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A Study to Investigate the Effectiveness of the Structured Overview when Used as a Prereading Activity with Fifth and Sixth Grade Social Studies Students

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A STUDY TO INVESTIGATE THE EFFECTIVENESS OF THE STRUCTURED
OVERVIEW WHEN USED AS A PREREADING ACTIVITY WITH
FIFTH AND SIXTH GRADE SOCIAL STUDIES STUDENTS

THESIS

Submitted to the Graduate Committee of the
Department of Curriculum and Instruction

Faculty of Education

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in Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Education

by

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Abstract

The purpose of the study was to investigate the effectiveness of the structured overview when used as a prereading activity with fifth and sixth grade social studies students. The study investigated the effects of the structured overview on the students' ability to answer questions which required recall of factual information, understanding vocabulary concepts and inferences to be drawn. The secondary purpose of the study was to determine if all students benefit similarly from the use of the structured overview.

Both the treatment and control groups consisted of 42 fifth and sixth grade social studies students. Their teachers had indicated whether the students were reading on or above grade level or below grade level. The treatment and control groups were found to be comparable using scores from the Stanford Achievement Test. The students were given a pretest which was researcher designed. The groups were found to have similar amounts of prior knowledge about the content to be studied. The treatment group used structure overviews throughout the unit. Both groups were administered researcher designed post and delayed posttests.

The data was analyzed at the .05 level of significance using a series of t tests. The treatment group scored significantly better on the posttest in recall of factual information, recall of vocabulary, and ability to draw inferences. The treatment group also had better retention of content material as measured by the delayed posttest. An analysis of variance indicated that below grade level readers benefited most from the use of the structured overview.

It was concluded that the structured overview is an effective teaching strategy when used with fifth and sixth grade social studies students. It was found to increase students' comprehension and retention of content materials. It is most effective when used with students reading below grade level.

Suggestions for classroom applications and implications for further research were discussed.

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Chapter I

Statement of the Problem

Purpose

The purpose of this study was to investigate the effectiveness of the structured overview when used as a prereading activity with fifth and sixth grade social studies students. The study investigated the structured overview's effect on reading comprehension and retention. It also investigated the effectiveness of the structured overview when used with students with differing reading abilities.

Need for the Study

The reading of content material is a demanding process which requires students to utilize various reading strategies to achieve effective comprehension. Teachers can prepare students for the complex task of content reading by helping them activate and organize what they already know into conceptual frameworks, providing relevant background knowledge if it is not present and relating these experiences to the new material to be learned. Content teachers need methods for accomplishing this which are effective, readily constructed and easily used by students and teachers. The structured overview appears to be a strategy which can be used for this purpose.

Pearson and Johnson (1978) suggest that an important part of comprehension is "seeing relationships among concepts and propositions" (228). Perceiving structure in content reading improves both learning

and retention. When students are shown how to see relationships among concepts and propositions, they are in a better position to respond to meaning and to distinguish important from less important ideas (Vacca, 1981). The structured overview provides instructional support which helps students by providing clues to the organization and relationships of concepts.

The structured overview is also a way of helping students succeed as readers. Herber (1978) says that adjunct materials simplify reading because they activate, guide and extend students' response to meaning in text. The structured overview, a form of adjunct aid, provides the instructional support for students to gain confidence and to develop strategies to read effectively on their own. Without some adjunct materials, some content texts are too difficult and students often avoid reading them. Clearly teachers need to develop adjunct aids which simplify the reading process and help students avoid frustration.

The structured overview encourages teachers to clarify their content objectives and to identify the major areas to be encountered and acquired by students. They must also take into consideration the students' prior knowledge. The structured overview, thus, is an aid which can promote better teaching.

Research is needed which investigates the effectiveness of the structured overview as a reading strategy. Patberg (1979) concludes "Only when secondary teachers know that these reading strategies are valid should they be held responsible for translating content area reading theory into classroom practice" (p. 333).

The research on the use of the structured overview is still open to question, however, it does show some promise as an effective

classroom prereading strategy. The research indicates that:

(1) Structured overviews may be more effective in some content areas than in others (Estes, Mills, & Barron, 1969). (2) Structured overviews may affect retention more than immediate recall (Earle, 1969; Earle, 1973; Nelson & Smith, 1972). (3) Structured overviews may be more effective with students of either high ability or low ability (Dana, 1980; Estes, 1972; Proger, 1973; Walker, 1975). It seems apparent that more research is needed.

Also there are few studies dealing with the use of the structured overview with elementary level students. If it can be shown that elementary students benefit from the use of the structured overview, it would be one possible technique for elementary teachers to employ to help students prepare for reading content materials.

Questions

The questions investigated in this study were as follows:

1. Is there a significant difference between treatment and control groups in a comprehension of the content material as measured by the end of the unit test?
2. Is there a significant difference between treatment and control groups on the factual recall of information as measured by the end of the unit test?
3. Is there a significant difference between treatment and control groups on questions related to recall of vocabulary and vocabulary relationships as measured on the end of the unit test?

4. Is there a significant difference between the treatment and control groups on questions that require inferences to be drawn as measured by the end of the unit test?

5. Is there a significant difference between the treatment and control groups in retention of content material as measured by delayed posttest?

6. Is there a significant difference between students who are reading on grade level or above and students who are reading below grade level in comprehension of content material as measured by the end of the unit test?

Definition of Terms

Structured Overview. A chart which uses content vocabulary to help students anticipate concepts and their relationships to each other in the reading materials (Vacca, 1981).

Below Grade Level Readers. Those students whose teachers have identified as reading one grade level below their present grade in reading group placement.

On or Above Grade Level Readers. Those students whose teachers have identified as reading at an appropriate level or slightly above their present grade level in reading group placement.

Limitations

The sample consisted of 42 students in the treatment groups and 42 students in the control groups.

There were four different teachers involved in this study. Teaching styles and enthusiasm were not compared.

Summary

This study investigated the structured overview as a prereading activity for elementary level students. Little research has been conducted with this age group and the structured overview. This study attempted to determine if elementary students would benefit from the use of structured overviews and which students benefit most from instruction using the structured overview.

Chapter II

Review of the Literature

Statement of Purpose

The purpose of this study was to investigate the effectiveness of the structured overview when used as a prereading activity with fifth and sixth grade social studies students. Literature relevant to this study lies in four broad areas, reading comprehension, advance organizers, structured overviews and other types of organizers.

Comprehension

Content teachers are often discouraged and express concern over the fact that their students cannot 'read' the required textbook. Most of these students can pronounce the words, but do not comprehend what they read.

Thomas and Robinson (1972) state that teachers can increase students' comprehension by making assignments properly, by assisting students in mastering a textbook chapter, and by helping them formulate purposeful questions.

Research conducted by Anderson and Briddle (1975, as cited by Bean, 1983) investigated prequestioning and its effect on comprehension. They concluded that prequestioning can facilitate comprehension if one is interested in having students learn answers to specific questions. If general comprehension of the text is the goal, then prequestioning can have a restricting effect as students will tend to remember only

the answers to the prequestions. Questions encourage readers to give more time and attention to selected bits of information (Durkin, 1981).

Activities that guide students as they read enable them to understand and acquire information that otherwise might not be comprehended. Providing guidance before, during and after reading assignments helps students understand and retain what they read (Herber, 1978).

Activities that occur before students read content material are essential because they prepare students for the target passage (Cansler, 1954). The value of preparing students for reading has been recognized in the professional literature for many years. "The object is to give the thoughts of the pupil a definite tendency to arouse expectations, stimulate interest, and give intellectual activity from the beginning . . ." (Mulliner, 1898, as cited in Moore, Readence & Rickelman, 1983, p. 1). Although teachers have long recognized the need for prereading activities, many teachers provide students with little preparation for their reading assignments.

Durkin (1979) observed the reading periods in twenty-four fourth grade classrooms. Less than one percent of the students' time was spent on comprehension instruction. She found that teachers spend their time asking questions which were used not to facilitate comprehension but to assess it. Durkin's studies (1979, 1981) pointed out the need for direct teaching of reading comprehension strategies at the elementary level. Although her research emphasized instruction with basal reader series, the findings are generalizable to content area instruction.

According to Smith (1978) the comprehension process is relating print to what the students already have in their heads. They must have

experiences to relate to the new material. When teachers provide prior organizers, they give students cognitive pegs on which to hang new information. This leads to meaningful learning.

Guthrie (1977) states that in order to understand new information students must construct complete conceptual frameworks to process the new material. The new information must be integrated with what the student already knows.

The importance of prior knowledge was emphasized by the works of Anderson, Spiro, and Anderson (1978, as cited by Bean, 1983) and Rumelhart and Ortomy (1977, as cited by Bean, 1983). Bean (1983) reported that these studies "indicated the importance of readers prior knowledge, the depth and range of their experiences with a particular topic and the effect of these experiences on text comprehension" (p. 1).

