levels receiving the same treatment. Another important element in Barron's study was his stated recognition that the subsuming and parallel terms were presumed rather than known to be part of the cognitive structure of the learner.

The next section indicates important questions which arise from Ausubel's concept of organizer and research which has utilized this schema.

Need for the Present Study

The review of the literature reveals several unanswered questions. The first is "What is an organizer?" The vagueness with which Ausubel defined the term has contributed to confusion in evaluating the results of

research. Allen (1969) and Steinbrink (1970), for example, both wrote that they constructed organizers according to Ausubel's criteria. Their organizers, however, are very dissimilar. As with most other studies reviewed, the researchers did not operationally define their organizers. As a result, the criteria for their organizers may be only inferred from samples of their treatment materials.

The present study was an attempt to fulfill the need to operationally define an organizer. This should facilitate replication and may enable future researchers to write improved organizers. It also provides the reader with a basis for accepting or rejecting the conclusions of the present study.

The second question that emerged from the review of related literature was, "Do written organizers facilitate learning at the sixth-grade level in intact class settings?" Of the 22 studies reviewed, only 6 were conducted with elementary age children. The results of these elementary studies are conflicting. Three found that organizers facilitate learning while three did not. None of the studies reviewed were conducted below the fifth grade.

The present study was an attempt to test the facilitative effects of organizers in intact classes at the sixth-grade level.

The third question raised by a review of related literature was, "Do written organizers facilitate learning in social studies with elementary grade children?" Only three studies, one conducted by Steinbrink (1970) and two conducted by Livingston (1970), were in the social studies subject area. Of the three, only Steinbrink (1970) used written organizers. The results of Steinbrink's study cannot be considered conclusive for three reasons: his subjects were not randomly assigned to treatment groups; his pre-organizer group scored significantly higher on a standardized reading achievement test than did his post-organizer group; and the use of individual students as the unit of statistical analysis is questioned because of possible lack of independence among subjects.

The present study was an attempt to extend the Steinbrink study. Like Steinbrink, this investigator used intact classes, written expository pre- and post-organizers, and a treatment time period of about 25 days. While Steinbrink failed to specify his criteria, he used the principle of major and subsuming concepts in writing his organizers. The organizers are therefore similar to those used in this study.

There are nevertheless several differences between the two studies. In the present study classes were randomly assigned to treatment groups, whereas Steinbrink's

classes were not randomly assigned. In the present study reading score differences were not significant between groups, whereas Steinbrink found significant differences in reading between groups. In the present study class mean scores were used as the unit of statistical analysis to ensure independence, whereas Steinbrink used individual student scores.

The fourth question raised by a review of the literature was, "Do written organizers facilitate learning over an extended period of time?" Of the 22 studies reviewed, 20 were of relatively short duration. Eleven lasted only 1 class period and 8 lasted from 2 to 5 days. Only two, Schulz (1966) and Steinbrink (1970), were longer than 1 week in duration. Questions regarding Steinbrink's study have been discussed above. Schulz's study is also inconclusive. He administered an advance organizer to one of his treatment groups at the beginning of his study and another one 12 weeks later. Then, 20 weeks after the study was initiated and had been interrupted by Christmas vacation, he administered the posttest. It is not surprising that he found no significant differences between the organizer and no-organizer groups because only two organizers were used over the 20 week period.

This raises the fifth question, "How often should organizers be used in instructional units that last

several weeks?" Of the two long term studies reviewed, Steinbrink (1970) used an introductory unit organizer and daily lesson organizers for the advance organizer treatment, while Schulz (1966) used only two organizers in a 20 week period.

In the present study, which lasted 24 days, 17 organizers were used. There was 1 unit organizer, 5 chapter organizers, and 11 sub-chapter organizers. The sub-chapter organizers were introduced where there were major conceptual breaks in the logical organization of the material.

Summary. The present study attempted to operationally define the organizer and investigated the effects of organizers in intact social studies classes at the sixth-grade level over an extended period of time.

The organizers used in the present study are the investigator's interpretation of Ausubel's expository organizer. The attributes of the organizer, as defined on pages 7 and 8 of this study, were investigator constructed. No claim is made that the organizers in this study, by definition or example, conform to all of Ausubel's criteria.

CHAPTER III

METHODOLOGIES AND PROCEDURES

This chapter describes the following ten elements of the study: 1) construction of curriculum materials; 2) experimental design; 3) construction and characteristics of anthropology achievement tests; 4) pilot study; 5) experimental study; 6) pattern of logic used in the study; 7) contextual variables; 8) characteristics of the classes; 9) statistical procedures; and 10) limitations.

Construction of Curriculum Materials

Investigator prepared student materials were used in the present study. Five chapters from the student text, Cultural Change in Mexico and the United States, Publication Number 72-5, published by the Anthropology Curriculum Project, provided the basic concepts and supporting data for the five week unit of study. The chapters were Culture, Cultural Change, The Cultural Heritage of Mexico and the United States, Changes in Language Traits in Mexico and the United States, and Political Institutions. Seven additional chapters were

in preparation and were not used in the study.

The textbook was published in two formats: pre-organizers and post-organizers. The student textbooks were identical except for the position of organizers. The organizers were identical in both textbooks. In the pre-organizer textbooks, the organizers preceded the learning passages. In the post-organizer textbooks, the organizers were placed after the learning passages. The materials used three levels of organizers: unit, chapter, and sub-chapter. The unit organizer summarized the major concepts in the five chapters; the chapter organizers summarized the major concepts within each chapter. The sub-chapter organizers summarized sections within chapters. The field test version of the textbook was not illustrated and had not been previously used in elementary school classrooms. The revised version will contain illustrations and text-book revision will be based, in part, on the reactions of the students and the suggestions of the teachers who used the text. A copy of the pre-organizer field test version of the student textbook appears in Appendix K, p. 200.

In addition to the textbooks, a student study guide, Publication Number 72-5, Anthropology Curriculum Project, was developed for student use. The study guide consisted of study charts to be filled in by the students. The purpose of the study guide was to reinforce the concepts presented in the textbook. A copy of the student study

guide appears in Appendix J, p. 185.

Organization of Curriculum Materials

The materials were organized around those concepts and key ideas from the field of cultural anthropology that deal with cultural dynamics. The settings, Mexico and the United States, were used as case studies of cultural change.

The materials fall within the realm of subject curriculum, and were written according to the investigator's interpretation of Ausubel's criteria for progressive differentiation and integrative reconciliation.

Experimental Design

A modified version of Campbell and Stanley's (1963) Completely Randomized Posttest-Only Control Group Design as shown below was used in the study.

R	X_1	O_1	X_1	O_2
R	X_2	O_1	X_2	O_2

The Rs in the first column affirm that classes were randomly assigned to two groups and that treatment was then randomly assigned to the two groups. The X_1 in the first row indicates the experimental treatment group one, namely, those classes using the pre-organizer. The X_2 in the second row identifies experimental treatment

group two, namely, those classes using the post-organizer. The O_1s in the third column denote the administration of Anthropology Achievement Test Number One after 10 days of instruction. The O_2s in the fifth column denote the administration of Anthropology Achievement Test Number Two at the completion of the fifth week of instruction.

Rationale for Posttest-Only Design

Several other research designs were considered, then rejected in favor of the Posttest-Only Design. There were several reasons for this decision. One of the reasons was the belief that pretesting was inappropriate in the study. It was inappropriate because the study met the criterion set forth by Campbell and Stanley (1963, p. 25). They stated that while the pre-test is a concept that is deeply imbedded in the thinking of research workers in education, it is actually not essential in experimental designs. They indicated that it is inappropriate when experimenting with methods dealing with the initial introduction of new subject matter. Greene (1965), Thomas (1967), and Walsh (1967), in their studies dealing with the teaching of anthropology in the elementary grades, found that the pre-test scores of pupils did not differ significantly from chance. These findings suggest that the subjects in these studies were unfamiliar with the concepts of anthropology. The chance scores on these pre-tests should

not have been unexpected because anthropology has not traditionally been taught in the elementary grades. On the basis of the results of these studies it would seem safe to assume that pupil scores on an anthropology pre-test in the present study would not differ significantly from chance.

In addition to the probability that pre-test scores would not differ from chance, possible effects of the pre-test on treatment were considered. Campbell and Stanley (1963, p. 25) consider the Posttest-Only Design to be preferred to the Pretest-Posttest Design in that it controls for the effects of the pre-tests. This point is especially significant in the present study which attempted to determine the relative effects of the position of organizers on the learning of written material. It seems highly likely that pre-testing would be a confounding variable in the study.

Unit of Statistical Analysis

The investigator had two alternatives in selecting the unit of statistical analysis; either the individual student scores or class mean scores. One of the bases for a valid statistical analysis is that of independent response. Class means were used as the unit of statistical analysis in the present study, because there was some concern over whether or not the individual scores

would meet the condition of independence (Glass and Stanley, 1970, pp. 505-508). Independence of response of individuals was questioned because the research was conducted in intact classes where there was interaction among pupils and between teachers and pupils.

Construction and Characteristics of Anthropology Achievement Tests

This section describes the procedures for developing, revising, and analyzing the tests used in the study. Three investigator-constructed, norm referenced, four-option multiple choice instruments were constructed--a Pilot Anthropology Achievement Test which was administered to the two pilot classes and Anthropology Achievement Tests One and Two which were administered to the twelve experimental classes.

The Pilot Test was constructed and administered concurrently with Test Number One. The main function of Anthropology Achievement Test Number One was to examine the facilitative effect of organizers at the end of 12 instructional periods. This testing was initially undertaken as a precautionary measure. The investigator was concerned that the experimental schools might not continue to participate in the study because of racial unrest in the community and school system. It was considered possible that the schools might close during the study to avoid

racial problems or that teachers and administrators might not be willing to give their time and attention to the experiment if they had more pressing racial problems to face. The investigator considered these events to be possibilities because immediately prior to the start of the study high schools and junior high schools in the Savannah-Chatham School System had experienced racial unrest and the system had closed for a day.

The analysis of Test One indicated that the test was reliable (Appendix G, p. 176) as well as valid. The investigator therefore decided to report the results of Test One as additional evidence of the effects of organizers. Test One added a second dimension to the study. The data from Test One and Test Two made it possible for the investigator to examine both the short term effects of organizers (12 instructional periods) and the effects of organizers over a longer period of time (24 instructional periods).

No items from Anthropology Achievement Test Number One were included in Anthropology Achievement Test Number Two.

The procedures followed in test construction are outlined below and are discussed more fully later in this section.

1. The key concepts for the textbook were

established by Dr. Marion J. Rice, Director of the Anthropology Curriculum Project, and Dr. Wilfrid C. Bailey, Professor of Anthropology (Rice, 1969).

2. Advance organizers were written by the investigator for the first five chapters of the textbook. The advance organizers defined and illustrated the key concepts identified in step one above.

3. An investigator-prepared student study guide was written for all students. It contained practice exercises based on 21 concepts that were presented in Chapters 1 through 5 of the textbook.

4. Eighteen key concepts that were presented in Chapters 1 through 5 of the student text were selected to be tested.

5. A pool of 106 questions was developed to test the students' understanding of the 18 selected key concepts.

6. Two tests were constructed for Chapters 1 through 4. They surveyed 12 selected concepts from these chapters. One test, Pilot Anthropology Achievement Test, was developed and administered to the two pilot classes. Anthropology Achievement Test Number One was administered to the 12 experimental classes. The two tests were analyzed by the Test Scorer and Statistical Analysis (TSSA)

computer program (Wolf and Klopfer, 1963).

7. Anthropology Achievement Test Number Two served as a final test and surveyed 18 selected concepts from Chapters 1 through 5. Test data from the Pilot Test were used in the construction of Anthropology Achievement Test Number Two. The test was analyzed by the TSSA computer program after it was administered.

Learning Objectives and Content

Prior to the writing of the unit, the key concepts of the grade six cultural change unit had been identified by Rice and Bailey (1969). These concepts served as the basis for the chapter organizers which were developed by the investigator for the student textbook. The key concepts served the dual purpose of guiding the development of content and assuring that test items would subsequently sample the major learning outcomes desired by the writer.

Learning Objectives and Organizers

Seventeen organizers were written for the portion of the text used in the present study. One was written for the unit, one for each of the five separate chapters, and one for each of the eleven sub-chapters. The organizers served an important function in both the writing of text material and in the selection of test items. The first

characteristic of the organizers used in this study was the definition and illustration of the key concepts which were explained in detail in the student textbook. The organizers thus served as a control over learning objectives, content of the textbook, and subsequent test items. The contents of the organizers and the learning passages were carefully monitored by Dr. Rice to ensure conceptual and factual consistency with the originally established learning objectives.

Learning Objectives and Student Study Guide

Twenty-one concepts from the textbook were included in the student study guide (Appendix J, pp. 185-198). The guide consists of several study charts which required the students to fill in blank spaces with key ideas from the text. The guide provides the students with practice relating the key concepts to the two cultures that are described in the text and that are included on the anthropology achievement tests. The guide requires student-constructed responses that provide for individual differences in learning among the students. Those students who are more capable can be expected to construct responses that reveal their broader understanding of the applications of the key concepts to the cultures of Mexico and the United States. Those students who are less capable can be expected to construct responses that reveal

their knowledge of the more general and obvious applications of the key concepts to the cultures of Mexico and the United States.

Learning Objectives and the Anthropology Achievement Tests

Twelve key concepts were identified in Chapters 1 through 4 in the textbook. All 12 of the key concepts were tested in the Pilot Test (Appendix D, pp. 125-127. The same 12 key concepts were also tested in Anthropology Achievement Test Number One (Appendix G, pp. 162-164). A copy of the Pilot Anthropology Achievement Test appears in Appendix D, pp. 117-124. A copy of Anthropology Achievement Test Number One appears in Appendix G, pp. 155-161.

Six key concepts were identified in Chapter 5 of the textbook. Anthropology Achievement Test Number Two sampled 18 concepts from Chapters 1 through 5. Twelve concepts were carried forward from Chapters 1 through 4 and an additional 6 concepts were included from Chapter 5. A copy of Anthropology Achievement Test Number Two appears in Appendix G, pp. 165-170. The concepts tested in Anthropology Achievement Test Number Two are listed in Appendix G, pp. 171-173.

All items in the tests, Pilot Test, Test One, and Test Two, were of the multiple choice, discrimination response type.

Establishing Content Validity of the Tests

The following procedure was followed to establish content validity.

The 18 selected key concepts from the first five chapters of the student textbook were listed by the investigator. A minimum of five multiple choice questions were written for each of the selected concepts. Three types of questions were written for each concept. One type presented definitions of a concept and required the student to select the correct concept from three options. The second type presented examples from the text and required the student to select the correct concept from three options. The third type required the student to apply the concept to an unfamiliar context, one that was not in the text. This was done by presenting an unfamiliar example and requiring the student to select the correct concept from three options. The distribution of the types of items in the Pilot Test is included in Appendix D, pp 125-127. The distributions for Tests One and Two are in Appendix G, pp. 162-173. The procedure described above produced a pool of 106 questions.

Pilot Test and Anthropology Achievement Test Number One. From the pool of test questions that sampled the concepts from the first four chapters, 50 items were selected for the Pilot Test and 45 for Anthropology

Achievement Test Number One. Both tests sampled the same concepts. The first consideration of test construction was content validity. Care was taken to include questions for each of the selected 12 key concepts. Second, there was an attempt to maintain a balance among definition, example, and application type questions. The Pilot Test consisted of 36% definitional questions, 34% example questions, and 30% application-type questions. Anthropology Achievement Test Number One consisted of 36% definitional questions, 29% example questions, and 35% application-type questions. Anthropology Achievement Test Number Two consisted of 28% definitional questions, 45% example questions, and 28% application-type questions. Third, Ebel's (1965, pp. 151-170) suggestions for writing multiple choice test items were reviewed, and an attempt was made to write the questions according to his criteria. The next step was to construct the tests and tables of specifications.