In a review of research, Bean (1983) discussed the importance of questions asked during reading. She cites research conducted by Frase (1968), Rothkopf (1971), and Snowman and Cunningham (1975) which indicated that students who were asked questions while reading answered more questions correctly than students who were not asked questions while reading. By asking questions during reading, the students are encouraged to become active readers.

Durkin (1981) found that "questions increase inspection time and the cognitive effort that a reader gives to what is considered relevant for his or her purpose" (p. 37).

Rickards and Hatcher (1977, as cited by Durkin, 1981) have hypothesized that some types of questions help readers assimilate new material in relation to what is already known. These questions function similarly to advance organizers (Ausubel, 1963).

To support the use of self-questioning, Bean (1983) cited research which was conducted by Andre and Anderson in 1978 and Frase and Schwartz in 1975. Good readers regularly ask themselves questions during reading. Strategies need to be developed which help students practice asking themselves questions so that self-questioning becomes an automatic strategy while reading.

Where questions are placed influences how effective they are. Research indicates that questions given before a passage is read increase what is learned about content that relates to the questions. Questions placed after the passage increase what is learned about content that relates to them and, also, increases what is learned about different content (Durkin, 1981).

The research cited above shows a need for developing strategies that will enhance students' comprehension. What a teacher does before, during, and after reading greatly affects students' comprehension.

Advance Organizers

Ausubel (1968) developed a theory of "meaningful reception learning" to explain how people acquire and retain subject matter knowledge. He reasoned that a student's existing background knowledge in a particular subject is a key factor in new learning. If this knowledge is well organized and structured, new learning will be enhanced.

The relationship between new material and existing cognitive structure was described by Ausubel (1963) as follows:

The model of cognitive organization proposed for the learning and retention of meaningful materials assumes the existence of a cognitive structure that, is hierarchically organized in terms of highly inclusive conceptual traces of less inclusive subconcepts as well as traces of specific informational data. The major organizational principle, in other words,

is that of progressive differentiation of trace systems of a given sphere of knowledge from regions of greater to lesser inclusiveness, each linked to the next higher step in the hierarchy through a process of subsumption . . . Irrespective of how they were acquired in the first place (inductively or deductively), new materials are incorporated into total cognitive organization in accordance with the same principle of progressive differentiation. (p. 24-25)

Ausubel (1963) also states:

Meaningful reception learning occurs as potentially meaningful material enters the cognitive field and interacts with and is appropriately subsumed under a relevant and more inclusive conceptual system. (p. 25)

To test his theory, Ausubel used a learning device called an "advance organizer." These were short introductory passages which were given in advance of new material to be learned. The intent was to organize the students' cognitive structure and prepare them for the new material by providing very generalized concepts which would later serve as aids in comprehension.

In a majority of the studies, using college undergraduates, advanced organizers appear to facilitate both learning and retention (Ausubel, 1960; Ausubel & Fitzgerald, 1961; Ausubel & Youseff, 1963; Earle, 1969; Grotelueschen & Sojogren, 1968; Kuhn & Novak, 1971; Merrill & Stolurow, 1966; Newton & Hickey, 1965; Scandura & Wells, 1967).

In other studies, advance organizers did not significantly facilitate learning and retention (Bertou, Clasen, & Lambert, 1972; Clawson & Barnes, 1973; Grabner, Means & Johnson, 1972; Jerrolds, 1967; Thelen, 1970).

In an attempt to resolve the issue of whether advance organizers facilitate learning, several reviews of the literature have been conducted (Baker, 1977; Barnes & Clawson, 1975; Faw & Walker, 1976). Barnes and Clawson (1975) found that "of the 32 studies reviewed, 12

reported that advance organizers facilitate learning, and 20 reported that they did not" (p. 651). Baker (1977) also noted that a majority of advance organizer studies conducted since Ausubel's early investigations reported negative findings.

In their review, Faw and Walker (1976) attended not only to the results of the studies, but also evaluated the construction of the organizers. They concluded that "when the materials to be learned are particularly difficult or novel, or when the subjects' ability is limited with respect to the passage being learned, organizers that are general and abstract can facilitate retention of the material" (p. 695).

There has been little research conducted with elementary students as subjects. Proger (1973) found that the advance organizer did facilitate comprehension in sixth grade students. Clawson and Barnes (1973) working with third and sixth grade students, found no significant differences among students working with advance organizers, post organizers, and no organizers. A study conducted by Karahalios, Tonjes, and Townes (1979) found that seventh grade students who were given advance organizers performed significantly better than students who were asked to read and answer questions about the same passage. The students with the advance organizers also performed better, although not significantly so, than students who were asked to skim the chapter before reading it and answering questions.

These studies show trends towards improving comprehension by using the advance organizers, but not conclusively.

The advance organizer was not clearly defined by Ausubel (1960) who had no set procedures for constructing one. Another limiting factor in its use is the amount of time necessary to produce an advance organizer.

Structured Overview

The structured overview is a special kind of advance organizer. It attempts to combine the structure within the subject and the organization of cognitive structure.

The structure of the subject itself lends structure to the learning task (Bruner, 1960; Ford & Pagano, 1964). The logical structure of the discipline paves the way for further learning.

Bruner (1967, as cited in Walker, 1975) states that learning the structure of the subject leads to the structuring of the learning task. He presented a theory of instruction which included four major features:

1. experiences which implant a predisposition toward learning;
2. specific ways in which a body of knowledge may be structured so that it can be readily grasped by the learner;
3. specification of effective sequences in which to present the materials to be learned;
4. specification of the nature and passing of rewards and punishments in the process of learning and teaching.

Barron (1969) combined the organization of cognitive structure and the structure within the subject area. He proposed the use of the structured overview as a "visual and verbal representation of the key vocabulary of a learning task in relation to more inclusive or subsuming vocabulary concepts that have previously been learned by the student" (p. 41).

The structured overview eliminates some of the major shortcomings associated with the advance organizers. It is well defined, has clear concise steps for its construction, is easily constructed and used by classroom teachers and does not place an extra burden on the learner's reading ability.

After defining the structured overview, Estes, Mills, and Barron (1969) conducted a research study designed to compare the structured overview with two other methods for preparing students for learning. They compared the structured overview, advance organizers, and purpose questions. With tenth grade biology students as subjects, a significant difference favoring the structured overview was found between the group using the structured overview and the group receiving purpose questions. In the same study using ninth grade English students as subjects, no significant differences between groups were found. Barron concluded that under certain conditions and in some content areas the structured overview seems to facilitate learning.

Earle's (1969) study examined the structured overview used with seventh and eighth grade mathematics students. The results of the immediate posttest failed to indicate any significant difference between groups in computation ability. However, a test of meaning relationships taken two to three weeks after instruction revealed that both the experimental seventh and ninth grade students scored significantly better than the control group. A test of computation retention given four weeks later revealed that the experimental groups scored significantly better than the control groups. It can be concluded that the structured overview may be an efficient and effective means of providing readiness for learning in mathematics at least to the degree that vocabulary relationship is an important instructional objective in the discipline.

Barron's study (1971) of five and one-half weeks, using the structured overview, included sixty-three tenth grade students in three

biology classes. Two classes received the structured overview, vocabulary pre-teaching and modified vocabulary extension activities, and the control group received vocabulary pre-teaching and vocabulary extension activities. Although no differences were observed between the two treatment groups in general achievement on a biochemistry content test, the groups receiving the structured overview had significant gains with respect to how words related to each other but not with respect to the learning of word meanings.

In another study, Earle (1972, as cited in Herber & Barron, 1973) investigated the effects of the structured overview on the achievement of seventh grade mathematics students. After a nine week treatment period, he found no significant differences between the treatment and control groups on a content test or a standardized test of mathematics achievement. However, on a vocabulary test, statistically significant differences were found on both posttest and delayed posttest. This would seem to indicate that a structured overview aids in the learning and retention of vocabulary.

Estes (1972) compared the structured overview and the advance organizer. In the study he used social studies students in grades eight through twelve who were divided into four ability groups. Performance on a twenty-two item test given twenty-four hours after reading a 3000 word passage failed to reveal a significant difference among the groups. However, among students of high and low ability the structured overview was consistently more effective, although not significantly so.

A study conducted by Barron and Cooper (1973), using eighth through twelfth grade science students, also compared the structured

overview with the advance organizer. They found no significant differences in comprehension and retention using the structured overview and advance organizer. A possible interfering element discovered by later discussion with subjects was the improper use of the organizers. The subjects viewed both the organizers as additional pieces of information to be learned, rather than an aid to organizing new materials. It appears that students need to understand the function and use of the overview.

In a study with tenth grade social studies students, Berget (1973) used two treatment groups and one control group. Group 1 received a structured overview before each new reading assignment, an organizational pattern guide, and a structured summary after each new reading assignment. The second treatment group received a verbal overview at the beginning of each new reading assignment, an organizational pattern guide, and a verbal summary at the conclusion of each new reading assignment. The control group received a verbal overview at the beginning of each new reading assignment, took notes during reading, and received a verbal summary at the conclusion of each new reading assignment. All groups participated in discussions. This study revealed no significant differences among the groups.

Vacca (1973) used four seventh grade classes (104 students) for a nine week study. He combined organizational interpretive guides with small interdependent grouping and found that this treatment had significant results in the ability of students to recognize patterns or organization in expository paragraphs, on the acquisition of content and on reading achievement. There was no significant gain in verbal ability or in attitude toward social studies.

Few studies deal with the use of the structured overview at the elementary level. A study conducted by Dana (1980) tested the effects of the structured overview before, during and after reading using sixth grade students assigned to either a group using the overview or to a control group. These students were also designated as below grade level, at grade level, or above grade level readers. Students in this study were required to complete a structured overview as they read. This was an attempt to help students remember the organizer, and to help them become active readers. Results indicated that the structured overview did not facilitate comprehension of single theme text, but it did facilitate comprehension of multithematic text. The findings also showed that the structured overview strengthened retention of content and that readers at all ability levels benefited similarly.

Other Types of Organizers

The concept of advance organizers in the form of written passages was expanded in other studies to include variant forms of preteaching strategies dealing with organizational principles.

A study conducted by Proger (1973) studied the effects of several variations of cognitive organizers. Paragraph abstracts, sentence outlines, true-false pretests and completion pre-tests were used with sixth grade science students. The only significant finding favored high ability girls receiving sentence outlines and/or paragraph abstracts.

Walker (1975) investigated the effects of Extrinsic Graphic Organizers (structure imposed upon the content) and Intrinsic Graphic Organizers (relationship inherent in the content) on fifth grade students. She found the Extrinsic Organizers which concentrated on process

were beneficial to intermediate grade students. She also found that high IQ (>105) students sometimes fared better without structured preteaching. Conversely, low IQ (≤ 105) students scored higher with structured preteaching treatment on some measures.

Bower (1970) reported that subjects presented with hierarchical trees of twenty-eight words recalled about three times as many words as the subjects to whom the words were presented in random order. The words in the hierarchical trees were presented in an organized way so that the students could relate them to their existing cognitive structure.

Nelson and Smith (1982) found that college undergraduates acquired and retained graphically organized hierarchies or connections better than they did lists of associations. The effect, however, was greater on acquisition than on retention.

While working with college psychology students, Dolinsky (1972) found that in learning of twenty-seven item lists the probability of recall was greater when the list was related by associations and rhyming.

Friedman and Greitzer (1972) found that college students reading passages about fictitious types of fish had significantly better recall when the information was organized by attribute.

Andrews (1971) compared the effects of the D.R.Q. (Directed Reading Question) Approach and a Cognitive Organizer Approach. In the D.R.Q. Approach, questions were asked to set a purpose for reading. In the Cognitive Organizer Approach, general information and sequence of ideas were presented. The author found significant results in favor of the Cognitive Organizer Approach.

The above studies indicate a need for helping students structure and organize information.

In summary, the research on the effectiveness of the structured overview is still open to question, however, it does show some promise as an effective classroom activity. It can be concluded from the above studies that:

1. structured overviews may be more effective in some content areas than in others;
2. structured overviews may affect retention more than immediate recall;
3. structured overviews may be more effective with students of either high ability or low ability.

If sixth grade students can effectively use a structured overview, it would be one possible technique for elementary teachers to employ to help children prepare for reading content material. The literature reviewed shows a need for further research in this area.

Chapter III

Design of the Study

The purpose of the study was to investigate the effectiveness of the structured overview when used as a prereading activity with fifth and sixth grade social studies students.

Questions

1. Is there a significant difference between treatment and control groups in a comprehension of content material as measured by the end of the unit test?

2. Is there a significant difference between treatment and control groups on the factual recall of information as measured by the end of the unit test?

3. Is there a significant difference between treatment and control groups on questions related to recall of vocabulary and vocabulary relationships as measured on the end of the unit test?

4. Is there a significant difference between the treatment and control groups on questions that require inferences to be drawn as measured by the end of the unit test?

5. Is there a significant difference between the treatment and control groups in retention of content material as measured by the delayed posttest?

6. Is there a significant difference between students who are reading on grade level or above and students who are reading below grade level in comprehension of content material as measured by the end of the unit test?

Methodology

Subjects

The subjects involved in this study were fifth and sixth grade students attending a small rural school in Western New York State.

The treatment group consisted of 42 fifth and sixth grade social studies students. The control group consisted of 42 fifth and sixth grade social studies students. All the students were members of heterogeneously grouped self-contained classrooms.

The two groups were similar in terms of the available scores in reading and social studies from the Stanford Achievement Test, Form A. These data are presented in Table 1.

Table 1

Mean Total Reading Scores of Stanford Achievement Test

Group	Mean Social Studies Score (Stanine)	Mean Reading Score (Stanine)
Treatment	6	6
Control	6	6

The two groups were administered a content pretest prior to the start of the unit of study (see Appendix B). The results of the pretest indicated that the students had a similar amount of knowledge of the subjects to be taught. The mean pretest scores are found in Table 2.

Table 2
Mean Scores on Pretest of Content Material

Group	Mean Raw Score	Standard Deviation
Treatment	15.2	3.7
Control	15.1	3.6

Note: Maximum Score = 30.

Instruments

A pretest, posttest and delayed posttest of content material were developed by the researcher. Each test contained 12 multiple choice vocabulary questions, 13 multiple choice factual recall questions, 5 short answers in which the students had to draw inferences from the materials read. The same questions appeared on all three tests, but in different positions (see Appendix B).

The test used is a limitation to this study since the correlation coefficient on a split half test of reliability was .66.

Procedures

Both the treatment and control groups were administered the unit pretest prior to the beginning of the unit.

The treatment groups were introduced to their social studies unit with a large structured overview presented by the teachers (see

Appendix A). The overview was gradually introduced allowing for discussion of terms and reason for their position on the overview. After discussion, each student received a copy of the overview for his own use. Throughout the unit the teachers used their traditional methods and assignments, but they related questions, discussions and activities to the overview.

The control groups studied the unit in their traditional manner. For the sixth grade control group the usual manner consisted of studying vocabulary, reading the material orally, answering questions in textbook and workbook, and classroom discussion. For the fifth grade control group the traditional method of studying was reading content material by themselves, answering of questions in the text and workbook either in the written form or orally discussing them, some grouping of low readers and higher readers for written work and some oral reading to help the students find the answers to questions.

Students in the treatment groups used structured overviews throughout the unit. The sixth grade unit was on the Scandinavian Countries. The students used eight structured overviews. The fifth grade unit was on Transportation. The students used five structured overviews (see Appendix A).

Students in both groups were given a posttest after completion of the unit. A delayed posttest was administered two weeks after the completion of the unit.

Statistical Analysis

A series of t tests was used to test the first five questions at the .05 level of significance.

A two factor analysis of variance was used to test the data for question number six.

Summary

A quasi-experimental, nonrandomized, control group, pretest, posttest design was implemented to study the effectiveness of using a structured overview as a prereading activity with fifth and sixth grade social studies students. After exposure to the treatment, the scores, on a researcher designed posttest, of the experimental group was compared with the scores of the control groups to determine if there were a significant difference between groups.

Chapter IV

Analysis of Data

The purpose of this investigation was to assess the effectiveness of the structured overview as a prereading activity for fifth and sixth grade students.

Findings and Interpretations

The following questions were investigated:

1. Is there a significant difference between treatment and control groups in comprehension of content material as measured by the end of the unit test?

2. Is there a significant difference between treatment and control groups on the factual recall of information as measured by the end of the unit test?

3. Is there a significant difference between treatment and control groups on questions related to recall of vocabulary and vocabulary relationships as measured on the end of the unit test?

4. Is there a significant difference between the treatment and control groups on questions that require inferences to be drawn as measured by the end of the unit test?

5. Is there a significant difference between the treatment and control groups in retention of content material as measured by the delayed posttest?

6. Is there a significant difference between students who are reading on grade level or above and students who are reading below grade level in comprehension of content material as measured by the end of the unit test?

The first question was to determine whether there was a significant difference between the treatment and control groups in comprehension of content material. A t test was used to test the hypothesis at the .05 level of significance. Table 3 provides the data from this statistical analysis.