The proposed tests were submitted to Dr. Rice who made editorial changes, reviewed the items, and compared them with the test specifications and the selected key concepts from Chapters 1 through 4 in the textbook to assure content validity. The content validity of each test was then independently verified by Dr. Wilfrid C. Bailey, Professor of Anthropology at the University of

Georgia. Dr. Rice monitored the process at each level of development; Dr. Bailey examined the tests after they had reached the final stage of development.

Test revision and construction of Anthropology Achievement Test Number Two. Test data from the pilot study were used to improve the reliability of Anthropology Achievement Test Number Two. Students in the pilot study were administered the Pilot Anthropology Achievement Test at the completion of Chapter 4. Data from this test were analyzed and 29 questions were selected to be used in Anthropology Achievement Test Number Two. Four factors influenced the selection of questions: content validity, item difficulty, type of question (definition, example, and application), and point biserial correlation of items with the total test score. The data from the Pilot Test were used in the following manner:

1. Content validity was the foremost concern. Key concepts from the first four chapters of the text were once again reviewed. Dr. Rice verified that all 12 concepts that were included in Anthropology Achievement Test Number One were also tested in Anthropology Achievement Test Number Two. The length of treatment in the text was a guide to the number of questions written for each concept.
2. The items pertaining to each concept were

identified, and item difficulty was examined (Appendix G, pp. 171-173). Among the items that tested the same concept, those that came closest to .50 in difficulty were considered superior to items that were either very difficult or very easy.

3. The type of question was also a factor in selecting items to be included in the test. An attempt was made to maintain a balance among definition, example, and application questions.

4. Point biserial correlation of items with the total test score was also considered in item selection. However, it was not considered to be as important a criterion as the others discussed above. Items with high point biserial correlations were judged superior to items with low correlations.

5. After the 29 items were selected, student responses to each individual question were examined. In one case a foil was reworded in the hope that the item would function better on Anthropology Achievement Test Number Two. The item that was changed is identified in Appendix D, pp. 125-127.

The above procedures describe how 29 items from the Pilot Test were selected to be used in Anthropology

Achievement Test Number Two. The remaining 11 items were selected to sample selected concepts from Chapter 5. The procedures followed in writing and selecting items and verifying content validity were identical to those used in constructing the Pilot Anthropology Achievement Test and Anthropology Achievement Test Number One which have been previously described.

Test Statistics: Reliability, Standard Error of Measurement of the Means, and Standard Error of the Measurement of the Difference Between Means

Test reliability and item analysis data were compiled as part of the TSSA computer program. Test reliability, the standard error of the measurement of the means, and the standard error of the measurement of the difference between uncorrelated means for the tests are presented in Appendix G, pp. 175-178.

The reliability coefficients, Kuder-Richardson Formula 20, indicate the consistency with which an individual is ranked within his group. A limitation of the reliability coefficient is that its size depends partially on the variability of the group being tested (Ebel, 1965, p. 333).

The standard error of the measurement of the mean provides an indication of the precision of measurement of the mean. It is an estimate of the standard deviation

of the distribution of measurements of a single mean if the same group was to be tested many times under conditions of no testing effect. The standard error of the measurement of the mean is affected very little by the variability of the group being tested (Ebel, 1965, p. 333).

The standard error of the measurement of the difference between uncorrelated means is an indication of the precision of measurement of the difference between the two means (Davis, 1964, p. 360) when the two different groups are tested many times under conditions of no testing effect.

Test statistics for the Pilot Anthropology Achievement Test are in Appendix G on page 175.

Not all of the test data from Anthropology Achievement Test One were analyzed by the TSSA computer program. Limited financial resources made it necessary to estimate the reliability of the test from a sample. An estimate of the reliability of the test was obtained in the following manner:

1. One class was selected from each of the two treatment groups.
2. Test data from the two classes were then analyzed by the TSSA computer program.

Test statistics for the two selected classes appear in Appendix G, p. 176.

Test statistics for the 12 experimental classes for Anthropology Achievement Test Two appear in Appendix G, p. 177.

Pilot Study

The purpose of the pilot study was to establish the reliability of the final examination (Anthropology Achievement Test Number Two). In the original plan the pilot study was to have been conducted several weeks prior to the experimental study so that the reliability of the final examination could be improved. Because of delays in the printing of the curriculum materials, it was not possible to conduct the pilot study prior to the experimental study so the two were conducted concurrently. This caused a major change from the original plan since there was not enough time to revise the final examination after it was administered to the pilot study and before it had to be administered to the experimental study. Therefore, test reliability and item analysis data from the Pilot Test, which was administered after 12 days of instruction, were collected and were used to improve the reliability of the final examination.

Procedures and Results

An available pool of two sixth-grade classes was randomly assigned to two treatment groups. Selected

personal and educational characteristics of the pilot study teacher were obtained by means of a questionnaire (Appendix A, p. 111). The reading vocabulary section of the California Achievement Test was administered to both pilot classes to provide the investigator with standardized information about the pilot students. Treatments were administered and immediately followed by the Pilot Anthropology Achievement Test. Test data were then analyzed so that test items that best contributed to reliability and content validity requirements could be used in the final examination in the experimental study.

Selection and assignment of pilot classes. Two available sixth-grade classes in one school in the Savannah-Chatham County Public School System were obtained for the pilot study. Two treatments: pre-organizer and post-organizer were used in the pilot study. Classes were randomly assigned to treatments.

Pilot school. The school was built in 1896. It had a student enrollment of approximately 195 during the study. The racial composition of the student body was 65% black and 35% white. Thirty percent of the students' families had annual incomes of less than $3,000. The professional staff consisted of 1 principal and 10 classroom teachers. In addition, 2 full-time teacher aides and 7 half-time para-professionals were assigned to the school.

Class organization was departmentalized and 1 teacher taught social studies to all sixth-grade students. Students were assigned to classes on the basis of reading and mathematics achievement.

Selected characteristics of pilot teacher and students. The degree to which the pilot and experimental classes were similar influenced the appropriateness of applying pilot study item analysis and reliability data to the experimental classes. Therefore, data were collected regarding selected personal and educational characteristics of teachers as well as reading ability of students in both the pilot and experimental studies.

A Teacher Information Sheet, which focused on selected personal and educational characteristics, was completed by the teacher in the pilot group and by the experimental group teachers. A summary and comparison of the characteristics of the pilot teacher and experimental teachers is reported in Appendix B, p. 113.

The teacher in the pilot study was slightly older than the average of the teachers in the experimental study. The major difference between the pilot teacher and those in the experimental study had to do with years of teaching experience. The teacher in the pilot study had almost 10 years more experience than the teachers in the experimental study, but she had less professional training than did most teachers in the experimental study.

Prior to the start of the pilot study the reading vocabulary section of the California Achievement Test, Elementary, Form W was administered to the students in the pilot study. Only students present on the day of testing were administered the test. A summary and comparison of pilot and experimental student scores on the reading vocabulary test appear in Appendix C, p. 115.

Students in the pilot study scored 3.21 raw score points lower on the test than did students in the experimental study. This represents a difference of 3 months when converted to grade equivalent scores.

Since the primary purpose of the pilot study was to provide data for improving the reliability of the final test for the experimental study (Anthropology Achievement Test Number Two), the differences in selected teacher and student characteristics were not considered to be great enough to prevent the pilot group from serving this function.

Experimental Study

The purpose of the experimental study was to investigate the facilitative effects of pre- and post-organizers on the learning of anthropology concepts at the sixth-grade level.

Sample Selection

Dr. M. J. Rice, Director of the Anthropology Curriculum Project, made arrangements with officials of the Savannah-Chatham County Public Schools in Georgia to obtain 12 intact classes in two schools for the experimental study.

Random Assignment of Classes to Treatment Groups

There were two steps in the randomization procedure. First, classes were randomly assigned to two groups. Second, treatments were randomly assigned to groups.

Orientation of Teachers

Orientation meetings were held in the two schools for the teachers and principals who participated in the study. Each teacher was provided with a written instructional sequence and time schedule to be followed during the study (Appendix E, p. 129). In addition, each teacher was provided with a classroom set of textbooks and student study guides. The textbooks were assigned according to the organizer format that each class was to follow. Teachers were also given a summary of key ideas and key concepts (Appendix F, p. 136). No attempt was made to train the participating teachers in the teaching of anthropology because such training does not result in increased pupil achievement (Greene, 1966).

Pattern of Logic Used in the Study

A randomized one-factor group design k = 2 treatment groups with n = 6 observations for each treatment group was used in the present study.

Treatments

1	2
$\bar{X}_{11}$	$\bar{X}_{12}$
$\bar{X}_{21}$	$\bar{X}_{22}$
$\bar{X}_{31}$	$\bar{X}_{32}$
$\bar{X}_{41}$	$\bar{X}_{42}$
$\bar{X}_{51}$	$\bar{X}_{52}$
$\bar{X}_{61}$	$\bar{X}_{62}$
$\bar{X}_{.1}$	$\bar{X}_{.2}$

Treatment groups are identified as follows:

Treatment Group	Type of Treatment
1	Pre-organizer
2	Post-organizer

Research Hypothesis

The following research hypothesis was investigated:

1. Classes using structured anthropology materials with pre-organizers will score significantly higher

($p < .15$) on the anthropology achievement tests than will classes using materials with post-organizers.

Pattern of Logic for Testing the Research Hypothesis

The pattern of logic for testing the hypothesis is illustrated below.

Statement	Logical Pattern	Source
If the hypothesis is true then $\bar{X}_{.1}$ (mean of the group using a pre-organizer) will be significantly higher than $\bar{X}_{.2}$ (mean of the group using a post-organizer) as measured on a posttest	If A, then B	Assumption
For $\bar{X}_{.1}$ to be significantly higher than $\bar{X}_{.2}$ without the hypothesis being true is extremely unlikely ($p<.15$)	B without A is extremely unlikely	Assumption
If $\bar{X}_{.1}$ is higher than $\bar{X}_{.2}$	B is true	Experimental evidence
Therefore: The hypothesis is more credible	A is much more credible	Polya Pattern IV

Discussion of the Pattern of Logic

The pattern of logic used as a base for the study claims that it is extremely unlikely for $\bar{X}_{.1}$ to be significantly higher than $\bar{X}_{.2}$ without the hypothesis being true ($p<.15$). This claim can be considered to be probable only if the personal attributes of the subjects

and contextual attributes other than treatment are eliminated as possible causes for the difference.

In the present study personal attributes of the subjects can be eliminated as a probable cause of the observed differences between group means within the limits of the probability of a Type I error (.15). This is true because of the randomization factor in the research design. The personal attributes of the subjects were randomly distributed along with the assignment of classes to treatment groups. While randomization does not ensure that the two groups are perfectly matched on all variables which might influence the results of the experiment, it does guard against the danger of systematic biases in the data (Myers, 1966, p. 7).

The research design does not take into account contextual or situational variables that might cause a difference between group means. The investigator dealt with these variables in two ways. Whenever possible, direct control of the variable was exercised. Where this was impractical, the variable was described systematically.

Direct control was exercised over the treatment materials, directions to teachers, total duration of the treatment, and test administrations.

Due to the limitation of experimenting with existing classes which functioned within the framework of the school and the school system, there are some contextual

variables that could not be controlled by the investigator. They are described in the following section.

Contextual Variables

Contextual variables which could not be controlled included the influences of the community, school district, school, and the teachers.

Community and School District

The study was conducted in the Savannah-Chatham County Public Schools. The population of Chatham County has remained stable for the past ten years at approximately 188,000. The economic structure of the city and county, although diversified, is dominated mainly by the seaport and the military, with manufacturing next in importance.

The student enrollment in the Savannah-Chatham County Public Schools was 40,761 for the 1970-71 school year. The school system operates 18 secondary and 45 elementary schools. The Savannah-Chatham County Schools have not received voter support for school millage increases since 1960. Consequently, the school district spent an average of $472.33 per pupil during the 1969-70 school year; this was approximately $172 less than the median expenditure per child nationally for districts with more than 25,000 students (Whitlock, 1971).

The school system is under court order to maintain

racial balance of faculties and students in every school. Although limited integration was initiated in 1963 under a freedom of choice plan, district-wide integration began during the 1971-72 school year. Each school with a predominately black student body was paired with a school with a predominately white student body, and massive busing was used to achieve racial balancing between paired schools.

In Savannah-Chatham County, as in many other urban school systems throughout the country, integration by means of busing was resisted by many citizens. Beginning in 1970 white citizens' groups actively campaigned against busing. Protest marches were held, petitions were signed, and schools were boycotted. About 1500 white students withdrew from the public schools in the fall of 1970 and began attending private schools, many of which were recently opened. The most recent school boycott was held in February of 1972, less than 2 months prior to the beginning of the present study.

The week of March 10 to March 16, 1972 was a time of racial unrest in the junior high and high schools. During this week several schools in the district were forced to close for a day or portion of a day. Racial incidents led to the closing of all schools in the system for 1 day on March 17, 1972.

Characteristics of the Schools in the Study

The 12 classes in this study were located in two schools in the Savannah-Chatham County School District. For the location of classes by school and treatment group see Appendix H, p. 180.

School A. The original construction of the school was completed in 1955 with an addition in 1963. There were 29 regular classroom teachers, 3 teachers of the educable mentally retarded, 1 librarian, 2 corrective reading teachers, 1 art teacher, and 1 principal assigned to the school.

Sixth-grade classes were self-contained, and students were assigned to classes on the basis of achievement level.

The racial composition of the school was 34% white and 66% black. Seventy-three percent of the students were from families with annual incomes of less than $3,000. The principal reported that racial tension was not a problem in the school.

School B. School B was built in 1953. The professional staff consisted of 1 principal, 21 classroom teachers, and 1 teacher of the educable mentally retarded. Class organization was largely self-contained although 1 teacher in the study taught social studies to two classes. Students were assigned to classes on the basis of achievement level. The school had a student enrollment of

approximately 616 during the study. The racial composition of the student body was 49% black and 51% white. Twenty-six percent of the students' families had annual incomes of less than $3,000. The principal reported no racial tensions at the school.

Characteristics of the Teachers in the Study

Although 12 intact classes were used in the study, only 11 teachers participated because 1 teacher taught the anthropology unit to 2 classes. The 11 teachers who participated in the study appear to be a representative sample of the teachers in the Savannah-Chatham County Public Schools. Teachers in both groups were almost identical in age but pre-organizer teachers had an average of 5-1/2 years less teaching experience than post-organizer teachers. The random assignment of classes resulted in more male teachers in the post-organizer treatment group than in the pre-organizer group. The post-organizer group contained a higher percentage of teachers with masters degrees. Both groups were comparable in amount of training in anthropology. Teacher characteristics are summarized in Appendix B, p. 113.

Summary of Contextual Variables

The two schools represented in the study were similar in organization patterns. The student population of School A had a larger percentage of blacks than School B.

The schools were racially integrated for the first time during the current school year. All classes in the study were integrated. Eleven of the 12 classes were self-contained and were taught by the regular classroom teachers. The observed differences between treatment groups regarding reading ability of the students and personal attributes of the teachers were deemed to be minor. The investigator concluded that there were no contextual variables, other than treatment, that accounted for observed differences between treatment groups on the anthropology achievement tests.

Characteristics of Classes

Twelve classes participated in the study. One of the contextual variables that could not be controlled was socioeconomic status. The investigator planned to describe this variable by means of the Hollingshead (1957) two-factor index of social position: level of education and occupation of head-of-household. When approached about collecting the data for computing the Hollingshead index of social position, school personnel asked that the investigator not send a questionnaire home requesting the information because of the possible negative reaction of the parents. As an alternative, students' cumulative records were examined but the required information was not available. Therefore, the percentage of families [illegible]in

each participating school who earned less than $3,000 annually is reported. Seventy-three percent of the families of the students who attended School A had annual incomes of under $3,000. Twenty-six percent of the families of the students who attended School B had annual incomes of under $3,000.