Table 3

Two-tailed t test of Significant Difference on the Scores of Treatment and Control Groups on Comprehension of Content Materials

Group	d.f.	\bar{X}	S	t	p
Treatment	41	23.33	2.80	5.02	
Control	41	18.90	4.89		<.05

Note. d.f. = 82 ($n_1 + n_2 - 2$)

The calculated t value between the posttest scores was 5.02. For a two-tailed test set at the .05 level of significance the critical value for 82 degrees of freedom is 1.99. Since the calculated t value (5.02) was greater than the critical t value (1.99), the associated probability ($p < .05$) was less than a 5% chance that the difference occurred by chance alone.

The analysis above indicates that there is a significant difference favoring the treatment groups in comprehension of content material.

Question two sought to determine if there were a significant difference between control and treatment groups on the factual recall of information. A t test was used to test the hypothesis at the .05 level of significance. Table 4 provides the data from the statistical analysis.

Table 4

Two-tailed t test of Significant Difference on Scores of Treatment and Control Groups on Factual Recall

Group	d.f.	\bar{X}	S	<u>t</u>	<u>p</u>
Treatment	41	9.43	1.57	3.98	
Control	41	7.74	2.26		< .05

Note. d.f. = 82 ($n_1 + n_2 - 2$)

The calculated t value between the posttest scored on the factual recall questions was 3.98. For a two-tailed test set at the .05 level of significance the critical value for 82 degrees of freedom is 1.99. Since the calculated t value (3.98) was greater than the critical t value (1.99) the associated probability (p < .05) was less than a 5% chance that the difference occurred by chance alone. The analysis above indicates that there is a significant difference favoring the treatment group on the recall of factual information.

Question three sought to determine if there were a significant difference between control and treatment groups on questions related to vocabulary and vocabulary relationships. A t test was used to test the hypothesis at the .05 level of significance. Table 5 provides the data from the statistical analysis.

Table 5

Two-tailed t test of Significant Differences on the Scores of Treatment and Control Groups on Vocabulary Questions

Group	d.f.	\bar{X}	S	t	p
Treatment	41	10.00	1.56	3.08	
Control	41	8.64	2.39		< .05

Note. d.f. = 82 ($n_1 + n_2 - 2$)

The critical value for 82 degrees of freedom is 1.99. Since the calculated t is 3.08 the difference is significant.

The analysis above indicates that there is a significant difference favoring the treatment group on questions dealing with vocabulary and vocabulary relationships.

Question four sought to determine if there were a significant difference between treatment and control groups on questions requiring students to draw inferences from material read. A t test was used to test the hypothesis at the .05 level of significance. Table 6 provides the data from the statistical analysis.

Table 6

Two-tailed t test of Significant Difference on Scores of Treatment and Control Groups on Questions Requiring Inferences to be Drawn

Group	d.f.	\bar{X}	S	t	p
Treatment	41	4.55	1.55	5.55	
Control	41	2.95	1.46		< .05

Note. d.f. = 82 ($n_1 + n_2 - 2$)

The critical value for t is 1.99. The calculated value of t is 5.55.

The analysis above indicates that there was a significant difference favoring the treatment groups on questions requiring inferences to be drawn.

Question five sought to determine if students using the structured overview retained information significantly better as measured by the delayed posttest. A t test was used to test the hypothesis at the .05 level of significance. Table 7 provides the data from the statistical analysis.

Table 7

Two-tailed t test of Significant Difference on Scores of Treatment
and Control Groups on Delayed Posttest

Group	d.f.	\bar{X}	S	t	p
Treatment	41	22.83	3.39	4.24	
Control	41	19.21	4.36		<.05

Note. d.f. = 82 ($n_1 + n_2 - 2$)

The critical value for t is 1.99. The calculated value of t is 4.24.

The analysis above indicates that there was a significant difference in favor of the treatment group on the retention of information which was presented with the aid of the structured overview.

Question six sought to determine if some students benefited more than others from the use of the structured overview. An analysis of variance was used to compare scores for below level readers and readers who were on or above grade level. The F ratio is 9.49. The critical value of F is 4.04. Since the F ratio is higher than the critical value, it can be concluded that the treatment group scored significantly better than the control group.

Table eight shows the mean comprehension scores for each group.

Table 8

Analysis of Mean Comprehension Scores of Below Grade Level
Readers and At or Above Grade Level Readers

Group	Treatment	Control
At or Above Grade Level Readers	23.36	22.64
Below Grade Level	22.64	15.55

From the data, it can be concluded that the below grade level readers benefited most from the use of the structured overview.

Summary

An analysis of the data from this study indicates that there is a significant difference favoring the treatment group in comprehension and retention of content material. The treatment group was able to answer factual recall questions, inference questions, and vocabulary questions significantly better than the control group. The data also indicates the students reading below level benefited more from the use of the structured overview than students reading on or above grade level.

Chapter V

Conclusions and Implications

The purpose of this study was to investigate the structured overview when used as a prereading activity for fifth and sixth grade social studies students.

Conclusions

The study first investigated if the use of the structured overview with fifth and sixth grade students would increase comprehension of content material. The results of the t-test analysis revealed that there was a significant difference between the scores on the posttest of content favoring the treatment group. It is reasonable to assume, therefore, that the use of the structured overview did facilitate comprehension of social studies materials for students in fifth and sixth grade.

Research has shown that the structured overview is more effective in some content areas than in others. Estes, Mills, and Barron's (1969) study, with tenth grade students, found positive results in science, but not in English. Vacca (1973) found positive results with seventh grade social studies students. Positive results were also found by Earle (1969) in mathematics at the seventh grade level. This study indicates that the structured overview is also effective in social studies at the fifth and sixth grade level.

The study next considered the effectiveness of the structured overview on questions that required the recall of factual information. The results of the t-test analysis revealed that there was a significant difference in the number of correct answers on factual recall questions favoring the treatment group. Use of the structured overview by fifth and sixth grade students does enhance factual recall of social studies material.

The study examined the difference between control and treatment groups on the recall of vocabulary and vocabulary relationships. The results of the t-test analysis showed a significant difference on questions related to vocabulary and vocabulary relationships favoring the treatment group. It is reasonable to conclude that the structured overview facilitates the recall of vocabulary information in social studies at this level.

The fourth question asked if there were significant differences between treatment and control groups on questions that required inferences to be drawn. The results of the t-test revealed a significant difference in students' abilities to draw inferences in favor of the treatment group. It can be concluded that the structured overview enhances a student's ability to draw inferences. Perhaps by helping students recall facts and vocabulary the students have more information with which to draw inferences.

This study examined the structured overview's effects on students' abilities to answer various types of questions. Previous studies considered only questions which were content related or vocabulary related. Studies by Barron (1971), Earle (1969), and Earle (1973)

showed positive results with acquisition and retention of vocabulary, but not with respect to content. This study indicated that at the fifth and sixth grade level the structured overview enhanced not only the students' ability to answer vocabulary questions, but also factual recall questions and questions which require inferences to be drawn.

Next the study investigated the recall of information using a delayed posttest which was administered two weeks after the completion of the unit. A t-test analysis revealed a significant difference in the retention of content material in favor of the treatment group. At the fifth and sixth grade level the structured overview facilitates the retention of social studies materials.

The findings of this study are in agreement with studies by Dana, 1980; Dolinsky, 1972; Earle, 1969; and Earle, 1973.

The last element considered in this study examined the reading abilities of the students in an attempt to determine which students benefited more from the use of the structured overview. An analysis of variance revealed that students who were reading below grade level benefited more from the use of the structured overview, therefore it appears that the structured overview could be an effective means of assisting below grade level readers in comprehension of content reading.

Several studies considered the students' ability levels. Dana's (1980) study indicated that all reading levels benefited similarly from the use of the structured overviews. Estes (1972) found that the high and low ability students profited similarly. Walker (1975), however, found that low IQ (<105) students gained most from the structured overview. This study concurred with Walker's study in finding that the structured overview benefited the lower ability students most.

This study demonstrated the effectiveness of the structured overview when used in fifth and sixth grade social studies classes. The structured overview was shown to facilitate students' comprehension, recall of facts, recall of vocabulary, ability to draw inferences, and retention of content material. The study showed that below grade level readers benefited most from the structured overview.

Implication for Future Research

This section is divided into two categories, the expansion and refinement of this study and recommendations for future research.

Expansion and Refinement of the Present Study

A larger sample would be advantageous should this study be replicated. The larger sample would increase the number of students reading below and above grade level.

This study was also limited by the length of the treatment. The positive results could have been the results of the students' enthusiasm for the use of something new and different.

Recommendations for Future Research

Future researchers could consider some of the following questions:

1. Is the structured overview effective in content areas other than social studies at the upper elementary level?
2. Is the structured overview effective with students younger than fifth and sixth grade? At what age levels could it be effectively used?
3. Do students with certain learning styles use the structured overview more effectively than others?

4. Is the structured overview more effective if used in combination with other reading aids?

5. Is the structured overview as effective when used as a post organizer at this age level?

Classroom Implications

On the basis of the results of this study, the structured overview can be considered a useful instructional tool in the fifth and sixth grades.

The structured overview provides a readiness for reading which extends throughout the content lesson. It prepares students for reading by initiating discussions which:

1. focus the students' attention on important facts;
2. point out and graphically depict relationships between terms;
3. organize prior knowledge;
4. point out and graphically depict the structure within the content area itself;
5. provide an aid which gives students a way of relating all materials read. (Walker, 1975)

The structured overview also encourages teachers to evaluate their objectives and the concepts to be taught. It serves as an organizational aid for teachers. Teachers also need to discover what is in the learner's existing cognitive structure and build on that structure.

Summary

This study demonstrated the effectiveness of the structured overview when used in fifth and sixth grade social studies classes.

It was shown to facilitate students' comprehension, recall of facts, recall of vocabulary and vocabulary relationships, ability to draw inferences and retention of content material. The study showed that below grade level readers benefited most from the structured overview.

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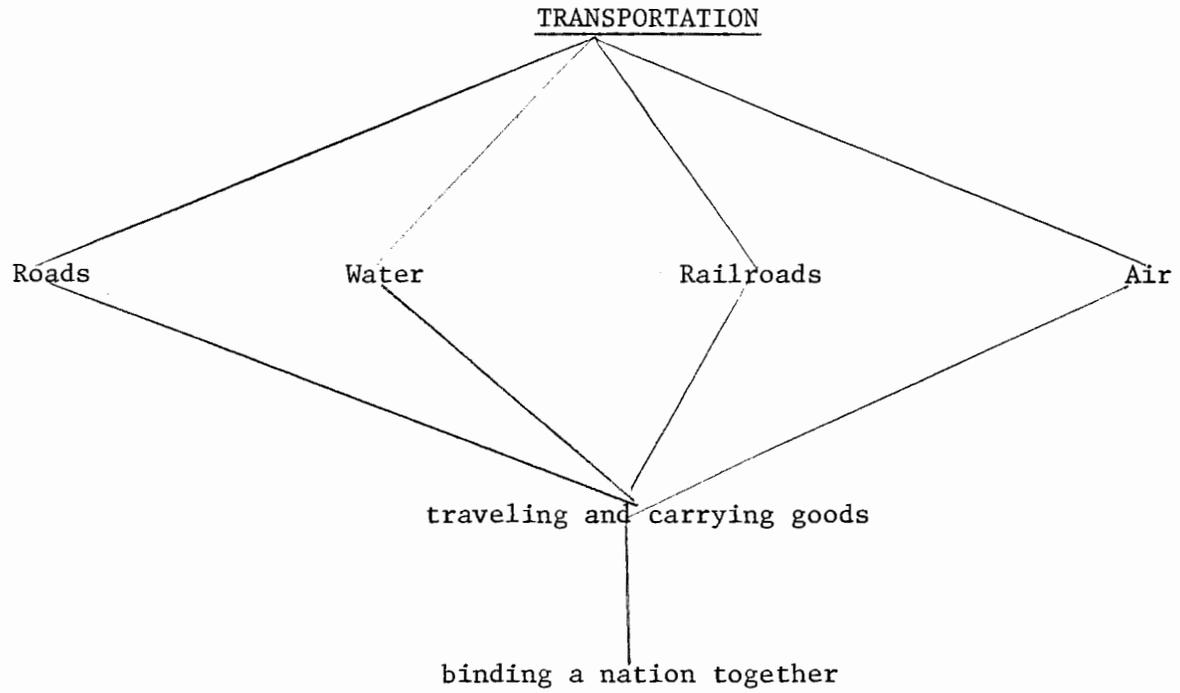
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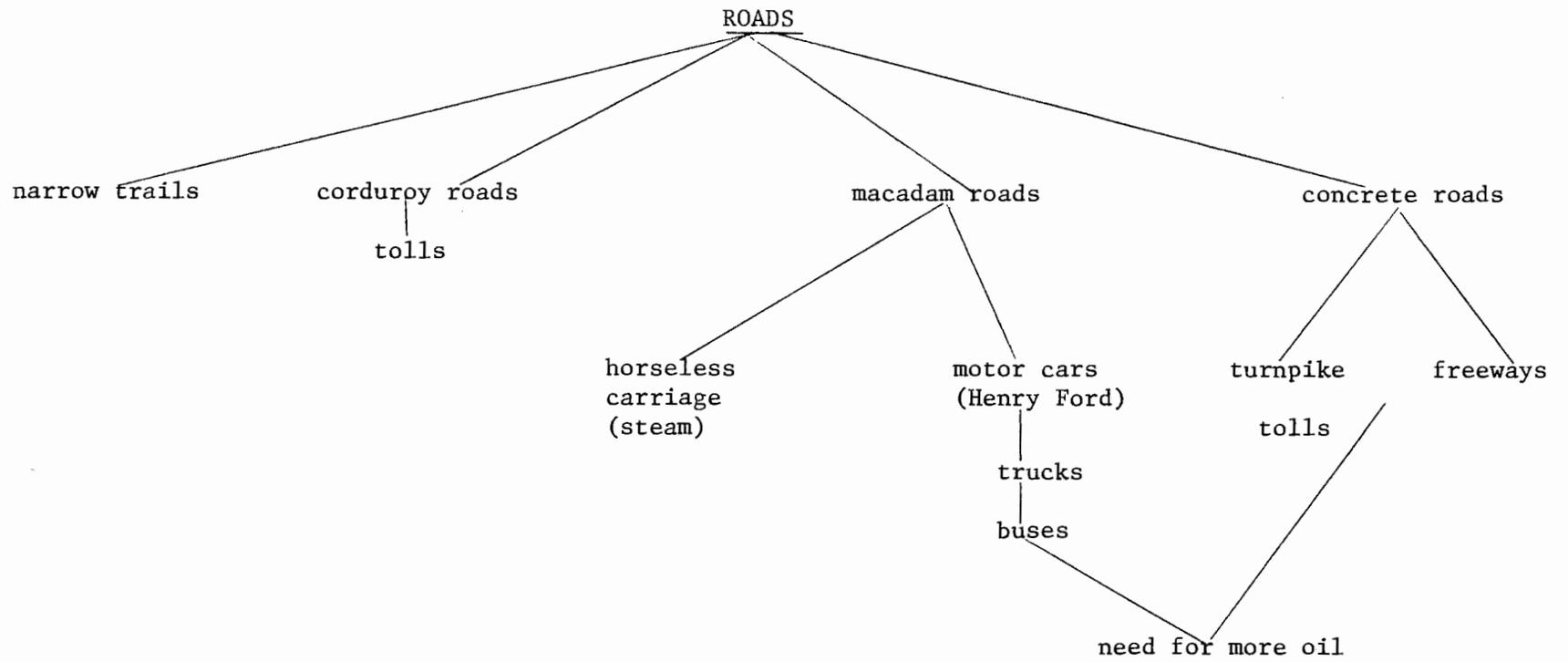
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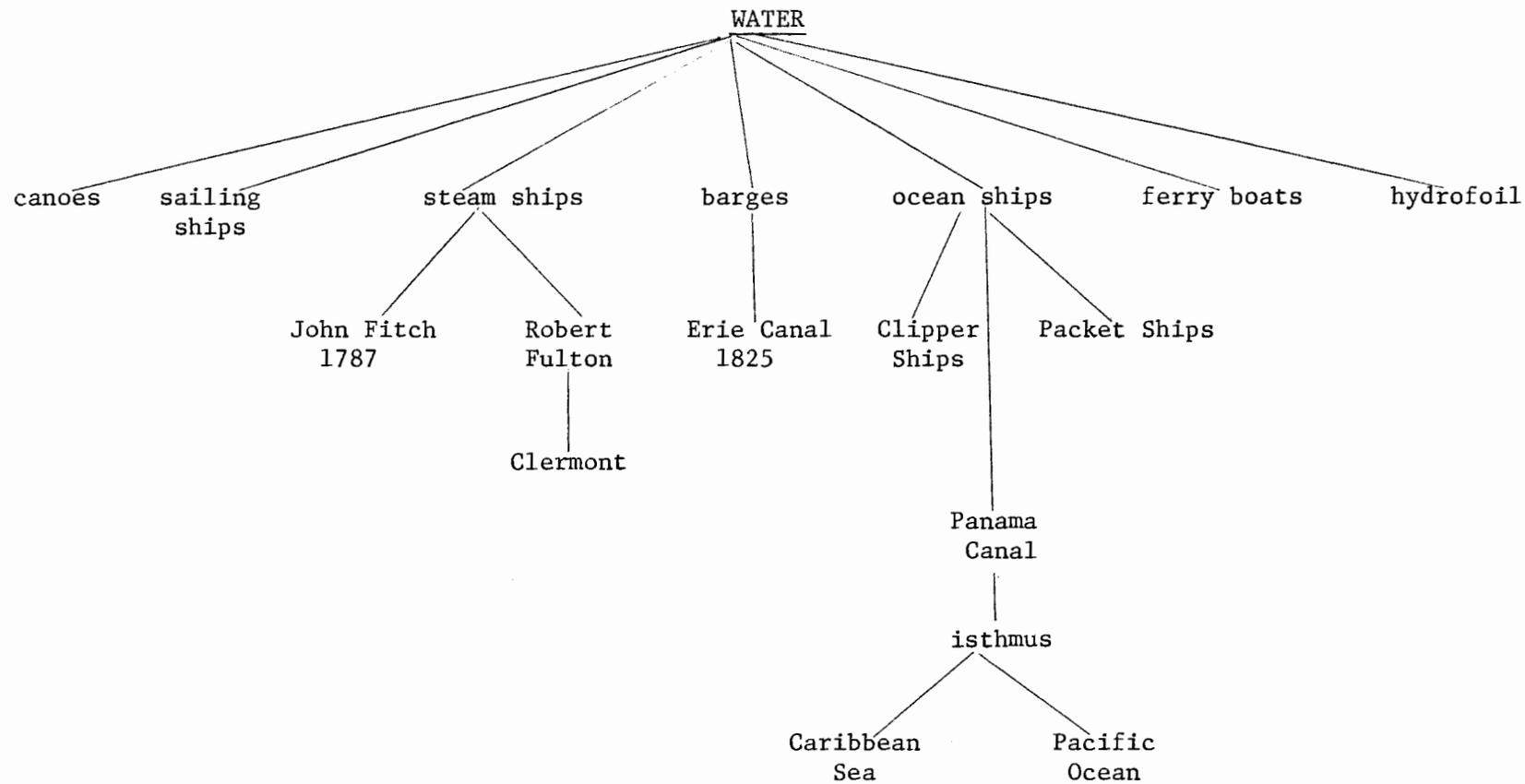
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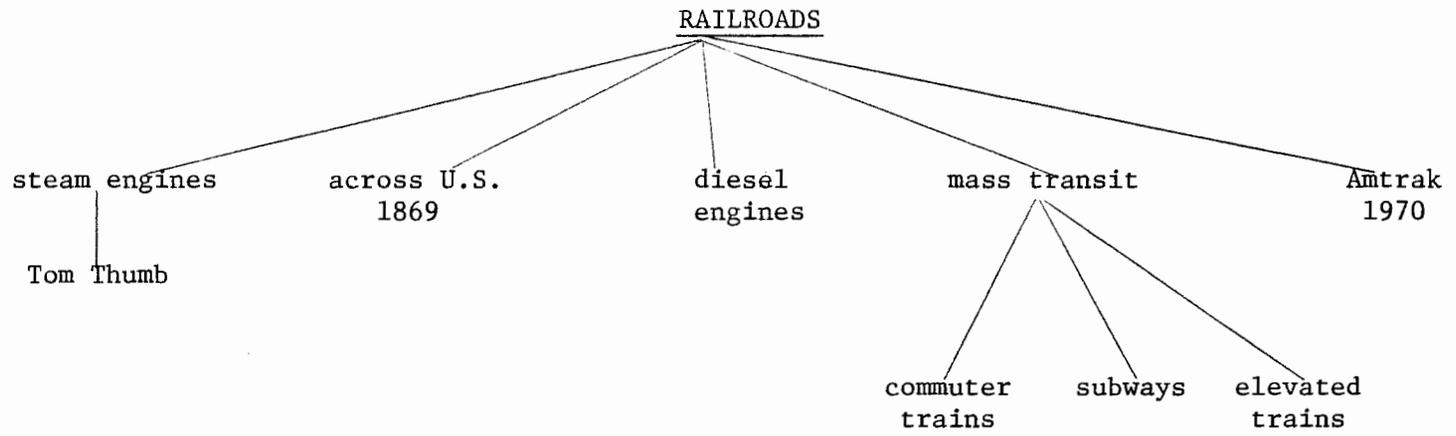
Appendix A