Statistical Analysis of Reading Vocabulary Achievement Test Data

There is evidence to indicate that reading vocabulary achievement is highly correlated with anthropology achievement when Georgia Anthropology Curriculum Project materials are used (Thomas, 1967; Gaines, 1971). It was necessary, therefore, to determine if reading vocabulary differences existed between the two treatment groups in the study.

The reading vocabulary section of the California Achievement Test was administered at the beginning of the study to determine if differences in reading vocabulary achievement existed between groups. Class raw score means were used to compute *t* ratios. The *t* statistic was not significant at the .15 level. The table was entered at one-half alpha to account for both positive and negative values of *t*. A summary of the data appears in Table 2. Reading vocabulary means by class appear in Appendix I, p. 182.

TABLE 2

A Comparison of the Reading Vocabulary Mean Scores of the Two Treatment Groups

Pre-organizer Group		Post-organizer Group			
Mean	Variance	Mean	Variance	Degrees of Freedom	t
34.18	29.99	36.28	35.64	10	.6344

The investigator concluded from the data that there was no statistical difference in reading vocabulary achievement between groups. The data indicate that it was highly unlikely for differences in anthropology achievement to be a result of differences in reading vocabulary achievement.

The t test was considered appropriate because the condition of statistical independence was met through random assignment of intact classes to groups. Homogeneity of variance was not of concern as $n_1 = n_2$ (Glass & Stanley, 1970; Dayton, 1970). It was not considered important to assume normality because of the trivial effects of violation of this assumption (Glass & Stanley, 1970).

Although there were no statistical differences between the reading mean scores of the two treatment groups, it should be pointed out that the lack of statistical

difference does not necessarily rule out practical differences. Reading raw scores were converted to grade-placement equivalent scores, and were examined to determine if practical differences existed between the group means. The grade-placement equivalent score for the pre-organizer group was fifth grade, five months (5.5). The score for the post-organizer group was fifth grade, seven months (5.7). The difference between the means was 2 months. The investigator concluded that there were no practical differences in reading vocabulary knowledge between the two treatment groups.

Statistical Procedures

A one-way fixed-effects analysis of covariance was conducted using the mean scores of the two groups on Anthropology Achievement Tests One and Two to determine if the adjusted means differed significantly ($p < .15$) between treatment groups. Reading vocabulary knowledge was used as the covariate. The application of the analysis of covariance partialed out differences in vocabulary knowledge between the treatment groups and reduced the experimental error caused by initial differences in reading achievement. The computer program used in data analysis was the Modified University of Georgia Analysis of Least-Squares (MUGALS).

Assumptions Underlying the Analysis of Covariance

For the analysis of covariance to be an appropriate test of the hypothesis the data must meet the assumptions required for using the analysis of variance. These assumptions are:

1. the deviation of the individual mean scores from the treatment group population mean are independently distributed,
2. the deviation of the individual mean scores from the treatment group population mean are normally distributed,
3. the variance is homogeneous for all treatment groups,
4. the null hypothesis is true (Myers, 1966, p. 61).

If the first three assumptions are valid, then a significant F may be attributed to the falsity of the fourth assumption (Myers, 1966, p. 61).

To meet the assumptions underlying the F test, the following procedures were used:

1. Independence was met by the random assignment of classes to groups and then random assignment of treatment to groups.
2. Normality was of no concern since the F ratio is little influenced by departures from normality (Myers, 1966).

3. Homogeneity of variance was tested by using Hartley's test, and the data met this requirement for both tests.

In addition to meeting the assumptions for the analysis of variance there are additional requirements for using the analysis of covariance. They are:

1. The values of the covariate cannot be influenced by he treatment.

2. The regression of treatment on the covariate is linear for all treatment populations.

3. The regression line has the same slope in all treatment populations.

To meet these additional assumptions the following procedures were used:

1. Reading vocabulary tests were administered prior to treatment; thus they were not influenced by the treatment.

2. The assumptions for two and three above were tested by the investigator. The data met the conditions of homogeneity of regression for both tests.

Statement of the Statistical and Research Hypotheses

The purpose of the present study was to determine the effects of the position of organizers on the learning of structured anthropology materials in the sixth grade. In

order to accomplish this objective, the following statistical hypothesis was tested at the .15 significance level. H_o: $\mu_1 = \mu_2$.

The statistical hypothesis states that there were no statistical differences between the means of the two treatment groups. It was tested against the nondirectional alternative research hypothesis. H_1: $\mu_1 \neq \mu_2$.

The nondirectional hypothesis states that there is a statistical difference between the means. The nondirectional alternative hypothesis was selected because there was no presupposed reason to expect one treatment to be more facilitative of learning than the other.

Significance Level

The null hypothesis was tested at the .15 level of significance. This means that a difference as large as or larger than the designated one could occur by chance 15 times out of 100. Therefore, the probability of rejecting a true statistical hypothesis (Type I error) is .15. The failure to reject a false statistical hypothesis (Type II error) must also be considered. The selection of a significance level reflects a compromise between the relative importance of Type I and Type II errors (Myers, 1966, p. 29). The significance level in effect sets the probability of making a Type I error. However, there is an inverse relationship between Type I

and Type II errors. Increasing the significance level lowers the probability of making a Type I error but increases the probability of making a Type II error. By selecting a significance level of .15 instead of one that is higher the probability of making a Type II error is reduced. Davis (1964, p. 359) stated that the .15 level is often considered strong enough to warrant concluding that the difference is not attributable merely to errors of measurement.

Walker and Lev (1958) stated that when small sample sizes are used the level of significance should not be high because both factors reduce the power of the test. In the present study the sample size was 12 intact classes. Therefore a .15 level of significance was considered to be appropriate. A final reason for selecting the .15 level was that this study lends itself to replication, thus reducing the necessity for a higher level of significance.

Limitations

The present study was limited to an investigation of the effects on learning of position of written organizers that met the criteria specified by the investigator in Chapter 1.

A second limitation of the study was the lack of independent verification of the extent to which the organizer was defined operationally. The investigator did not ask

independent judges to write organizers for the materials used in the study based on the established criteria. Therefore, it is not known whether or not the definition of the organizer is operational. This limits the replicability of the study.

A third limitation of the study resulted from the application of organizers to structured anthropology materials written according to the investigator's interpretation of Ausubel's definitions of progressive differentiation and integrative reconciliation.

A fourth limitation of the study was the use of an available pool of sixth-grade students in 12 classes in the Savannah-Chatham County School System. This population could not be considered as representative of the national population. The subjects were below the national average in reading vocabulary knowledge as measured by the California Achievement Test. In addition the ethnic composition of the sample did not follow national ratios. In the present study approximately 50% of the students were black. This is considerably larger than the national percentage of 11.2 and the nation-wide percentage for metropolitan areas of 12.2 (U. S. Bureau of Statistics, 1971, pp. 27, 16).

A fifth limitation of the study was the relatively small sample size which resulted from the use of class means rather than individual pupil scores as the unit of

analysis. Obtaining statistically significant results is unlikely when small sample sizes are used.

A sixth limitation of the study was that systematic observations were not made in the participating classes during the treatment period to ensure that written and oral directions were being followed. Oral directions were provided to all teachers prior to the start of the treatment, and each teacher was given written directions and a detailed time schedule to follow. In addition each teacher and her students were given textbooks and student study guides which were published in the format to be followed. The investigator made weekly visits to and telephone contacts with all participating schools. These procedures strengthen the assumption that the teachers followed the instructions outlined, but the degree to which individual teachers may have deviated from established procedures cannot be determined.

A seventh limitation of the study was the gap between the average reading level of the students, 5.6 as measured on the vocabulary section of the California Achievement Test, and the reading level of the materials. It is estimated that the material would be more appropriate for students reading at grade level and above.

CHAPTER IV

RESULTS AND DISCUSSION

The present study did not produce evidence supporting the hypothesis that either pre- or post-organizers facilitate learning of structured anthropology materials at the sixth-grade level.

An analysis of covariance was used to test the statistical hypothesis. Anthropology posttest achievement was the criterion variable. Reading vocabulary knowledge, as measured by the California Achievement Test, was the covariate.

The statistical hypothesis that there was no statistically significant difference ($p<.15$) between the treatment groups using pre-organizers and post-organizers was tested at two time intervals. Anthropology Achievement Test Number One was administered after 12 days of instruction and surveyed the concepts taught in Chapters 1 through 4 of the student textbook, Cultural Change in Mexico and the United States. Anthropology Achievement Test Number Two was administered after 24 days of instruction and surveyed the concepts taught in the first five chapters of

the textbook.

Presentation of the Findings

The findings for the study are reported separately for each test.

Anthropology Achievement Test Number One

The statistical hypothesis, H_o: adj. μ_1 = adj. μ_2, that there was no statistically significant difference ($p<.15$) between the adjusted means of the two treatment groups was tested against the alternative hypothesis, H_1: adj. $\mu_1 \neq$ adj. μ_2, that there was a statistically significant difference between the adjusted means. The computed F ratio to test the null hypothesis was non-significant and the observed difference between adjusted means was interpreted as a function of chance. Table summarizes the analysis of covariance for the test.

Table shows the raw means and the adjusted means for the two treatment groups. The analysis of covariance adjusted the raw mean of the pre-organizer group upward and for the raw mean of the post-organizer group downward.

TABLE 3

Comparison of Adjusted Mean Scores on
Anthropology Achievement Test Number One
Using Reading Vocabulary as the Covariate

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	F
Total	11	220.05		
Treatment	1	3.70	3.70	.35
Reading Achievement	1	108.86	108.86	10.34*
Error	9	94.74	10.53	

*p < .15.

TABLE 4

Raw Mean Scores and Adjusted Mean Scores for
Treatment Groups on
Anthropology Achievement Test Number One

Treatment	Raw Mean Scores	Adjusted Mean Scores
Pre-organizer	23.49	24.09
Post-organizer	25.83	25.22

Anthropology Achievement Test Number Two

The statistical hypothesis, H_o: adj. μ_1 = adj. μ_2, that there was no statistically significant difference ($p<.15$) between the adjusted means of the two treatment groups was tested against the alternative hypothesis, H_1: adj. $\mu_1 \neq$ adj. μ_2, that there was a statistically significant difference between the adjusted means. The computed F ratio to test the null hypothesis was non-significant and the observed difference between adjusted means was interpreted as a function of chance. Table 5 summarizes the analysis of covariance for the test.

Table 6 shows the raw means and the adjusted means for the two treatment groups. The analysis of covariance adjusted the raw mean of the pre-organizer group upward and the raw mean of the post-organizer group downward.

TABLE 5

Comparison of Adjusted Mean Scores on
Anthropology Achievement Test Number Two
Using Reading Vocabulary as the Covariate

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	F
Total	11	98.88		
Treatment	1	6.95	6.95	.81
Reading Achievement	1	10.18	10.18	1.18
Error	9	77.62	8.62	

TABLE 6

Raw Mean Scores and Adjusted Mean Scores for
Treatment Groups on
Anthropology Achievement Test Number Two

Treatment	Raw Mean Scores	Adjusted Mean Scores
Pre-organizer	22.71	22.87
Post-organizer	24.67	24.45

Generalizability of the Results of the Study

The results of the study can only be generalized to groups using similar organizers, with materials written in a similar fashion, and when administered to subjects with characteristics similar to those in the treatment population.

Discussion of the Findings

The reasons for obtaining nonsignificant results in the study are subject to speculation. Some possibilities that occur to the present investigator are presented.

The most likely reason is that organizers do not facilitate learning when the organizers, concepts to be learned, organization of curriculum materials, and subjects are similar to those in the present study. However, there are other plausible reasons for nonsignificance. Among these are the influence of the unit of statistical analysis used, the influence of normal teaching procedures which may have functioned as organizers, and the influence of the highly structured materials used in the study.

The use of class mean scores, rather than individual student scores, reduced the sample size. Since only 12 classes were included in the study, the F table had to be entered at only 1 and 9 degrees of freedom thereby requiring large differences in group mean scores in order to

obtain statistical significance. According to the view of Glass and Stanley (1970, pp. 505-508), a legitimate analysis in classrooms where there is interaction among subjects requires that class means be used as the unit of analysis rather than individual student scores. They further pointed out that such use of class means increases the probability of obtaining statistically nonsignificant results because of the small number of replications.

Another possible reason for the nonsignificant results is that the normal teaching procedures of introducing and motivating may have functioned as pre-organizers and reviewing and summarizing may have functioned as post-organizers. Direct investigator observations in the participating classes were impractical so the extent to which normal teaching procedures may have served as organizers cannot be determined.

Further, it is possible that the nonsignificant results were obtained because the text materials themselves were highly organized. Ausubel (1963, p. 82) wrote that the value of advance organizers depends, in part, upon how well organized the learning material itself is. If the materials are written from higher to lower inclusiveness, as they were in the present study, much of the potential benefit derivable from advance organizers will not be actualized.

The usefulness of the organizer as an aid to the curriculum writer was not investigated in the present study. The investigator believes that the writing of organizers prior to the writing of each chapter and sub-chapter assisted him in clarifying and sequencing the materials. It may be that organizers are best suited to serve this function rather than to facilitate the learning of structured materials.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of the present study was to compare the facilitative effects of pre- and post-organizers on the learning of structured anthropology materials at the sixth-grade level. The investigation was an outgrowth of interest in David P. Ausubel's theory of meaningful, verbal reception learning. Ausubel hypothesized that organizers facilitate learning when presented to students in advance of materials to be learned.

Hypothesis

The study had one null hypothesis: there is no statistical difference between the mean of the group using materials with pre-organizers and the mean of the group using materials with post-organizers.

Procedures

A student textbook, Cultural Change in Mexico and the United States, was written as part of the curriculum development and research work of the Anthropology

Curriculum Project at the University of Georgia. The textbook was written in two formats. In one format organizers preceded the learning passages (pre-organizers), while in the other format organizers followed the learning passages (post-organizers). The learning passages in both textbooks were identical.

In addition to the textbook, each student received a study guide.

Twelve sixth-grade classes from the Savannah-Chatham County Public Schools in Georgia served as the experimental population. From this available pool the classes were randomly assigned to two groups and then treatments were randomly assigned to groups.

Because individual classes were the smallest units of independence, classroom mean scores were used as the unit of statistical analysis. A one-way fixed-effects analysis of covariance, with reading vocabulary knowledge as the covariate, was used to determine if the adjusted mean scores differed significantly between treatment groups on the anthropology achievement tests. The null hypothesis was tested at two time intervals: at the end of 12 instructional lessons and at the end of 24 instructional lessons.

Findings

The findings of the investigation were reported separately for each of the two time intervals; after 12 and 24 days of instruction.

The null hypothesis of no statistical difference between means of the two treatment groups on the anthropology achievement tests was accepted in each of the two F tests.

Conclusions

The findings for the main treatment effects were consistent. The study did not produce evidence supporting the hypothesis that pre-organizers facilitate learning of structured anthropology materials at the sixth-grade level when compared with post-organizers. There was no statistical difference between treatment groups as measured by the anthropology achievement tests. The lack of statistical difference does not necessarily rule out practical difference. A visual inspection of treatment means, however, did not reveal a practical difference in favor of either of the two treatments.

Recommendations

Based on the findings, observations, and conclusions of the present study, the investigator submits the following specific recommendations for further research relating to the facilitative effects of organizers.

The first two recommendations are to investigate Ausubel's contention that the organizer material should be at the appropriate level of abstraction. By using students with higher abilities and differing ages, a researcher could explore the concepts of abstraction and cognitive structure of the learner across ability and age groups with controlled materials.

1. This study should be replicated in its present design with sixth graders with higher academic abilities.

2. This study should be replicated in its present design with students in junior high school.

The organizers, as defined in the present study, more nearly met Ausubel's criterion of presenting the student with a brief summary of the more detailed material at a higher level of abstraction, generality, and inclusiveness. Ausubel's distinction between organizers and overviews was not a part of the present study. To investigate the effects of organizers and overviews the following recommendation is made:

3. A study should be designed to compare the effects of organizers written at varying levels of abstraction, generality, and inclusiveness. Ausubel (1963) attempted to distinguish between general overviews and organizers. If these can be operationally defined so as to be distinguishable, a comparative study would

contribute to an understanding of the effects of different types of introductory passages.

It is quite possible that organizers facilitate learning for some students but not for others. This possibility was not investigated in the present study.

4. Studies should be designed with students blocked by verbal ability, reading level, age, sex, and other criteria that may make a difference if students with particular attributes benefit from using curriculum materials with pre- or post-organizers.

It may be that learning is facilitated when students write their own post-organizers. This increased involvement of the learners may be the key to conceptualization and retention of the concepts.

5. Studies should be designed in which students write their own post-organizers to investigate the facilitative effects on learning.

The current literature reveals an interest in the use of games, graphs, maps, and other media as organizers. The results of these studies are inconclusive. Two researchers (Scandura & Wells, 1967; Weisberg, 1970) found that multimedia organizers facilitated learning while others (Livingston, 1970; Barron, 1971) reported no such facilitative effects.

6. Studies should be designed to compare the facilitative effects of different types of organizers:

multi-media as well as expository. One of these studies should test the use of student-constructed figures which depict processes of cultural change.

All of the studies reviewed contained symbols (e.g., written passages, maps, graphs, games, and filmstrips as organizers). Perhaps the use of artifacts, rather than symbols, facilitate learning.

7. Studies should be designed using artifacts as organizers to investigate their effects on facilitating learning.

The investigator further suggests that an exploratory study be made tracing the historical roots of the general organizer concept to determine if a thesis-type study would be justified. Herbart and Morrison had earlier hypothesized that presenting information to students prior to instruction facilitates learning.

8. A study tracing the theoretical and historical development of this general subject might prove to be a worthwhile contribution to knowledge.

In the present study the pre-organizer did not facilitate learning as measured by the anthropology achievement tests. However, the ability of the pre-organizer to assist curriculum writers to produce materials that are based on progressive differentiation and integrative reconciliation has not been tested. In the present study the investigator used pre-organizers to assist him in the

sequencing of concepts from general to specific and to write the material in such a way as to encourage the learner to integrate and reconcile new concepts with those which were taught previously.

9. It is recommended that an investigation of the usefulness of pre-organizers as guides to curriculum writers be conducted.

In addition to the need for further research regarding organizers, other elements of Ausubel's theory of meaningful, verbal reception learning should be investigated. Several of these elements fall within the concepts of practice and instructional materials. Task variables which pertain to practice include amount, distribution, type, and method of practice as well as the influence of task homogeneity, learning set, knowledge of results, task size, and the internal logic and organization of instructional materials.

Amount of practice was not precisely controlled in the present study; however, total duration of the study was specified by the investigator and was adhered to by all participating teachers.

10. Studies should be designed to investigate the effects of varying amounts of practice.

A second task variable that needs investigation is that of distribution of practice. The question of distribution of practice typically refers to whether practice

is intense or distributed and involves elements of forgetting which result from passage of time or interference of subsequently learned material.

In the present study measurement of learning and retention occurred at two different intervals for both treatment groups. The first test was administered after 12 days of instruction and the second after 24 days. There was no difference, therefore, in the distribution of practice for either treatment group. The question of distribution of practice was not examined in the context of the study.

11. Studies should be designed to investigate the influence of intense and distributed practice.

Types and methods of practice were not controlled in the present study but were partially specified by the materials and tests used. The types of practice provided were reading the student text, discussing the concepts in class, completing the student workbook, and taking the tests. In addition, several teachers reported using audio-visual media, art activities, trade books, resource speakers, and field trips as part of their anthropology teaching units. It is not known what practice effect these experiences had on the learners. The method of practice was built into the anthropology achievement tests and student study guides. It involved a combination of constructed responses and selected responses. In the

constructed response items in the study guides, the students were required to fill in the appropriate trait variations when presented with concepts. Selected response items were presented in the anthropology achievement tests, which were of the four-foil, multiple-choice type. Definitional, example, and application type questions were used in the tests. It is not known to what extent the study guides were used, but all classes were administered the multiple-choice achievement tests.

From a theoretical standpoint, both organizer groups were presented methods which combined whole and part learning, part learning being represented by the organizer and whole learning being represented by the full text material.

12. Studies should be conducted to investigate the effects of various types and methods of practice.

Task homogeneity is another variable associated with meaningful learning. It refers to the number of contexts in which examples of concepts are presented. No attempt was made in the present study to try to develop heterogeneous as compared with homogeneous tasks. The principles of progressive differentiation and integrative reconciliation, which served as guidelines for structuring the materials, required that new concepts and factual information be related to the previously introduced general and more abstract concepts. Therefore, an effort was made to give different examples of the same concept with some

concern for total length of the material.

13. Studies should be designed to investigate the effects of using homogeneous and heterogeneous tasks on concept development.

Another task variable associated with meaningful learning is learning set. Ausubel (1963, pp. 202-203) defined two elements of the learning set: warm-up and learning-to-learn. These components refer to the readiness and willingness of students to learn subject matter in a meaningful fashion rather than merely in a rote manner. One of the possible advantages of the pre-organizer, in contrast with material which has a post-organizer, is that it may function as a warm-up component which serves to create a predisposition to learn verbal material meaningfully.

In the short term studies reviewed by the present investigator, the advantage of the pre-organizers may be attributed to its function as a warm-up. According to Ausubel, warm-ups have a short term effect and account for only part of the improvement in learning that occurs during a single day. The present study lasted over a full month so it is reasonable to assume that any warm-up effect of the pre-organizer was dissipated over the long time period.

Long term improvement in learning must be accounted for solely in terms of learning-to-learn effects (Ausubel, 1963, p. 203). In the present study the pre-organizer

apparently did not function as a learning-to-learn agent.

14. Studies should be designed to investigate the effects of using pre-organizers which are specifically written to provide the student with methodological sophistication in approaching a given learning task (learning-to-learn).

The investigator does not recommend further research into the effects of pre-organizers to serve as warm-ups because any short term advantage seems to disappear over time (Ausubel, 1963, p. 202).

Another very important variable in learning is knowledge of results. While feedback is frequently interpreted as reinforcement, it may equally well be interpreted as a way in which to help the student construct the desired cognitive structure. In the present study it is not known what knowledge of results was provided students by their teachers regarding the completion of the student study guides. Correct answers were not provided by the investigator to students or teachers. Knowledge of results on the anthropology achievement tests was not provided until after the study was completed. Even then, only raw scores, class mean scores, and treatment mean scores were provided to them. Therefore, neither students nor teachers received knowledge of results on specific items or concepts.

15. Studies should be designed to investigate the effects of knowledge of results.

Another variable in learning is the size of the task to be learned. Subject matter learning tasks constitute a part of a continuum, and it is very difficult to isolate appropriate tasks. In verbal learning components are usually logically sequential rather than constituting a hierarchy of difficulty.

In the present study learning tasks were constructed around concept clusters which consisted of a major concept and sub-concepts. Some clusters were complex, as measured by the number of subsumers necessary to elucidate the concept, while others were less complex.

16. Studies should be designed to investigate the effects of task size.

One of the most important variables has to do with difficulty of the instructional material. If it is too difficult, achievement results are small in comparison to effort; if it is too easy, results are meager in terms of time spent. The difficulty of the material is clearly related to and influences learning time, the learning curve, and the amount of material learned and retained. Since task difficulty is related to the individual learner, the present investigator was unable to write instructional materials which anticipated learner variables related to task difficulty.

The materials used in the present study were quite difficult, probably too difficult for the subjects, whose

reading vocabulary knowledge was approximately 1 year below the national average.

17. Studies should be designed to investigate the appropriateness of the materials, in terms of difficulty, with students at higher grade levels.

The two major programmatic factors of the theory of meaningful, verbal reception learning concern internal logic and organization of the instructional materials. Progressive differentiation and integrative reconciliation are these two factors. Although the materials used in the present study were developed according to the investigator's interpretation of these two factors, the effects of progressive differentiation and integrative reconciliation were not investigated.

18. Studies should be designed to investigate the effects of using materials written according to progressive differentiation and integrative reconciliation with materials written according to other formats.

Summary of Recommendations and Conclusions

Ausubel's theory of meaningful, verbal reception learning is worthy of continued research. One of the important elements of the theory, the advance organizer, has received the major attention of researchers.

Other task variables need to be systematically analyzed and investigated. Some of these variables include the amount, distribution, type, and method of practice. Other variables include task homogeneity, learning set, knowledge of results, and task size. Two major programmatic factors of the theory concern the internal logic and organization of instructional materials: progressive differentiation and integrative reconciliation.

The series of recommendations listed above is beyond the capabilities of a single investigator working alone. Therefore, it is recommended that a comprehensive study of the theory of meaningful, verbal reception learning be conducted. The present investigator envisions this study as a large scale team effort in which each team member investigates a single task variable yet coordinates his research with that of his colleagues. In this way the theory of meaningful, verbal reception learning, as a whole, can be evaluated. It is felt that this team approach would make a contribution to knowledge far greater than could be gained from the present practice of independent researchers investigating the effects of a single element of the theory.

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APPENDICES.

APPENDIX A

Teacher Information Questionnaire

Anthropology Curriculum
Project
Cultural Change
April 1972
Enclosure 2

TEACHER INFORMATION SHEET

Only descriptive information of the teachers, as a group, will be used in the research report. Information about individual teachers will not be used.

Treatment Group (please circle one):

Pre-organizer Post-organizer

Age:

Sex:

Number of Years of Teaching Experience:

Degrees:

Number of Units taken in Anthropology:

College Major:

APPENDIX B

Characteristics of Teachers in the Study and in Savannah-Chatham County Elementary Schools

TABLE 7

Characteristics of Teachers in the Study and in Savannah-Chatham County Elementary Schools

Teacher Characteristics	Teachers in the Experimental Study		Teacher in the Pilot Study	Chatham County Elementary 1970-71
	Pre-organizer	Post-organizer		
Age	Mdn 48 $\bar{X}$ 50.2	Mdn 50 $\bar{X}$ 49.5	51	Mdn 38.8
Sex	80% Female (4) 20% Male (1)	33.3% Female (2) 66.6% Male (4)	Female	94.2% Female 5.8% Male
Teaching Experience	Mdn 25 $\bar{X}$ 24	Mdn 18.5 $\bar{X}$ 19	31	Mdn 11.7
Professional Training	BA - 100% MA - 20%	BA - 100% MA - 50% 6th- 17%	BS	BA - 99+ % MA - 15%
Professional Training in Anthropology	None - 3 1 course - 1 10 hours - 1	None - 5 2 courses - 1	None	No data available
College Major	1 El. Ed. 2 Education 1 Soc. Studies 1 Home Ec., + Journalism	1 Accounting 3 El. Ed. 1 English 1 P.E.	El. Ed. and Home Ec.	No data available

Mdn = Median
$\bar{X}$ = Mean Score

APPENDIX C

Comparison of Reading Vocabulary Mean Scores of the Pilot and Experimental Groups as Measured by the California Achievement Test, Elementary, Form W

TABLE 8

Comparison of Reading Vocabulary Mean Scores of the Pilot and Experimental Groups as Measured by the California Achievement Test, Elementary, Form W

	Variables		
	No. of Students	Raw Score Mean	Grade Placement
Pilot Group	39	32.02	5.3
Experimental Group	309	35.23	5.6

APPENDIX D

Pilot Anthropology Achievement Test One

Table of Specifications for Pilot Anthropology Achievement Test One

Anthropology Curriculum Project
Cultural Change in Mexico and the United States
Publication No. 72-6A, B
April 1972

Pilot Anthropology Achievement Test

SAMPLES:

A. Mexico is a
   1. city.
   2. country.
   3. state.
   4. river.

B. Your anthropology book is about
   1. Canada and Russia.
   2. France and Norway.
   3. Japan and China.
   4. Mexico and the United States.

Anthropology Curriculum Project
Cultural Change in Mexico and
the United States
Publication No. 72-6A
April 1972

Pilot Anthropology Achievement Test

Cultural Change in Mexico and the United States

Write your answers on the separate answer sheet.

1. The way of life of a group of people is called
   1. culture.
   2. language.
   3. universals.
   4. technology.

2. The way people eat, dress, and speak in Mexico is largely determined by their
   1. universals.
   2. culture.
   3. biology.
   4. heredity.

3. Rice and fish are important foods to the Japanese because of their
   1. universals.
   2. heredity.
   3. culture.
   4. biology.

4. Man's special way of learning his culture is through
   1. biology.
   2. universals.
   3. heredity.
   4. language.

5. Most Mexican children learn much about the history of their country through
   1. language.
   2. heredity.
   3. biology.
   4. imitation.

6. An important difference between the way a kitten learns and the way that a young human learns is that the human learns much through
   1. heredity.
   2. biology.
   3. language.
   4. universals.

7. Enculturation is the process of learning
   1. one's own culture.
   2. another culture.
   3. hereditary characteristics.
   4. biological needs.

8. An American Indian girl who is helping her mother prepare a meal is being
   1. modern.
   2. acculturated.
   3. universal.
   4. enculturated.

9. A child in Mexico who is learning to speak Spanish as a first language is being
   1. enculturated.
   2. acculturated.
   3. man-made.
   4. modern.

10. Cultural needs found in cultures throughout the world are called
    1. universals.
    2. variations.
    3. acculturation.
    4. biology.

11. All cultures in the world have some form of music. Therefore music is a
    1. universal.
    2. variation.
    3. language.
    4. culture.

12. Cultural variations are differences in
    1. universals.
    2. traits.
    3. enculturation.
    4. acculturation.

13. Most Mexicans are Roman Catholics while most people in the United States are Protestants. This is an example of a
    1. universal.
    2. variation.
    3. material trait.
    4. biological need.

14. People in the United States leave their shoes on when they go into their house while people in Japan take off their shoes to go in their house. This is a
    1. cultural universal.
    2. trait variation.
    3. material trait.
    4. biological need.

15. Individual items and behaviors of a culture are
    1. traits.
    2. universals.
    3. technology.
    4. hereditary.

16. A pair of shoes is an example of a
    1. hereditary characteristic.
    2. biological need.
    3. universal.
    4. trait.

17. John is 12 years old. When he meets an older person, he puts out his hand. Shaking hands is a
    1. trait.
    2. universal.
    3. biological need.
    4. hereditary characteristic.

18. Traits that can be touched and seen are called
    1. material traits.
    2. non-material traits.
    3. universals.
    4. language.

19. Clothing, tools, and houses are examples of
    1. language.
    2. material traits.
    3. non-material traits.
    4. heredity.

20. Values, beliefs, and behaviors are part of the
    1. material culture.
    2. non-material culture.
    3. biological needs.
    4. hereditary characteristics.

21. The custom of a man opening a door for a lady is part of the
    1. material culture.
    2. non-material culture.
    3. biological needs.
    4. hereditary characteristics.

22. In Mexico, pilgrims come to the Shrine of the Virgin of Guadalupe to pray. Prayer is part of the
    1. material culture.
    2. non-material culture.
    3. biological needs.
    4. hereditary characteristics.

23. Every culture is different now than it was years ago because of
    1. cultural stability.
    2. cultural change.
    3. cultural variations.
    4. cultural lag.

24. Hundreds of years ago most Mexicans spoke Indian languages. Today most Mexicans speak Spanish. This is an example of
    1. cultural stability.
    2. cultural change.
    3. cultural universals.
    4. cultural lag.

25. In the past most Africans lived in small villages and very few lived in large cities. Today many more Africans live in large cities. This is referred to as
    1. cultural stability.
    2. cultural change.
    3. cultural lag.
    4. cultural universals.

26. Cultures that are adopting new ways of doing things in place of old ways are
    1. traditional.
    2. modernizing.
    3. stabilizing.
    4. hereditary.