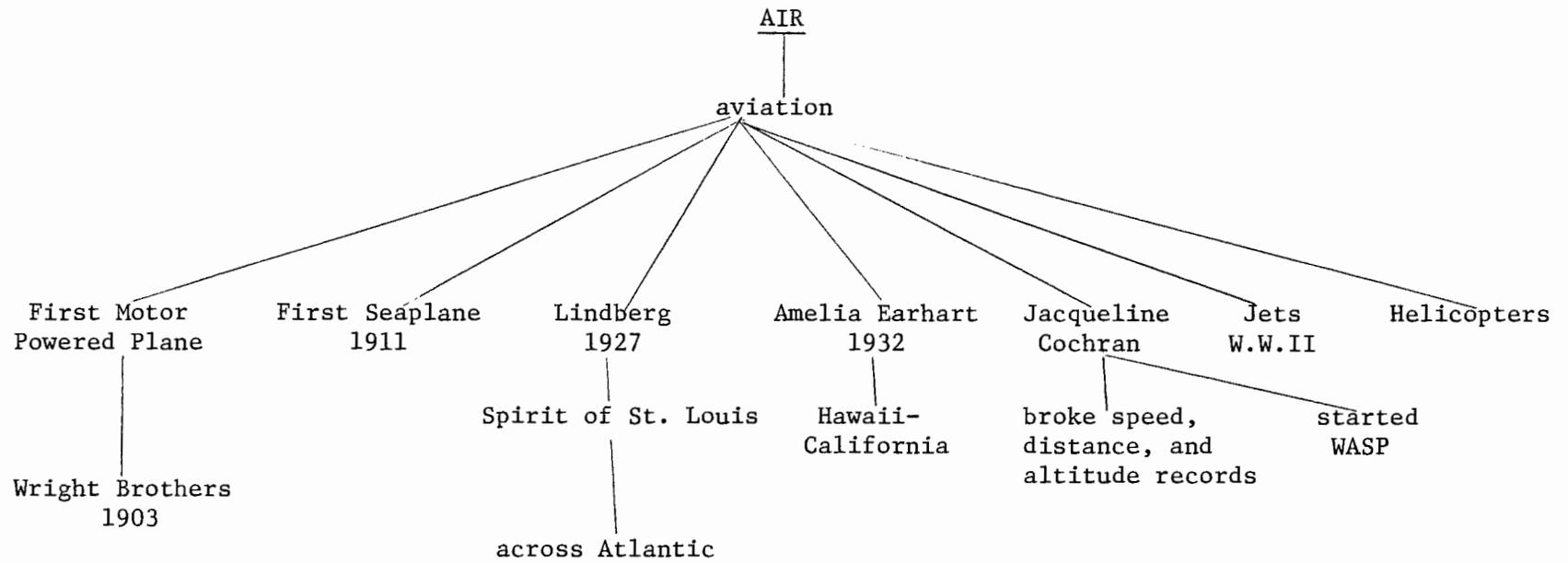
Sample Structured Overviews











SCANDINAVIAN COUNTRIES

Norway

Sweden

Finland

Denmark

Netherlands