27. Many farmers in the United States are using tractors instead of plows pulled by mules. We can say that these farmers are
    1. traditional.
    2. modernizing.
    3. universal.
    4. hereditary.

28. Busses have replaced horses as a means of transportation in Mexico. Mexico is
    1. traditional.
    2. modernizing.
    3. universal.
    4. stabilizing.

29. Modernization is t process by which a culture
    1. uses traditional ways.
    2. replaces old ways with traditional ways.
    3. substitutes traits for universals.
    4. changes from old to new ways.

30. Changes that come from within a culture are caused by
    1. diffusion and acculturation.
    2. discovery and invention.
    3. cultural lag.
    4. resistance to change.

31. The culture of Mexico changed partly because silver was
    1. discovered.
    2. invented.
    3. diffused.
    4. acculturated.

32. The culture of South Africa changed partly because diamonds were
    1. discovered.
    2. invented.
    3. diffused.
    4. acculturated.

33. One culture may adopt traits of another culture through the process of
    1. discovery.
    2. diffusion.
    3. cultural lag.
    4. resistance to change.

34. Drinking coffee is a trait in the United States that was adopted from Central America. It became part of the American culture through
    1. discovery.
    2. invention.
    3. diffusion.
    4. acculturation.

35. The close contact between the Indian and Spanish cultures in Mexico over a long period of time resulted in
    1. cultural stability.
    2. resistance to change.
    3. diffusion.
    4. acculturation.

36. Cultural stability results when
    1. cultures change rapidly.
    2. people do what is expected of them.
    3. there is a great deal of diffusion.
    4. a culture has many traits.

37. In some Indian villages in Mexico people speak the same language, dress in the same style clothes, and earn their living the same way that their fathers and grandfathers did. This is an example of
    1. acceleration of change.
    2. cultural stability.
    3. cultural instability.
    4. acculturation.

38. Some traits change faster than other traits in a culture. This causes problems because the traits do not work well together. This is called
    1. trait variations.
    2. modernization.
    3. cultural lag.
    4. cultural stability.

39. The building of factories in the United States without developing adequate means of preventing water pollution has resulted in
    1. trait variations.
    2. resistance to change.
    3. cultural lag.
    4. cultural stability.

40. Doctors recommend that people get shots so that they won't get sick. Some people believe that shots won't help because evil spirits cause people to get sick. This is an example of
    1. modernization.
    2. cultural stability.
    3. acceleration of change.
    4. cultural lag.

41. Change that is brought about deliberately is called
    1. resistance to change.
    2. accidental change.
    3. planned change.
    4. unplanned change.

42. The building of the rapid transit subway system in Mexico City is an example of
    1. resistance to change.
    2. accidental change.
    3. planned change.
    4. unplanned change.

43. Within the next few years the United States may change from the decimal number system to the metric system. This is
    1. a planned change.
    2. an unplanned change.
    3. resistance to change.
    4. an accidental change.

44. The transmission of the history of a culture is called
    1. universals.
    2. variations.
    3. technology.
    4. heritage.

45. Acculturation between the Spanish and the Indians is an important part of the heritage of
    1. Mexico.
    2. the United States.
    3. England.
    4. Spain.

46. The heritages of Mexico and the United States are
    1. the same.
    2. different.
    3. planned changes.
    4. mainly Catholic.

47. The language spoken by most people in Mexico today is
    1. English.
    2. Spanish.
    3. Indian.
    4. Mexican.

48. The language of the United States is
    1. staying the same.
    2. changing.
    3. hereditary.
    4. resisted.

49. Many people in Mexico can speak two languages. These people are
    1. change agents.
    2. bilingual.
    3. Spaniards.
    4. Indians.

50. In Mexico fewer people are speaking Indian and more people are speaking
    1. Spanish.
    2. Mexican.
    3. French.
    4. English.

TABLE 9

Table of Specifications

Pilot Anthropology Achievement Test

Item	Specifications				Percent Who Answered Correctly	Point Biserial Correlation With Total Test Score
	Concept	Definition	Example	Application		
1*	culture	x			84	.13
2*	culture		x		66	.27
3*	culture			x	53	.08
4*	language	x			46	.22
5	language		x		33	.02
6	language		x		31	.22
7*	enculturation	x			36	.12
8	enculturation		x		30	.16
9	enculturation		x		31	.24
10*	cultural universal	x			31	.18
11	cultural universal			x	08	.07
12*	cultural universal	x			72	.26
13	trait variation		x		16	.12
14*	trait variation			x	20	.17
15*	cultural traits	x			39	.45
16	cultural traits			x	38	.03

*Items selected from Pilot Anthropology Achievement Test that were used in Anthropology Achievement Test Number Two.

TABLE 9

Table of Specifications

Pilot Anthropology Achievement Test

Item	Specifications				Percent Who Answered Correctly	Point Biserial Correlation With Total Test Score
	Concept	Definition	Example	Application		
17	cultural traits			x	44	.28
18	material traits	x			46	.42
19*	material traits		x		51	.38
20*	non-material traits	x			41	.31
21	non-material traits			x	18	.20
22	non-material traits			x	23	.45
23	cultural change	x			84	.30
24*	cultural change		x		62	.20
25*	cultural change			x	39	.32
26*	modernization	x			46	.48
27*	modernization		x		57	.35
28*	modernization			x	53	.41
29	modernization	x			53	.15
30*	discovery & invention	x			44	.20
31*	discovery			x	53	.53
32*	discovery			x	59	.52
33*	diffusion	x			26	.33

*Items selected from Pilot Anthropology Achievement Test that were used in Anthropology Achievement Test Number Two.

TABLE 9

Table of Specifications

Pilot Anthropology Achievement Test

Item	Specifications				Percent Who Answered Correctly	Point Biserial Correlation With Total Test Score
	Concept	Definition	Example	Application		
34	diffusion			x	13	.15
35	acculturation	x			13	.21
36	cultural stability	x			21	.15
37*	cultural stability			x	28	.16
38	cultural lag	x			28	.20
39*a	cultural lag		x		30	.21
40*	cultural lag			x	33	.20
41*	planned change	x			31	.49
42*	planned change		x		31	.30
43*	planned change			x	41	.32
44	cultural heritage	x			23	.28
45*	cultural heritage		x		39	.38
46*	cultural heritage		x		44	.45
47*	language		x		46	.36
48	language		x		18	.06
49	language		x		06	.06
50*	language		x		53	.35

[a]An attempt was made to improve the question by changing the distractor.

*Items selected from Pilot Anthropology Achievement Test that were used in Anthropology Achievement Test Number Two.

APPENDIX E

Instructional Sequence and Time Schedules

Pre-Organizer Group

Post-Organizer Group

Teacher Background Material

Checklist for Teachers

INSTRUCTIONAL SEQUENCE AND TIME SCHEDULE

Pre-Organizer

The Anthropology Achievement Tests need to be administered on the dates listed below in the boxes. All other dates on this time schedule are suggested and may be modified by the teacher so long as each class has studied the appropriate chapters by the test date. The sequence of instruction needs to be followed closely. It is important, for example, to teach the appropriate organizer before the content.

Date	Instruction and Testing
March 23-April 3	Read the appropriate sections of the Teacher Background Material (see attached sheet), the student text, Summary of Key Ideas and Key Concepts, and Pupil Study Guide.
April 4	Administer reading test. Unit organizer, pp. UO A - UO Aa
April 5	Chapter I organizer, pp. 1 A 1 - 1 A 1a
April 6	Pp. 1-7 Discuss Study Chart I, Pupil Study Guide
April 7	Chapter II organizer, pp. 2 A 8, 2 A 8a, 2 A 8b P. 8
April 10	Section organizer, p. 2 A 9 Pp. 9-14
April 11	Section organizer, p. 2 A 15 Pp. 15-17 Section organizer, p. 2 A 18
April 12	Pp. 18-25 Discuss Study Charts II and III, Pupil Study Guide
April 13	Chapter III organizer, p. 3 A 26 Pp. 26-30 Complete Study Chart IV, Pupil Study Guide
April 14-17	Chapter IV organizer, p. 4 31 A Pp. 31-35
April 17	Complete Study Chart V, Pupil Study Guide
April 18	Anthropology Achievement Test 1 (Covers Chapters I through IV)

April 19	Chapter V organizer, p. 5 37 A Section organizer, p. 5 37 Ab
April 20	Pp. 37-38 Section organizer, p. 5 39 A Pp. 39-40
April 21-24	Section organizer, p. 5 41 A Pp. 41-48
April 25	Section organizer, p. 5 49 A Pp. 49-52
April 26	Section organizer, p. 5 53 A P. 53 Section organizer, p. 5 54 A
April 27	Pp. 54-57 Section organizer, p. 5 58 A
April 28	Pp. 58-61
May 1	Pp. 62-68 Study Chart VI
May 2	Study Chart VII
May 3	Anthropology Achievement Test (Covers Chapters I through V)

INSTRUCTIONAL SEQUENCE AND TIME SCHEDULE

Post-Organizer

The Anthropology Achievement Tests need to be administered on the dates listed below in the boxes. All other dates on this time schedule are suggested and may be modified by the teacher so long as each class has studied the appropriate chapters by the test dates. The sequence of instruction needs to be followed closely. It is important, for example, to teach the appropriate organizer after the content.

Date	Instruction and Testing
March 28-April 3	Read the appropriate sections of the Teacher Background Material (see attached sheet), the student text, the Summary of Key Ideas and Key Concepts, and the Pupil Study Guide.
April 4	Administer reading test. Pp. 1-7
April 5	Chapter I organizer, p. 1 B 7 Discuss Study Chart I, Pupil Study Guide
April 6	Pp. 8-14 Section organizer, p. 2 14 B
April 7	Pp. 15-17 Section organizer, p. 2 B 17
April 10	Pp. 18-25
April 11	Section organizer, p. 2 B 25 Chapter II organizer, p. 2 B 25a Discuss Study Charts II and III, Pupil Study Guide
April 12	Pp. 26-30 Chapter III organizer, p. 3 B 30 Complete Study Chart IV, Pupil Study Guide
April 13-14	Pp. 31-35 Chapter IV organizer, p. 4 35 B
April 17	Complete Study Chart V, Pupil Study Guide
April 18	Anthropology Achievement Test 1 (Covers Chapters I through IV)

April 19	Pp. 37-38 Section organizer, p. 5 38 B
April 20	Pp. 39-40 Section organizer, p. 5 40 B
April 21-24	Pp. 41-48 Section organizer, p. 5 48 B
April 25	Pp. 49-52 Section organizer, p. 5 52 B P. 53
April 26	Section organizer, p. 5 53 B Pp. 54-57 Section organizer, p. 5 57 B
April 27	Pp. 58-61 Section organizer, p. 5 61 B
April 28	Pp. 62-68 Section organizer, p. 5 68 B
May 1	Chapter organizer, p. 5 58 Ba Study Chart VI, Pupil Study Guide
May 2	Study Chart VII, Pupil Study Guide Unit Organizer, U O B
May 3	Anthropology Achievement Test 2 (Covers Chapters I through V)

CULTURAL CHANGE IN MEXICO AND THE UNITED STATES

Teacher Background Material

The Anthropology Curriculum Project provides teacher background materials for each unit of study. The teacher background material, Cultural Change, was written to accompany both The Changing World Today and Cultural Change in Mexico and the United States.

It is suggested that teachers read the following pages in the teacher background materials, Cultural Change:

Cultural Change in Mexico and the United States:

		Pages
Part I:	Culture and Cultural Change	1-43
Part II:	Introduction to Case Studies	44-51
Part III:	Latin America: Challenge to Traditional Culture	94-110
Part IV:	Tennessee Valley Authority: Regional Planned Change	120-126
Part V:	The United States: A Case Study of Cultural Change	135-146

CHECKLIST FOR TEACHERS

_____April 4	Administer reading vocabulary test to all students. (Administer make-up test to absent students up to April 7.)
_____April 4	Begin teaching Cultural Change in Mexico and the United States.
_____April 14	Reading tests will be picked up from you.
_____April 18	Administer Anthropology Achievement Test #1.
_____April 20	Anthropology Achievement Test #1 will be picked up from you.
_____May 3	Administer Anthropology Achievement Test #2.
_____May 4	Complete Teacher's Final Report.
_____May 5	Anthropology Achievement Test #2 and Teacher's Final Report will be picked up from you.

For additional information or assistance call me collect.

Buck Barnes
404-542-5518
University of Georgia
Athens, Georgia 30601

Note: There is no page 36 to the book.

CLASSROOM SET

30	Pupil Texts
1	Teacher Background Material
1	Summary of Key Ideas and Key Concepts
1	Directions for Administering Reading Test
30	Pupil Reading Tests
1	Checklist for Teachers
1	Suggested Time Schedule
30	Pupil Study Guides

APPENDIX F

Summary of Key Ideas and Key Concepts in Cultural Change in Mexico and the United States

SUMMARY OF

KEY IDEAS AND KEY CONCEPTS

IN

CULTURAL CHANGE IN MEXICO AND THE UNITED STATES

by

Buckley R. Barnes
M. J. Rice

Publication 72-5
Anthropology Curriculum Project
University of Georgia
Athens, Georgia

CHAPTER I

KEY IDEAS IN THE CHAPTER (p. 1-7)

1. Culture is the man-made part of life that a group of people learns and passes on to the younger members of the group.
2. Enculturation is the process of learning about one's own culture.
3. Culture is different from heredity and biological needs.
4. Language is an important part of culture because man learns through language.
5. Only man has culture.
6. Man has discovered and invented ways of controlling his environment.
7. Cultural universals are cultural needs that are found in every culture in the world.
8. Culture is made up of individual items of culture called traits.
9. Trait variations are the differences in traits from culture to culture.

KEY CONCEPTS

culture
enculturation
heredity
biological needs
language
cultural universals
cultural traits
trait variations
environment

KEY IDEAS IN THE CHAPTER (p. 8-25)

1. All cultures change as old ways are replaced by new ways.
2. Modernization is the rapid replacement of the old with the new.
3. Cultural change is brought about through discovery, invention, diffusion, and acculturation.
4. Discovery is finding out something already in existance but not known before.
5. Invention is the use of knowledge to make something new.
6. Diffusion is the process of a trait moving from one culture to another.
7. Acculturation is the adoption by the people of one culture of the traits of another culture.
8. The sharing of traits between cultures does not take place at the same rate. The weaker culture usually changes more than the stronger culture.
9. All of the traits of a culture do not change at the same rate. Some change faster than others.
10. Material traits can be touched and seen.
11. Nonmaterial traits are behaviors and beliefs.
12. Material traits often change faster than nonmaterial traits.
13. A culture is a stable way of behaving.
14. Rapid change causes cultural instability.
15. Cultural lag is the process of traits no longer working well together because some traits change faster than others.
16. Acceleration of change is the speed up of change.
17. Acceleration of change usually occurs when a culture has many traits.
18. Planned change is the purposeful bringing about of change.
19. People sometimes resist change.

KEY CONCEPTS

modernization
discovery
invention
diffusion
acculturation
material traits
nonmaterial traits
cultural stability
cultural instability
cultural lag
acceleration of change
planned change
resistance to change

CHAPTER II

KEY IDEAS IN THE SECTION (p. 9-14)

1. The four causes of cultural change are discovery, invention, diffusion, and acculturation.
2. Discovery is finding out something that already exists but that is not known.
3. Invention is the new use of knowledge.
4. Cultural change results more from invention than from discovery.
5. Diffusion is the process of a trait moving from one culture to another.
6. Discovery and invention are changes that come from within a culture.
7. Diffusion and acculturation are changes that come from outside a culture.
8. Diffusion between cultures that have close contact over a long period of time is called acculturation.
9. A great deal of diffusion took place between the Spanish and Indian cultures in Mexico.
10. Very little acculturation took place between the Indian and English cultures in the United States.

KEY CONCEPTS

discovery
invention
diffusion
acculturation
cultural change

CHAPTER II

KEY IDEAS IN THE SECTION (p. 15-17)

1. Cultural stability occurs when people know what is expected of them in their culture.

2. The less a culture changes, the more stable it is.

3. Mexico and the United States are less stable now than before European contact. Both cultures are changing more rapidly now.

4. Moving to a new house or changing jobs decreases cultural stability.

5. Cultural lag is the lack of fit among traits.

6. All of the parts of a culture do not change at the same rate.

KEY CONCEPTS

cultural stability
cultural lag

CHAPTER II

KEY IDEAS IN THE SECTION (p. 18-25)

1. Acceleration of change is the speed up of change.
2. Cultural change is accelerating in Mexico and the United States.
3. Change is accelerated in cultures that have large trait inventories and a great deal of diffusion.
4. Material traits are changing more rapidly than nonmaterial traits in Mexico and the United States.
5. Changes in material traits often lead to changes in nonmaterial traits.
6. Planned change is man's deliberate effort to control his culture.
7. Mexico and the United States have programs of planned change.
8. Change agents are people who work to bring about change.
9. Resistance to change is found in all cultures.
10. People resist change because of habit.
11. People resist changes that will cost them additional money.
12. People resist changes that reduce their status or prestige.
13. People resist change when it is difficult to find a new way.
14. People resist change because of bad results of a first trial.
15. People resist change because they fear linked change.
16. Linked change is the result of one change leading to another.

KEY CONCEPTS

acceleration of change	change agents
trait inventories	resistance to change
planned change	linked change
status	prestige

KEY IDEAS IN THE CHAPTER (p. 26-30)

1. Heritage is the transmission of a culture.
2. The heritage of Mexico is different from the heritage of the United States.
3. Mexico's heritage comes from acculturation between the Indian and Spanish cultures.
4. Acculturation is the sharing of traits between two cultures that have contact over a long period of time.
5. The Spanish and Indian heritage of Mexico can be seen in its foods, house types, language, religion, and systems of land ownership.
6. The culture of the United States comes mainly from its English heritage.
7. Mexico had a large Indian population at the time of Spanish conquest.
8. The Indians adopted many Spanish traits because the Spanish had a higher level of technology.
9. Intermarriage between Spanish men and Indian women caused a great deal of acculturation.
10. Most Mexicans today are *mestizos*. They are of mixed Spanish and Indian parentage.
11. The Indian heritage has had a greater affect on the culture of southern Mexico where there was a dense Indian population.
12. The Spanish heritage has had a greater influence on the culture of northern Mexico where there was a sparse Indian population.
13. There was little acculturation between the English colonists and the Eastern Woodland Indians.
14. The Indian population in the United States was small; there was little intermarriage; the Indians could not be made to work for the colonists; and there was little planned effort made to convert the Indians to Christianity.
15. The English heritage is dominant throughout the United States, even in the Southwest where some Spanish and Indian influences are evident.

KEY CONCEPTS

heritage
transmission of culture
population
intermarriage
mestizos
mixed parentage
convert to Christianity

KEY IDEAS IN THE CHAPTER (p. 31-35)

1. Language is an important part of culture because people learn much of their culture through language.
2. Most Mexicans learn their culture through the Spanish language.
3. Most people in the United States learn their culture through the English language.
4. Languages change.
5. The language of Mexico has changed from Indian to Spanish.
6. The Spanish spoken in Mexico today is different from the Spanish spoken in the past.
7. English is the major language in the United States.
8. Many immigrants learned English.
9. A large number of people in the southwestern part of the United States speak Spanish because of their Mexican heritage.
10. Indian languages are spoken by a very small percent of the people in the United States.
11. There is no standard form of English in the United States.
12. There are regional variations to the language.
13. Languages change as a result of inventions and discoveries, by borrowing words from other languages, by changes in pronunciation, and by changes in word meaning.
14. Languages unite people who speak a common language and separate people who speak different languages.
15. In the southwestern part of the United States and the northern part of Mexico, people from the two different speech communities--English and Spanish--come into contact.
16. Bilingualism, the ability to communicate effectively in two languages, contributes to cultural understanding.

KEY CONCEPTS

immigrants
standard English
regional variations
unites
separates
speech communities
bilingualism

KEY IDEAS IN THE CHAPTER (p. 37-68)

1. The Aztec Indians of Mexico had a strong centralized government that controlled other tribes.

2. The Spanish took over the Aztec government and replaced it with their own centralized government.

3. The Spanish ruled indirectly, through Indian chiefs.

4. The Indians of the Eastern Woodlands did not have a single centralized government.

5. The English could not rule the Indians by conquering one tribe.

6. At the time of settlement, the Spanish representative assembly had become weak while the English representative assembly had become strong.

7. England permitted more religious differences than Spain.

8. The Spanish ruled Mexico through one central agency, the Council of the Indies, and through one executive, the viceroy.

9. The English did not have a single agency or a single executive for their colonies.

10. English colonies were decentralized and politically independent of one another.

11. During the Colonial Period the people of Mexico elected their officials at the town level but not at the province or colony level.

12. The people of the English colonies elected leaders at the colony as well as local level.

13. The English colonists became more interested in colonial politics because they were involved in the elections.

14. By the end of the Colonial Period, colonists who had been born in the colonies felt more attached to the land of their birth than to England or Spain.

15. These feelings of loyalty led to the move for independence in each country.

16. The Revolution in Mexico in 1810 was a class revolt--the landless poor against the privileged rich.

17. Wealthy landowners succeeded in gaining Mexico's independence from Spain in 1821.

18. The fight for independence in the United States was a political rather than a class struggle.

19. Except of the Civil War, the United States government has been stable and changes have been made in an orderly fashion.

20. A constitution and amendments were adopted in the United States to protect the rights of the people.

21. United States courts have interpreted the Constitution to meet changing conditions.

22. The ideals of rule by law and rights of property have been upheld in the United States.

23. Mexico had a long period of instability resulting from civil war, foreign wars, and foreign interference.

24. The Revolution of 1910 came when people demanded better living conditions and land.

25. The Constitution of 1917 provided for these changes but it was almost 1930 before many improvements were actually made.

26. The major differences in the governments of Mexico and the United States are:
    a. The Mexican President has more power than the United States President.
    b. The United States has two major political parties while Mexico has one.

27. The Mexican government is more inclined toward socialism: it controls, owns, and operates many industries and services.

28. The United States government is more inclined toward capitalism: it supports private ownership and operation of industries and services with government regulation in the public interest.

29. The governments of both countries influence business and industry.

KEY CONCEPTS

centralized government
indirect rule
representative assembly
religious differences
central agency
Council of the Indies
decentralized government
politically independent
province
loyalty
independence
political parties
socialism
capitalism
landless poor
privileged rich
Colonial Period
class revolt
wealthy landowners
political
constitution
amendments
court interpretation
rule by law
rights of property
instability
business
industry
Mexican Constitution of 1917
U. S. Constitution of 1787

CHAPTER V

KEY IDEAS IN THE SECTION (p. 37-38)

1. At the time of Spanish contact, the Aztec Indians controlled large areas of land and many tribes by means of a centralized government.

2. The Spanish found it easy to control these tribes and lands by conquering the Aztec capital.

3. A centralized Spanish government replaced the centralized Aztec government.

4. The Eastern Woodland Indians had tribal governments that were decentralized.

5. The English colonists settled along the Atlantic coast and drove the Indians away.

6. The English took over the country gradually by settlement.

KEY CONCEPTS

centralized
government
decentralized

CHAPTER V

KEY IDEAS IN THE SECTION (p. 39-40)

1. There were major differences in the Spanish and English political institutions at the time of settlement.

2. The representative assembly in Spain had become weak while the representative assembly in England had become strong.

3. Spanish army officers had great prestige while English army officers did not.

4. Spain required more religious conformity than England.

5. Spanish political institutions tried to enforce unity while England permitted great diversity.

KEY CONCEPTS

political institutions
representative assembly
prestige
religious conformity
unity
diversity

CHAPTER V

KEY IDEAS IN THE SECTION (p. 41-48)

1. The Spanish conquered an empire, and replaced the centralized Aztec government with a centralized Spanish government.
2. Legally, the king was the final authority but the Council of the Indies actually was the most powerful governmental body for the Spanish colonies.
3. The Council of the Indies made laws, saw that they were carried out, and served as judges for Mexico and the other Spanish colonies.
4. The king was represented by a viceroy in Mexico.
5. The viceroy served in place of the king.
6. In colonial Mexico the *audiencia* advised the viceroy and reported directly to the king.
7. Each province in Mexico was administered by a *gobernor-audiencia.*
8. Only the Mexican towns had elected officials. All other officials were appointed by higher officials.
9. The English colonies were decentralized.
10. English colonies were politically independent of one another.
11. English colonies were established as private profit-making adventures rather than as government efforts.
12. The English colonies had no central capital. There was no central agency in England to deal with the colonial governments.

KEY CONCEPTS

conquered
legally
authority
governmental body
Council of the Indies
judges
represented
viceroy
governor
gobernor-audiencia
audiencia
province
elected officials
administered
profit-making adventures
government efforts
central capital
central agency

CHAPTER V

KEY IDEAS IN THE SECTION (p. 49-52)

1. The governments of Mexico and the English colonies differed in methods of representation.

2. Except at the town level, the people of Mexico had no power to elect officials or make laws.

3. The people of each English colony elected a colonial assembly with the power to make laws.

4. The colonial assemblies claimed the right to tax the people.

5. Representative government was also practiced at the town and local level in the English colonies.

6. Representative government means that people elect a few of their number to make laws for them.

7. The elected local government tradition was as strong in Mexico as it was in the English colonies.

8. The local form of government in the New England colonies was the town.

9. The local form of government in the southern English colonies was the county.

10. English colonists were interested in the affairs of their colony, not just of their town.

11. The local governmental unit was the unit for elected representative to the colonial legislature.

12. By the end of the Colonial Period colonists who had been born in the colonies felt more attached to the land of their birth than to the mother country in Europe.

13. Spaniards who were born in Mexico were known as *Creoles* while Spaniards who were born in Spain were known as *Gachupines*.

14. Colonists became more attached to the land in which they were born than to their mother countries in Europe. Feelings of independence developed.

KEY CONCEPTS

town
county
colonial legislature
governmental unit

Creoles
Gachupines
loyal

CHAPTER V

KEY IDEAS IN THE SECTION (p. 53)

1. The political institutions of a culture are influenced by the distribution of wealth and the division of a population into social classes.

2. During the Colonial Period, three privileged classes developed in Mexico--large landowners, the Church, and the army.

3. At first, they opposed revolution in Mexico, but later they revolted against the Spanish government to protect their privileges.

4. Independence came to Mexico as a reaction of the privileged classes to the poor who were trying to get land.

5. In the United States, property was more widely distributed among the people.

6. People of all classes either wanted independence or wanted to remain loyal.

7. People who wanted independence were called patriots and people who remained loyal to England were called tories.

8. Independence came to the United States primarily as a political revolution rather than a social class revolution.

KEY CONCEPTS

social classes
wealth
privileged classes
distribution of property
patriots
tories

CHAPTER V

KEY IDEAS IN THE SECTION (p. 54-57)

1. With the exception of the Civil War, political changes in the United States have been orderly and peaceful.

2. The Constitution of 1787 was approved by the states.

3. A Bill of Rights was added to the Constitution in the form of the first ten amendments.

4. Amendments 13, 14, and 15 were passed to protect the rights of the people.

5. Interpretations of the Constitution have been more important than formal amendments.

6. Court interpretations of the Constitution meet changing conditions.

7. Stability in American politics largely reflects the fact that the ideals of the American Revolution were the moderate ideals of the Glorious Revolution of 1689.

8. The ideals of the Glorious Revolution include legislative supremacy and the rights of property.

KEY CONCEPTS

civil war
political changes
ratified
Bill of Rights
amendments
court interpretation
political stability
American Revolution
Glorious Revolution
legislative supremacy
rights of property

CHAPTER V

KEY IDEAS IN THE SECTION (p. 58-61)

1. The political institutions of Mexico were unstable for 100 years after independence.

2. For 50 years, lawlessness, foreign wars, civil war, and foreign interference created problems for Mexico.

3. President Juarez' death ended constitutional reform.

4. Stability and peace, but not improvement of the lives of the people, came during the Presidency of Diaz.

5. The Mexican Revolution began in 1910.

6. The social objectives of the Revolution were written into the Constitution of 1917.

7. The Constitution of 1917 was designed to improve the lives of the people.

8. It was not until the 1930s that the Revolution was stabilized and many improvements were actually made.

KEY CONCEPTS

constitutional reform
Mexican Revolution
social objectives

KEY IDEAS IN THE SECTION (p. 62-68)

1. Today both Mexico and the United States are federal, constitutional republics with elected presidents for limited terms of office.
2. Both countries have a division of power into executive, legislative, and judicial branches.
3. Both countries have political parties.
4. The differences in the governments of the two countries are more important than the similarities.
5. The federal government in the United States has less control over the state governments than in Mexico.
6. The power of the Mexican President is greater than the power of the United States President.
7. In Mexico the legislative branch has less power than the executive branch.
8. In the United States the legislative branch has equal power to the executive branch.
9. In recent years the President of the United States has become more influential in legislative as well as executive matters.
10. The United States has two major national political parties.
11. At the national level, the United States parties are smaller groups joined together to win the presidency.
12. Mexico has one official political party.
13. The military does not play an important role in politics in Mexico or the United States.
14. Mexico appears to lean more toward socialism than the United States.
15. The United States appears to lean more toward capitalism than Mexico.
16. Mexican socialism means government control, ownership, and operation of many industries and services.
17. United States capitalism means private control, ownership, and operation of industries and services with governmental regulation.
18. Both countries contain elements of socialism and capitalism.
19. Government decisions are very influential in both countries.

KEY CONCEPTS

federal, constitutional republics	political parties
legislative	socialism
executive	capitalism
judicial	

APPENDIX G

Anthropology Achievement Test One

Table of Specifications for Anthropology Achievement Test One

Anthropology Achievement Test Two

Table of Specifications for Anthropology Achievement Test Two

Directions to the Teacher for Administering the Anthropology Achievement Tests

Anthropology Curriculum Project
Cultural Change in Mexico and
the United States
Publication No. 72-68
April 1972

ANTHROPOLOGY ACHIEVEMENT TEST 1 (Form B)

Cultural Change in Mexico and the United States

Cultural Change in Mexico and the United States

Write your answers on the separate answer sheet.

1. People who live together in the same way are said to belong to the same
   1. culture.
   2. language.
   3. universals.
   4. technology.

2. The games people play, the tools they use, and the religion they believe in is largely determined by their
   1. universals.
   2. culture.
   3. biology.
   4. heredity.

3. Watching bull fights and listening to guitar music are popular with the Spanish because of their
   1. universals.
   2. biology.
   3. culture.
   4. heredity.

4. An important part of culture is
   1. biology.
   2. animals.
   3. heredity.
   4. language.

5. Most children in the United States learn much about the history of their country through
   1. language.
   2. heredity.
   3. biology.
   4. imitation.

6. An important difference between the way that a young animal learns something and the way that a young human learns is that the animal does not learn
   1. through observing.
   2. by imitating.
   3. through language.
   4. from its parents.

7. The process of a child learning the culture into which he is born is called
   1. enculturation.
   2. acculturation.
   3. biology.
   4. technology.

8. A child in the United States who is learning to speak English as a first language is being
   1. modern.
   2. man-made.
   3. acculturated.
   4. enculturated.

9. Pedro lives on an ejido. His father drives a tractor. Sometimes Pedro's father lets him steer the tractor. Pedro is being
   1. enculturated.
   2. acculturated.
   3. modern.
   4. universal.

10. Cultures throughout the world share some of the same cultural needs. These needs are called
    1. universals.
    2. variations.
    3. acculturation.
    4. biology.

11. All cultures in the world have some type of art. Therefore art is a
    1. universal.
    2. variation.
    3. culture.
    4. language.

12. Differences in traits from one culture to another are called
    1. universals.
    2. variations.
    3. enculturation.
    4. technology.