Belgium

Luxembourg

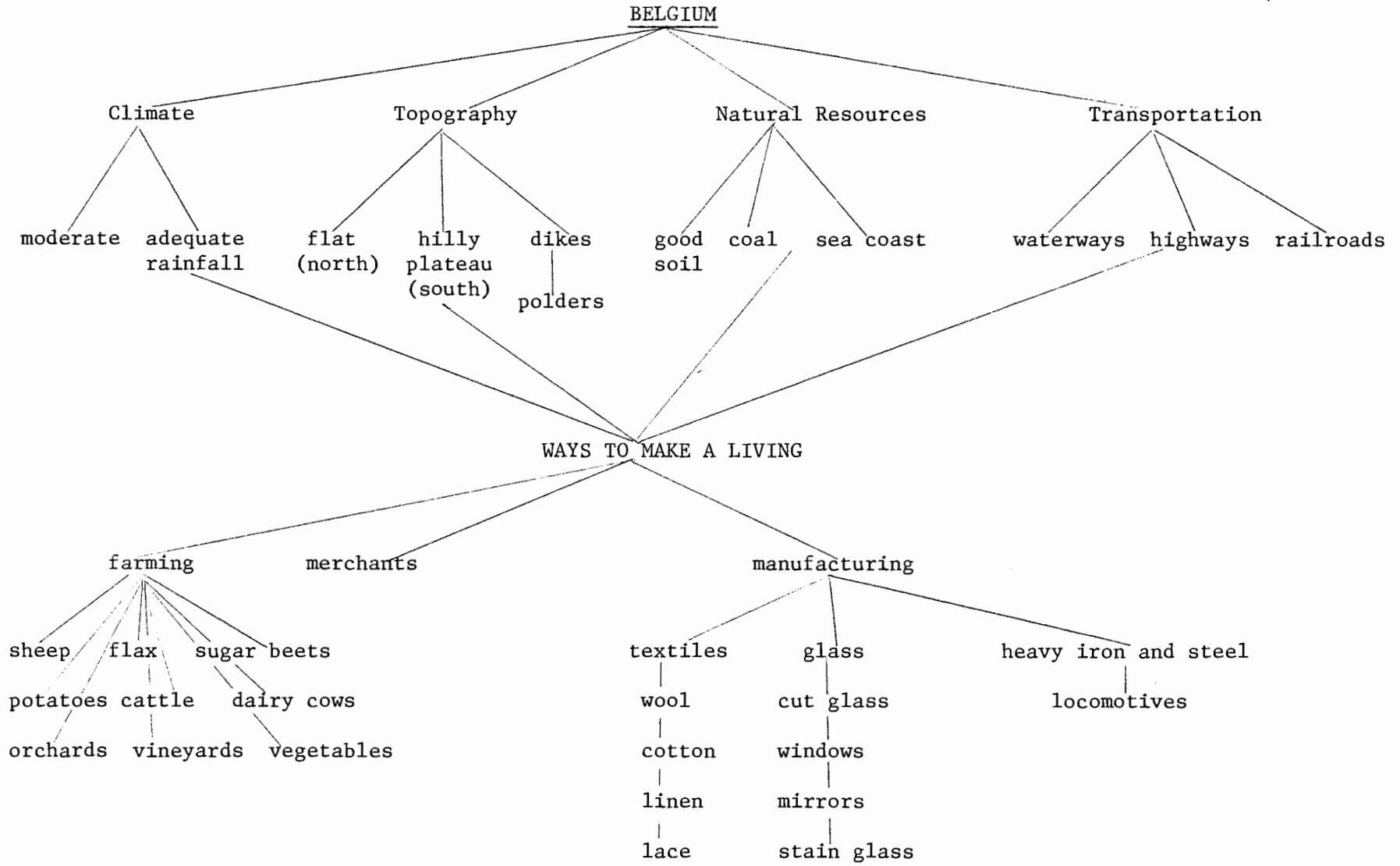
Climate

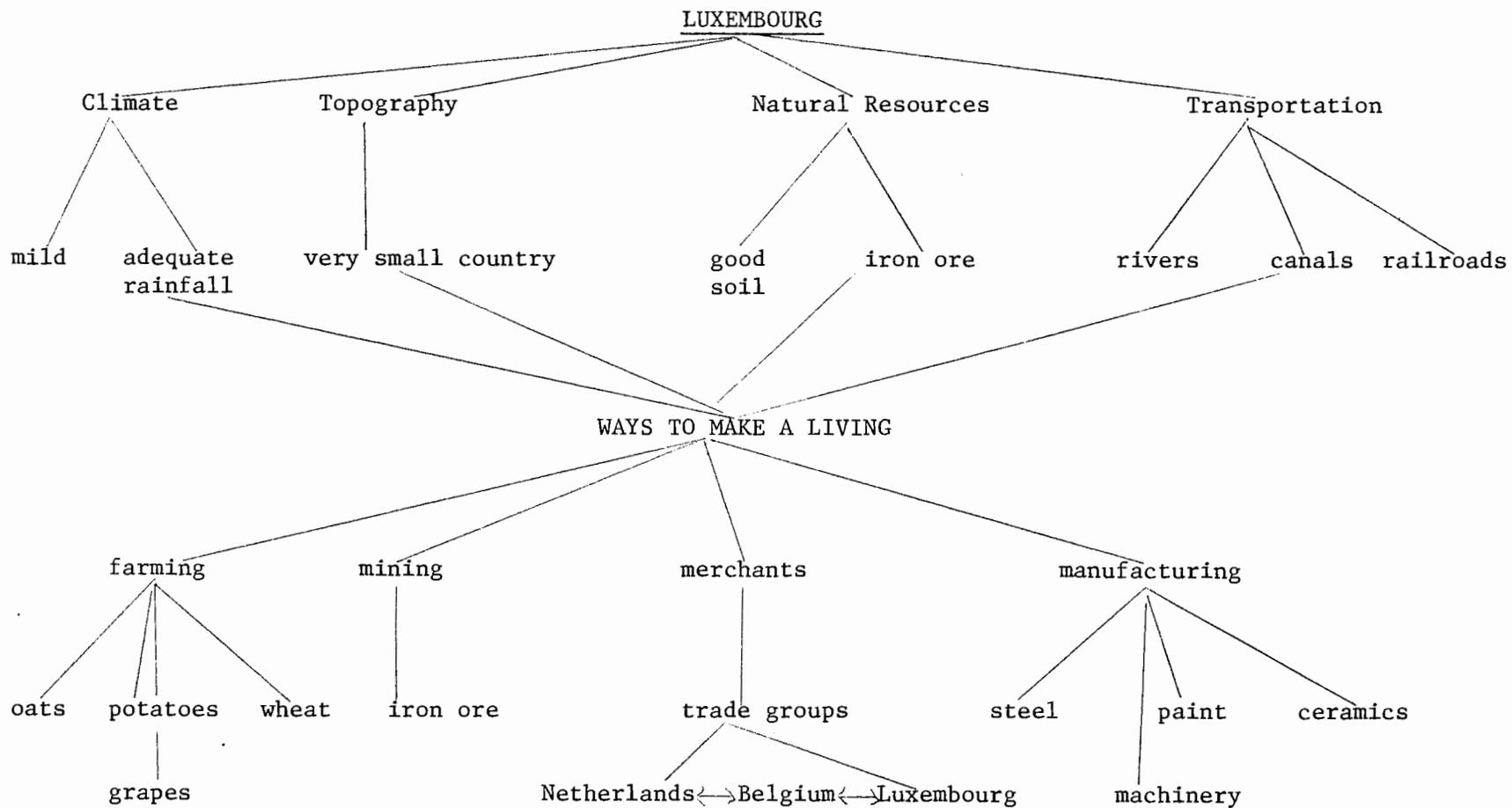
Topography

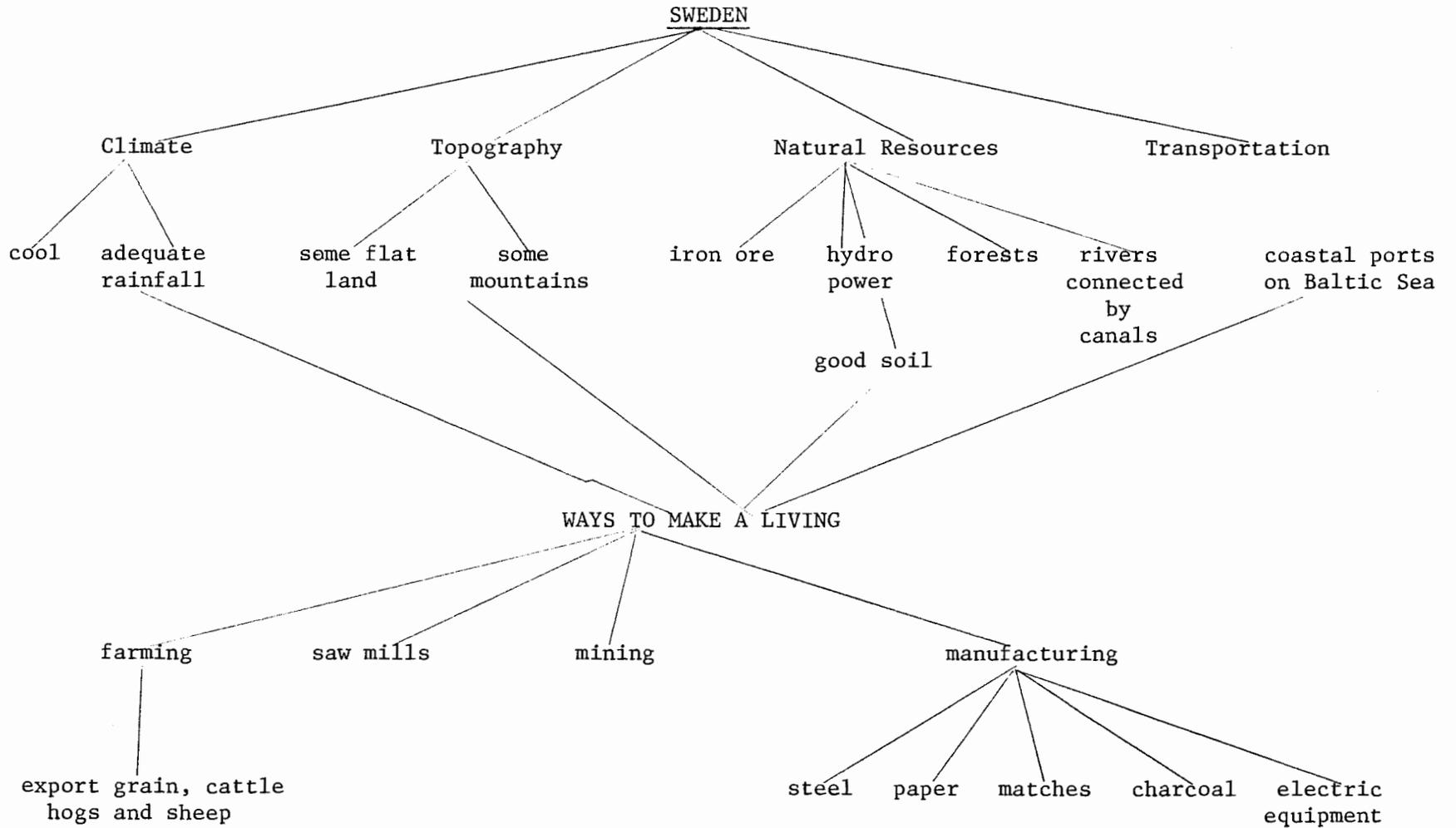