13. People in the United States speak English while people in Mexico speak Spanish. This is an example of a
    1. universal.
    2. variation.
    3. material trait.
    4. biological need.

14. Most people in the United States hold a fork in their right hand when they eat while many Europeans hold a fork in their left hand. This can be considered a
    1. cultural universal.
    2. trait variation.
    3. material trait.
    4. biological need.

15. Culture is made up of individual items and behaviors called
    1. traits.
    2. universals.
    3. heredity.
    4. technology.

16. A knife is an example of a
    1. discovery.
    2. biological need.
    3. hereditary characteristic.
    4. trait.

17. In Mexico, football is played with a round ball. This type of international football is called soccer in the United States. Soccer is an example of a
    1. trait.
    2. universal.
    3. biological need.
    4. hereditary characteristic.

18. Material traits are those that
    1. can be seen and touched.
    2. cannot be seen and touched.
    3. consist of beliefs, values, and habits.
    4. are found only in modern cultures.

19. Highways, factories, and weapons are examples of
    1. language.
    2. material traits.
    3. non-material traits.
    4. heredity.

20. The non-material culture includes
    1. hereditary characteristics.
    2. values, beliefs, and behaviors.
    3. biological needs.
    4. things that can be touched and seen.

21. The custom of a man standing when a lady enters the room is part of the
    1. material culture.
    2. non-material culture.
    3. biological needs.
    4. hereditary characteristics.

22. Things are not the same in any culture today as they were in the past because of
    1. cultural stability.
    2. cultural change.
    3. cultural variations.
    4. cultural lag.

23. Many people travel on airplanes in the United States today while few travel long distances on trains. This is because of
    1. cultural stability.
    2. cultural change.
    3. cultural universals.
    4. resistance to change.

24. In the past many Eskimos lived in snow igloos. Today many live in wooden houses and very few live in igloos. This is referred to as
    1. cultural stability.
    2. cultural change.
    3. cultural lag.
    4. cultural universals.

25. Cultures that are changing from old ways of doing things to new ways are
    1. traditional.
    2. modernizing.
    3. stabilizing.
    4. hereditary.

26. Many Mexican farmers are using tractors instead of plows pulled by oxen. We can say that these farmers are
    1. traditional.
    2. modernizing.
    3. universal.
    4. hereditary.

27. The people of Canada are now using machinery instead of hand tools to make things. Canada is
    1. traditional.
    2. modernizing.
    3. universal.
    4. stabilizing.

28. When people in a culture find something that they did not know about before, they are
    1. making an invention.
    2. making a discovery.
    3. resisting change.
    4. stabilizing the culture.

29. The culture of the United States changed partly because gold was
    1. acculturated.
    2. diffused.
    3. invented.
    4. discovered.

30. The culture of Venezuela changed partly because oil was
    1. invented.
    2. discovered.
    3. diffused.
    4. acculturated.

31. Changes that come from another culture are caused by
    1. diffusion and acculturation.
    2. discovery and invention.
    3. cultural lag.
    4. resistance to change.

32. The language and religion of Mexico were adopted from the Spanish culture through the process of
    1. acculturation.
    2. diffusion.
    3. invention.
    4. discovery.

33. People from other countries who have moved to the United States have adopted the culture of the country. These immigrants had contact with Americans over a long period of time. This process is called
    1. diffusion.
    2. acculturation.
    3. cultural stability.
    4. resistance to change.

34. When people do what is expected of them by their culture, the result is
    1. acceleration of change.
    2. resistance to change.
    3. cultural stability.
    4. cultural instability.

35. In Amish communities in the United States, people live almost the same way that they have in the past. This is an example of
    1. acculturation.
    2. acceleration of change.
    3. cultural instability.
    4. cultural stability.

36. Cultural change that results in traits not working well together is called
    1. resistance to change.
    2. cultural lag.
    3. modernization.
    4. trait variations.

37. The Mexican workers' ideas of work speed was different from the employers' ideas of work speed in the factories. This resulted in
    1. universals.
    2. cultural lag.
    3. biological need.
    4. a hereditary characteristic.

38. The purposeful bringing about of change is called
    1. resistance to change.
    2. accidental change.
    3. planned change.
    4. unplanned change.

39. The building of freeways in the United States is an example of
    1. resistance to change.
    2. accidental change.
    3. planned change.
    4. unplanned change.

40. The government of Mexico is providing money and training teachers so that every boy and girl in the country can receive an education. This is
    1. resistance to change.
    2. an accidental change.
    3. an unplanned change.
    4. a planned change.

41. The history of a culture that is transmitted is called
    1. universals.
    2. variations.
    3. heritage.
    4. technology.

42. The heritage of the culture of Mexico is largely a result of acculturation between the
    1. French and the Indians.
    2. Spanish and the French.
    3. Spanish and the Indians.
    4. English and the Indians.

43. The main language spoken in Mexico today is
    1. Spanish.
    2. English.
    3. Indian.
    4. Mexican.

44. The language of Mexico is
    1. hereditary.
    2. resisted.
    3. staying the same.
    4. changing.

45. In the southwestern part of the United States, over 6 million people speak
    1. Spanish.
    2. Indian.
    3. French.
    4. Russian.

TABLE 10

Table of Specifications

Anthropology Test Number One

Question	Specifications				
	Concept	Definition	Example	Application	Percentage getting item correct. Based on selected classes.
1	culture	x			76
2	culture		x		28
3	culture			x	38
4	culture (language)	x			89
5	language		x		53
6	language		x		67
7	enculturation	x			58
8	enculturation		x		18
9	enculturation			x	33
10	cultural universal	x			31
11	cultural universal			x	32
12	trait variations	x			39
13	trait variations		x		11
14	trait variations			x	38
15	cultural traits	x			47
16	cultural traits			x	39
17	cultural traits			x	13
18	material traits	x			63

TABLE 10

Table of Specifications

Anthropology Test Number One

Question	Specifications: Concept	Definition	Example	Application	Percentage getting item correct. Based on selected classes.
19	material traits			x	57
20	non-material traits	x			61
21	non-material traits			x	22
22	cultural change	x			69
23	cultural change			x	22
24	cultural change			x	53
25	modernization	x			83
26	modernization			x	65
27	modernization			x	58
28	discovery	x			71
29	discovery		x		75
30	discovery			x	65
31	diffusion & acculturation	x			47
32	acculturation		x		54
33	acculturation			x	19
34	cultural stability	x			26
35	cultural stability		x		24
36	cultural lag	x			47

TABLE 10

Table of Specifications

Anthropology Test Number One

Question	Specifications: Concept	Definition	Example	Application	Percentage getting item correct. Based on selected classes.
37	cultural lag			x	28
38	planned change	x			60
39	planned change		x		53
40	planned change			x	53
41	cultural heritage	x			44
42	cultural heritage		x		50
43	language		x		71
44	cultural change		x		35
45	language		x		71
	Number of items	16	13	16	
	Percent of items (rounded to nearest whole number)	36	29	36	

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May 1972

ANTHROPOLOGY ACHIEVEMENT TEST 2

(Main Study)

SAMPLES:

A. Mexico is a
   1. city.
   2. country.
   3. state.
   4. river.

B. Your anthropology book is about
   1. Canada and Russia.
   2 France and Norway.
   3. Japan and China.
   4. Mexico and the United States.

Mark your answers on the separate answer sheet by completely filling in the box for each answer that you think is correct.

1. The way of life of a group of people is called
   1. culture.
   2. language.
   3. universals.
   4. technology.

2. During the Colonial Period, Mexican officials (other than at the town level) were
   1. elected.
   2. appointed.
   3. priests.
   4. creoles.

3. Cultural variations are differences in
   1. universals.
   2. traits.
   3. enculturation.
   4. acculturation.

4. Acculturation between the Spanish and the Indians is an important part of the heritage of
   1. Mexico.
   2. the United States.
   3. England.
   4. Spain.

5. The heritages of Mexico and the United States are
   1. the same.
   2. different.
   3. planned changes.
   4. mainly Catholic.

6. The language spoken by most people in Mexico today is
   1. English.
   2. Spanish.
   3. Indian.
   4. Mexican.

7. In contrast to Mexico, people in the United States during the Colonial Period became accustomed to
   1. appointed assemblies for making laws.
   2. elected assemblies for making laws.
   3. all government officials being elected.
   4. all government officials being native born Englishmen.

8. In Mexico fewer people are speaking Indian and more people are speaking
   1. Spanish.
   2. Mexican.
   3. French.
   4. English.

9. Cultural needs found in cultures throughout the world are called
   1. universals.
   2. variations.
   3. acculturation.
   4. biology.

10. The way people eat, dress, and speak in Mexico is largely determined by their
    1. universals.
    2. culture.
    3. biology.
    4. heredity.

11. The tradition of elected government officials in the United States diffused from
    1. England.
    2. Spain.
    3. Mexico.
    4. France.

12. One culture may adopt traits of another culture through the process of
    1. discovery.
    2. diffusion.
    3. cultural lag.
    4. resistance to change.

13. Rice and fish are important foods to the Japanese because of their
    1. universals.
    2. heredity.
    3. culture.
    4. biology.

14. Changes that come from within a culture are caused by
    1. diffusion and acculturation.
    2. discovery and invention.
    3. cultural lag.
    4. resistance to change.

15. In New Spain the chief executive was the viceroy who was appointed by the king. In independent Mexico the chief executive officer has been
    1. born in Spain.
    2. the viceroy.
    3. elected by the people.
    4. appointed by high officials.

16. Clothing, tools, and houses are examples of
    1. language.
    2. material traits.
    3. non-material traits.
    4. heredity.

17. People in the United States leave their shoes on when they go into their house while people in Japan take off their shoes to go in their house. This is a
    1. cultural universal.
    2. trait variation.
    3. material trait.
    4. biological need.

18. Change that is brought about deliberately is called
    1. resistance to change.
    2. accidental change.
    3. planned change.
    4. unplanned change.

19. During the Colonial Period the United States was administered by
    1. one governor who was over all of the colonies.
    2. a separate governor for each colony.
    3. a single agency in London.
    4. the President and Congress.

20. The culture of Mexico changed partly because silver was
    1. discovered.
    2. invented.
    3. diffused.
    4. acculturated.

21. Many farmers in the United States are using tractors instead of plows pulled by mules. We can say that these farmers are
    1. traditional.
    2. modernizing.
    3. universal.
    4. hereditary.

22. The government of the United States has been
    1. controlled by the military.
    2. overthrown many times.
    3. stable.
    4. unstable.

23. Doctors recommend that people get shots so that they won't get sick. Some people believe that shots won't help because evil spirits cause people to get sick. This is an example of
    1. modernization.
    2. cultural stability.
    3. acceleration of change.
    4. cultural lag.

24. Cultures that are adopting new ways of doing things in place of old ways are
    1. traditional.
    2. modernizing.
    3. stabilizing.
    4. hereditary.

25. The Mexican Constitution of 1917
    1. helped the Roman Catholic Church get land.
    2. helped the rich keep their land.
    3. helped Spain control Mexico.
    4. helped the poor get land.

26. The culture of South Africa changed partly because diamonds were
    1. discovered.
    2. invented.
    3. diffused.
    4. acculturated.

27. In some Indian villages in Mexico people speak the same language, dress in the same style clothes, and earn their living the same way that their fathers and grandfathers did. This is an example of
    1. acceleration of change.
    2. cultural stability.
    3. cultural instability.
    4. acculturation.

28. Enculturation is the process of learning
    1. one's own culture.
    2. another culture.
    3. hereditary characteristics.
    4. biological needs.

29. Individual items and behaviors of a culture are
    1. traits.
    2. universals.
    3. technology.
    4. hereditary.

30. Government ownership, operation and control of many industries and services
    1. was part of the culture of the Aztecs.
    2. was part of the culture of the English during the Colonial Period.
    3. is part of the culture of Mexico today.
    4. is part of the culture of the United States today.

31. Within the next few years the United States may change from the decimal number system to the metric system. This is
    1. a planned change.
    2. an unplanned change.
    3. resistance to change.
    4. an accidental change.

32. Since about 1930 the government of Mexico has been
    1. controlled by the military.
    2. overthrown many times.
    3. stable.
    4. unstable.

33. The building of factories in the United States without developing adequate means of preventing water pollution has resulted in
    1. trait variations.
    2. universals.
    3. cultural lag.
    4. cultural stability.

34. The United States has two major political parties. Mexico has
    1. one major political party.
    2. two major political parties.
    3. more than two major political parties.
    4. no major political parties.

35. Busses have replaced horses as a means of transportation in Mexico. Mexico is
    1. traditional.
    2. modernizing.
    3. universal.
    4. stabilizing.

36. Hundreds of years ago most Mexicans spoke Indian languages. Today most Mexicans speak Spanish. This is an example of
    1. cultural stability.
    2. cultural change.
    3. cultural universals.
    4. cultural lag.

37. Values, beliefs, and behaviors are part of the
    1. material culture.
    2. non-material culture.
    3. biological needs.
    4. hereditary characteristics.

38. In the past most Africans lived in small villages and very few lived in large cities. Today many more Africans live in large cities. This is referred to as
    1. cultural stability.
    2. cultural change.
    3. cultural lag.
    4. cultural universals.

39. Over a long period of time the Spanish and Indian cultures of Mexico were in close contact. The process by which Indians got Spanish traits is known as
    1. cultural stability.
    2. resistance to change.
    3. diffusion.
    4. acculturation.

40. Man's special way of learning his culture is through
    1. biology.
    2. universals.
    3. hereditary.
    4. language.

TABLE 11

Table of Specifications

Anthropology Test Number Two

Question	Specifications				
	Concept	Definition	Example	Application	Percentage getting item correct.
1	culture	x			88
2	political institutions		x		51
3	trait variations	x			55
4	cultural heritage		x		72
5	cultural heritage		x		75
6	language		x		81
7	political institutions		x		31
8	cultural change (language)		x		75
9	cultural universals	x			50
10	culture		x		64
11	diffusion of political institutions		x		42
12	diffusion	x			43
13	culture			x	60
14	discovery & invention	x			40
15	political institutions		x		41
16	material traits			x	81
17	trait variations			x	38

TABLE 11

Table of Specifications

Anthropology Test Number Two

Question	Specifications				
	Concept	Definition	Example	Application	Percentage getting item correct.
18	planned change	x			59
19	political institutions		x		43
20	invention			x	81
21	modernization			x	85
22	political institutions		x		59
23	cultural lag			x	49
24	modernization	x			69
25	political institutions		x		62
26	discovery			x	78
27	cultural stability			x	45
28	enculturation	x			57
29	cultural traits	x			53
30	political institutions		x		27
31	planned change			x	68
32	political institutions		x		34
33	cultural lag		x		40
34	political institutions		x		44
35	modernization			x	74

TABLE 11

Table of Specifications

Anthropology Test Number Two

Question	Concept	Specifications: Definition	Example	Application	Percentage getting item correct.
36	cultural change		x		80
37	non-material traits	x			57
38	cultural change			x	62
39	acculturation		x		25
40	culture	x			73
	Number of items	11	18	11	
	Percent of items (rounded to nearest whole number)	28	45	28	

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Cultural Change in Mexico and
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DIRECTIONS TO THE TEACHER
FOR ADMINISTERING THE ANTHROPOLOGY ACHIEVEMENT TESTS

1. Please administer Anthropology Achievement Test 1 on TUESDAY, APRIL 18 and Anthropology Achievement Test 2 on WEDNESDAY, MAY 3.

2. Make certain that each child has a pencil, test, answer sheet, and eraser. Be sure that every child writes his first and last name, your name, and the name of the school on his answer sheet.

3. Read sample question 1 to the class. Ask the students which answer is correct, then have them fill in the square that indicates the correct answer. Do the same with sample question 2. Check each student's paper to be sure that he understands how to mark his answer sheet.

4. Administer the test orally, timing each item so that the entire test may be given in one period. Read each question and all possible responses twice.

5. Advise your students to mark only one answer (the one they feel is correct) for each question and to erase completely any answer they wish to change.

6. Suggest that they answer each question to the best of their ability and that they guess only on the questions they cannot think through in the available time.

7. Place the completed tests in the envelope that has been provided for you. Test 1 will be picked up from you at school on THURSDAY, APRIL 20. Test 2 will be picked up on FRIDAY, MAY 5. You do not need to correct the tests.

8. The scores for the Anthropology Achievement Test and the Reading Vocabulary Test will be given to you as soon as possible after May 5, when the statistical portion of the trial testing has been completed.

TABLE 12

Statistical Characteristics of the Pilot Anthropology Achievement Test

Variables							
Treatment	Treatment Class	Number	Mean	Reliability Coefficients (KR-20)	Standard Deviation	Standard Error of Measurement of the Mean	Standard Error of Measurement of the Difference Between Means
Pre-organizer	P1	21	19.55	.68	5.37	.67	.21
Post-organizer	P2	18	19.39	.79	6.49	.70	.22

TABLE 13

Statistical Characteristics of Anthropology Achievement Test Number One for Two Selected Classes

	Variables						
Treatment	Treatment Class	Number	Mean	Reliability Coefficients (KR-20)	Standard Deviation	Standard Error of Measurement of the Mean	Standard Error of Measurement of the Difference Between Means
Pre-organizer	24	25	22.88	.83	6.95	.57	.16
Post-organizer	25	22	19.28	.83	7.13	.63	.18

STUDY CHART I

A CHART FOR COMPARING TRAIT VARIATIONS OF SELECTED CULTURAL UNIVERSALS IN MEXICO AND THE UNITED STATES

Universals	Trait Variations	
	Mexico	United States
Heritage		
Language	Spanish	English

TABLE 14

Statistical Characteristics of Anthropology Achievement Test
Number Two - By Class

	Variables					
Treatment	Treatment Class	Number	Mean	'eliability Coefficients (KR-20)	Standard Deviation	Standard Error of Measurement of the Mean
Pre-organizer	1	24	26.42	.74	4.97	.51
	2	26	22.38	.77	5.64	.52
	3	25	20.24	.86	7.16	.53
	4	23	24.57	.83	6.32	.54
	5	24	20.08	.58	4.39	.58
	6	22	22.58	.83	6.49	.57

TABLE 14(continued)

Variables						
Treatment	Treatment Class	Number	Mean	Reliability Coefficients (KR-20)	Standard Deviation	Standard Error of Measurement of the Mean
Post-organizer	7	26	21.81	.65	4.81	.55
	8	22	24.73	.82	5.96	.53
	9	27	22.48	.85	6.95	.51
	10	27	22.63	.70	4.95	.51
	11	27	31.00	.87	6.14	.42
	12	26	25.15	.60	3.96	.49

APPENDIX H

Location of Classes by School and Treatment Group

TABLE 15

Location of Classes by School and Treatment Group

Group	School A	School B
Pre-Organizer		
Class 1	x	
Class 2	x	
Class 3		
Class 4		x
Class 5		x
Class 6		x
		x
Post-Organizer		
Class 7		
Class 8		x
Class 9		x
Class 10	x	
Class 11	x	
Class 12	x	
	x	

APPENDIX I

Summary of Test Data

Reading Vocabulary

Anthropology Achievement Test Number 1

Anthropology Achievement Test Number 2

TABLE 16

Reading Vocabulary Class Means

Pre-organizer		Post-organizer	
Class	Raw Score Mean	Class	Raw Score Mean
1	25.03	7	35.03
2	37.20	8	38.52
3	31.33	9	26.07
4	41.00	10	37.40
5	34.95	11	44.41
6	35.55	12	36.22

TABLE 17

Anthropology Achievement Test Number One

Pre-organizer		Post-organizer	
Class	Raw Score Mean	Class	Raw Score Mean
1	22.85	7	20.36
2	25.92	8	30.86
3	20.08	9	19.42
4	27.46	10	22.88
5	21.92	11	33.36
6	22.68	12	28.08

TABLE 18

Anthropology Achievement Test Number Two

Pre-organizer		Post-organizer	
Class	Raw Score Mean	Class	Raw Score Mean
1	26.42	7	21.81
2	22.38	8	24.73
3	20.24	9	22.48
4	24.57	10	22.63
5	20.08	11	31.00
6	22.58	12	25.15

APPENDIX J

Pupil Study Guide

PUPIL STUDY GUIDE

CULTURAL CHANGE IN MEXICO AND THE UNITED STATES

by

Buckley R. Barnes
M. J. Rice

Publication 72-5
Anthropology Curriculum Project
University of Georgia
Athens, Georgia

TRAIT VARIATIONS OF SELECTED CULTURAL UNIVERSALS IN MEXICO AND THE UNITED STATES

Study Chart I will help you organize your knowledge of culture so you can apply it to cultural change in Mexico and in the United States. It is made up of three columns. One of the columns consists of universals. You have learned that universals are found in every culture. Some universals have been selected for use in Study Chart I and have been listed in the left-hand column.

On the right of Study Chart I are two columns which come under the heading trait variations. One of these trait variations columns is labeled Mexico and the other is labeled United States. The culture of Mexico and the culture of the United States grew from different cultural traditions. Therefore, there are trait variations in the two cultures.

All of the trait variations except one have been left blank in Study Chart I. Only the language trait variations have been filled in. By the time you finish studying your book you will be able to complete a table like this and you will fill in the trait variations yourself. In order to do this you should refer frequently to the list of cultural universals in Study Chart I. Ask yourself if they are important cultural universals in Mexico and in the United States. Next, ask yourself if the traits are the same in both cultures or if they are different. Each chapter of your book will provide information to you so that you can fill in some of the trait variations on your cultural table.

Here is an example of how to fill in the trait variations in Study Chart I. Look at the universal called language. What is the language of Mexico? It is Spanish, so Spanish is written in the Mexico column across from the universal language. The Spanish spoken in Mexico, however, is not exactly the same as the Spanish spoken in Spain. The changes in the Spanish language as it diffused from Spain to Mexico will be discussed later in your book.

What is the language trait of the United States? English is, so English is written in the United States column across from the universal. The English spoken in the United States is not exactly the same as the English spoken in England. These changes too will be discussed later in your book.

As you study your book you will find that much more can be said about the language traits of Mexico and the United States than simply the name of each culture's primary language. As you complete the chart of trait variations in this study guide you will write down the important things to know about the language traits of Mexico and the United States.

STUDY CHART I

A CHART FOR COMPARING TRAIT VARIATIONS OF SELECTED CULTURAL UNIVERSALS IN MEXICO AND THE UNITED STATES

Universals	Trait Variations	
	Mexico	United States
Heritage		
Language	Spanish	English
Political Institutions		
a. Political form		
b. Local government		
c. State and national government		

THE CULTURAL CHANGE OF SELEC 'R..TS IN MEXICO

Study Charts II and III will help you organize your knowledge of cultural change so that you can apply it as you study cultural change in Mexico and in the United States.

Study Chart II contains selected cultural changes in Mexico. The left-hand column contains the same universals found on Study Chart I at the end of Chapter I.

The culture of modern Mexico is an outgrowth of two cultures--the Spanish and the Mexican Indian. The two center columns in Study Chart II have places for the Spanish and Mexican Indian traits. All of the traits have been left blank except for the language trait. The language trait of the ruling Indian tribe was Nuahatl and the language trait of the Spanish was Spanish. The right-hand column has also been left blank except for the language trait of modern Mexico. The language trait for modern Mexico, which is Spanish, is filled in.

As you study this book you will learn what the trait variations are for the universals that are listed in Study Chart II. You will learn the trait variations for the colonial Spanish culture, the pre-conquest Mexican Indian culture, and the modern Mexican culture. As you study this book you will learn how the language trait of modern Mexico came to be Spanish. You will be able to make your own table of the traits of the colonial Spanish, the pre-conquest Mexican Indians, and modern Mexico.

Study Chart III is similar to Study Chart II. Both contain universals and spaces for selected traits. Study Chart III is a table of cultural change in the United States rather than in Mexico. It has three trait variations columns, one is for colonial English traits, another is for pre-conquest Eastern Woodland Indian traits, and the l:-t is for traits of modern United States. Only the language traits have been completed. As you study this book you will be able to complete the trait variations in each column. You will be able to make your own table of the traits of the colonial English, the Eastern Woodland Indians, and of modern United States. After you study each chapter, you will complete the part of the table for the traits studied in the chapter. Always be certain to compare trait development in Mexico and the United States.

STUDY CHART II

THE CULTURAL CHANGE OF SELECTED TRAITS IN MEXICO

Universals	Trait Variations		
	Colonial Spanish	Pre-Conquest Mexican Indian	Modern Mexico
Heritage			
Language	Spanish	Tribal Languages	Spanish
Political Institutions			
a. Political form			
b. Local government			
c. State and national government			

STUDY CHART III

THE CULTURAL CHANGE OF SELECTED TRAITS IN THE UNITED STATES

Universals	Trait Variations		
	Colonial English	Pre-Conquest Eastern Woodland Indians	Modern United States
Heritage			
Language	English	Tribal Languages	English
Political Institutions			
a. Political form			
b. Local government			
c. State and national government			

THE CULTURAL HERITAGES OF MEXICO AND THE UNITED STATES

Making a Cultural Heritage Table

Study Chart IV lists a few of the traits of Mexico and the United States in the left-hand column. The other columns contain possible sources of these traits. The sources listed for the traits of Mexico are Indian and Spanish. The sources listed for the traits of the United States are the Eastern Woodland Indians and English. You should be able to put an X across from each trait in the column that indicates the heritage of that trait. For example, the heritage of the religion in Mexico is Spanish so there is an X in the Spanish column across from the trait religion. The heritage of the religion of the United States is English so there is an X placed in that column across from the trait religion.

You should be able to place an X in the appropriate column for food and house types because both traits were discussed in Chapter III.

STUDY CHART IV

THE CULTURAL HERITAGES OF MEXICO AND THE UNITED STATES

Traits	MEXICO		UNITED STATES	
	Indian	Spanish	Eastern Woodland Indian	English
Religion		X		X
Food				
House Types				

PUPIL STUDY GUIDE - CHAPTER IV

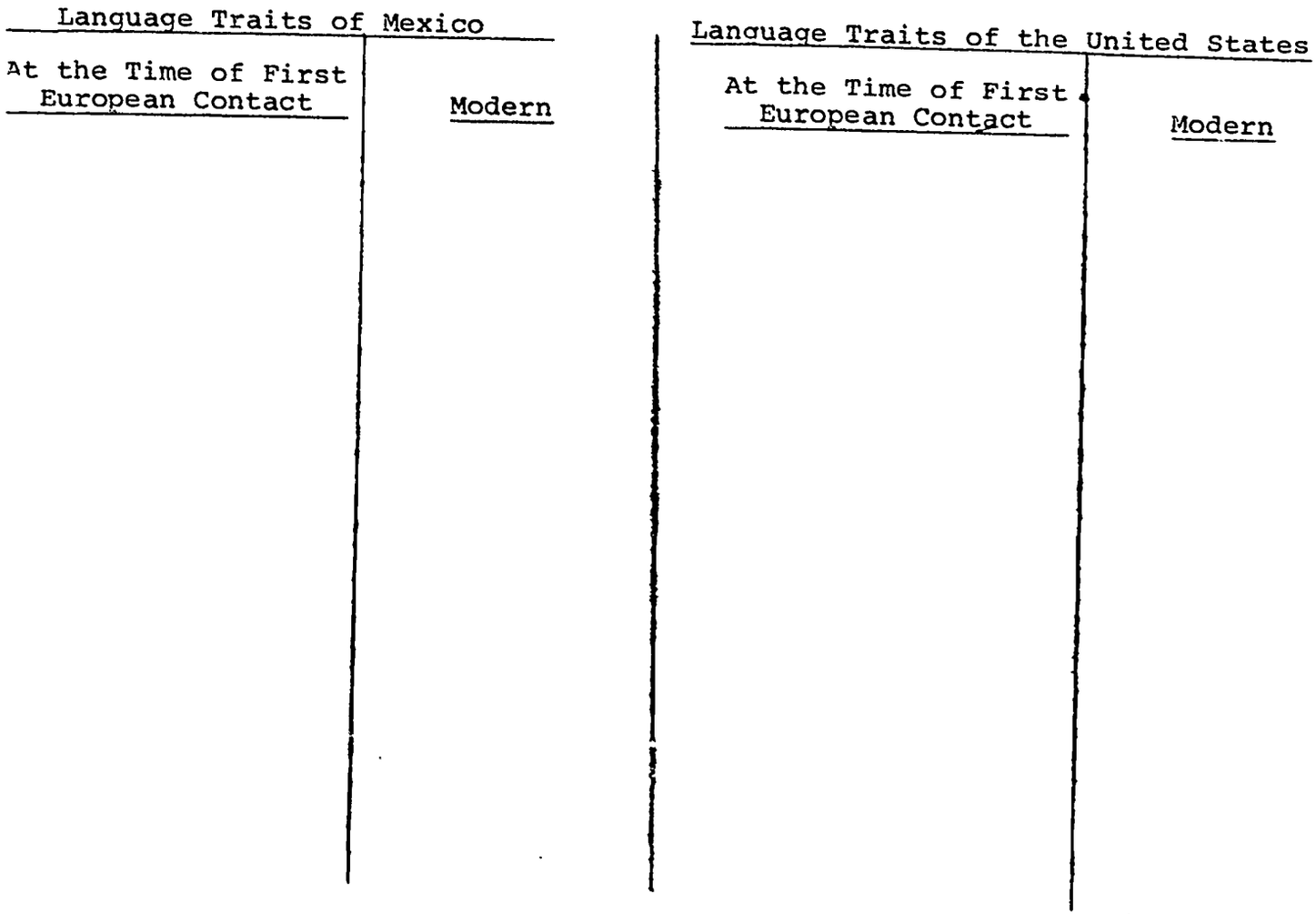
CHANGES IN THE LANGUAGE TRAITS OF MEXICO AND THE UNITED STATES

Chapter IV of your book described how the languages of Mexico and the United States are different from one another. It also described each country's language in the past and at the present time.

In Study Chart V you are to write what you know about the language traits of each country. In the left-hand column you are to write what you know about Mexico's language traits in the past. Include what you know about the languages spoken in Mexico at the time of Spanish Conquest and any changes in the language traits of Mexico since 1521. In the next column you are to write what you know about the language traits of modern Mexico. Do the same for the United States. Write what you know about the language traits of the United States since Jamestown was founded in 1607 and any changes that have taken place since that time. Then, in the column on the right, write what you know about the language traits of modern United States.

STUDY CHART V

CHANGES IN THE LANGUAGE TRAITS OF MEXICO AND THE UNITED STATES



CHANGES IN THE POLITICAL INSTITUTIONS OF MEXICO AND THE UNITED STATES

Chapter V of your book described how the political institutions of Mexico and the United States are different from one another. It also described each country's political institutions in the past and at the present time.

In Study Chart VI you are to write what you know about Mexico's political institutions before the time of European contact, during the Colonial Period, and since Independence.

Do the same thing for the United States in Study Chart VII.

STUDY CHART VI

CHANGES IN THE POLITICAL INSTITUTIONS OF MEXICO

	Pre-Conquest Aztec Indians	Colonial Period	Since Independence
National Government			
Executive			
Legislative			
Judicial			
Constitution			
State Government			
Local Government			
Influences of			
Political Parties			
Church			
Army			

STUDY CHART VII

CHANGES IN THE POLITICAL INSTITUTIONS OF THE UNITED STATES

	Pre-Conquest Eastern Woodland Indians	Colonial Period	Since Independence
National Government			
Executive			
Legislative			
Judicial			
Constitution			
State Government			
Local Government			
Influences of			
Political Parties			
Church			
Army			

APPENDIX K

Pre-Organizer Textbook