Natural Resources

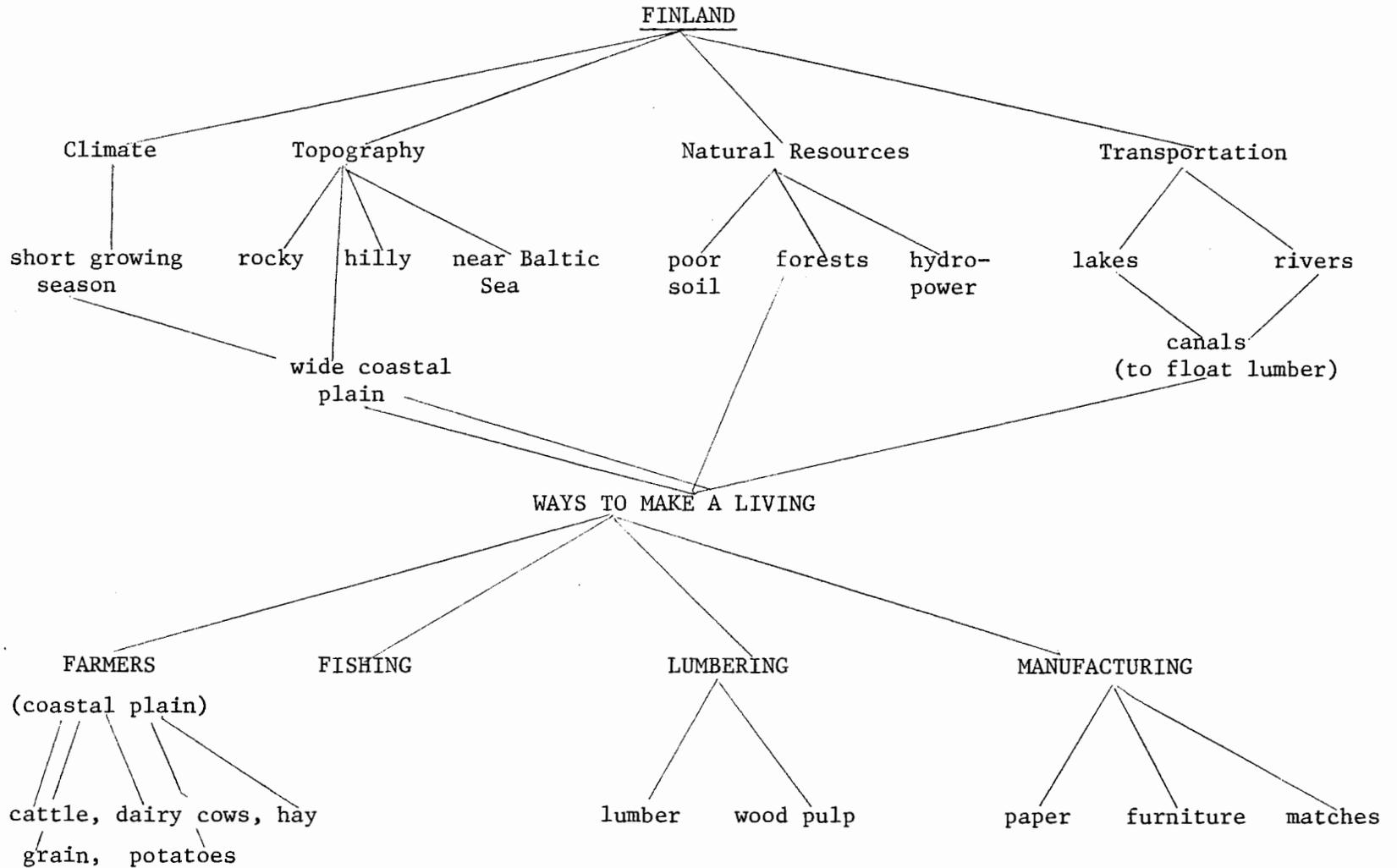
Transportation

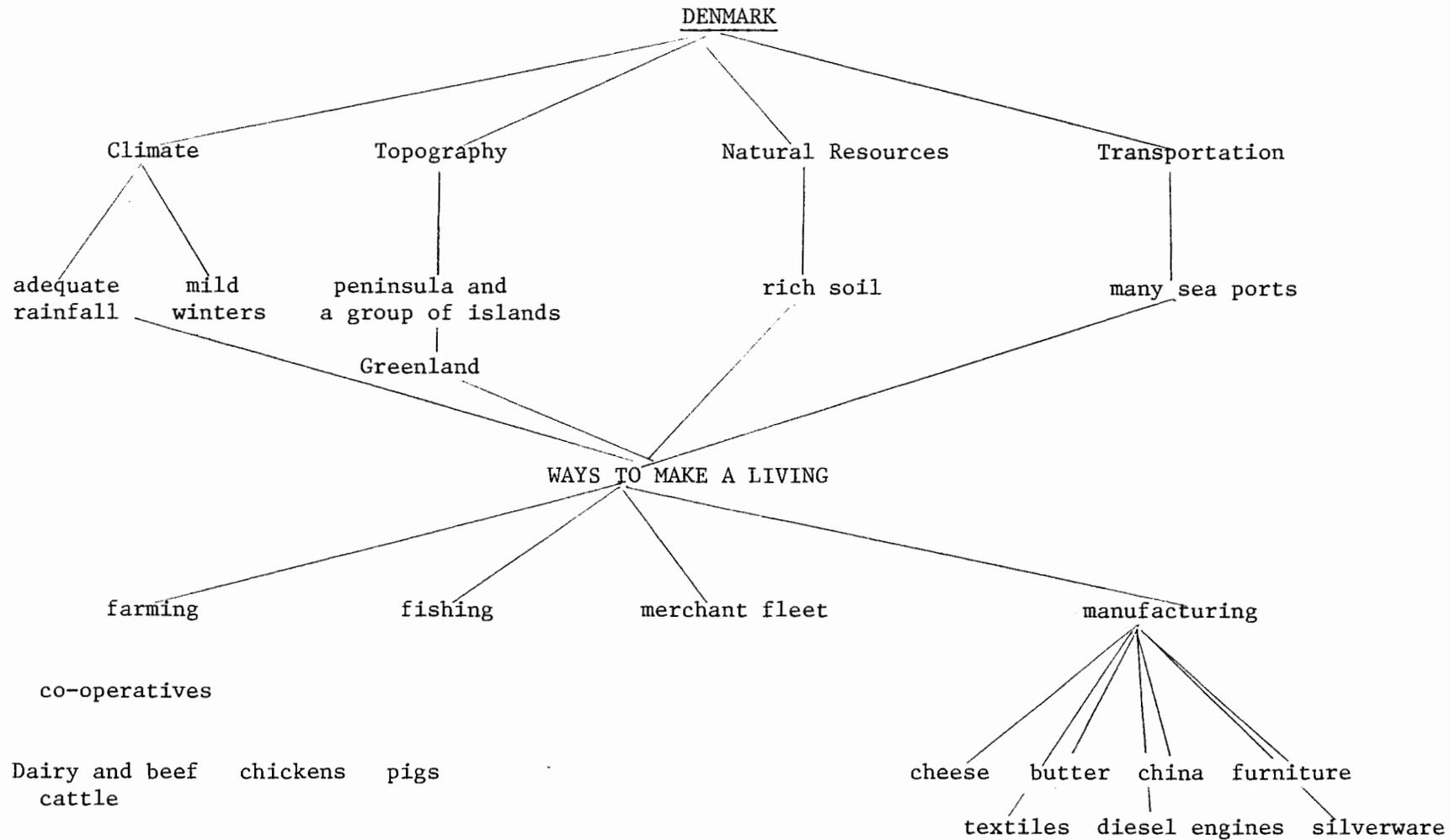
WAYS TO MAKE A LIVING

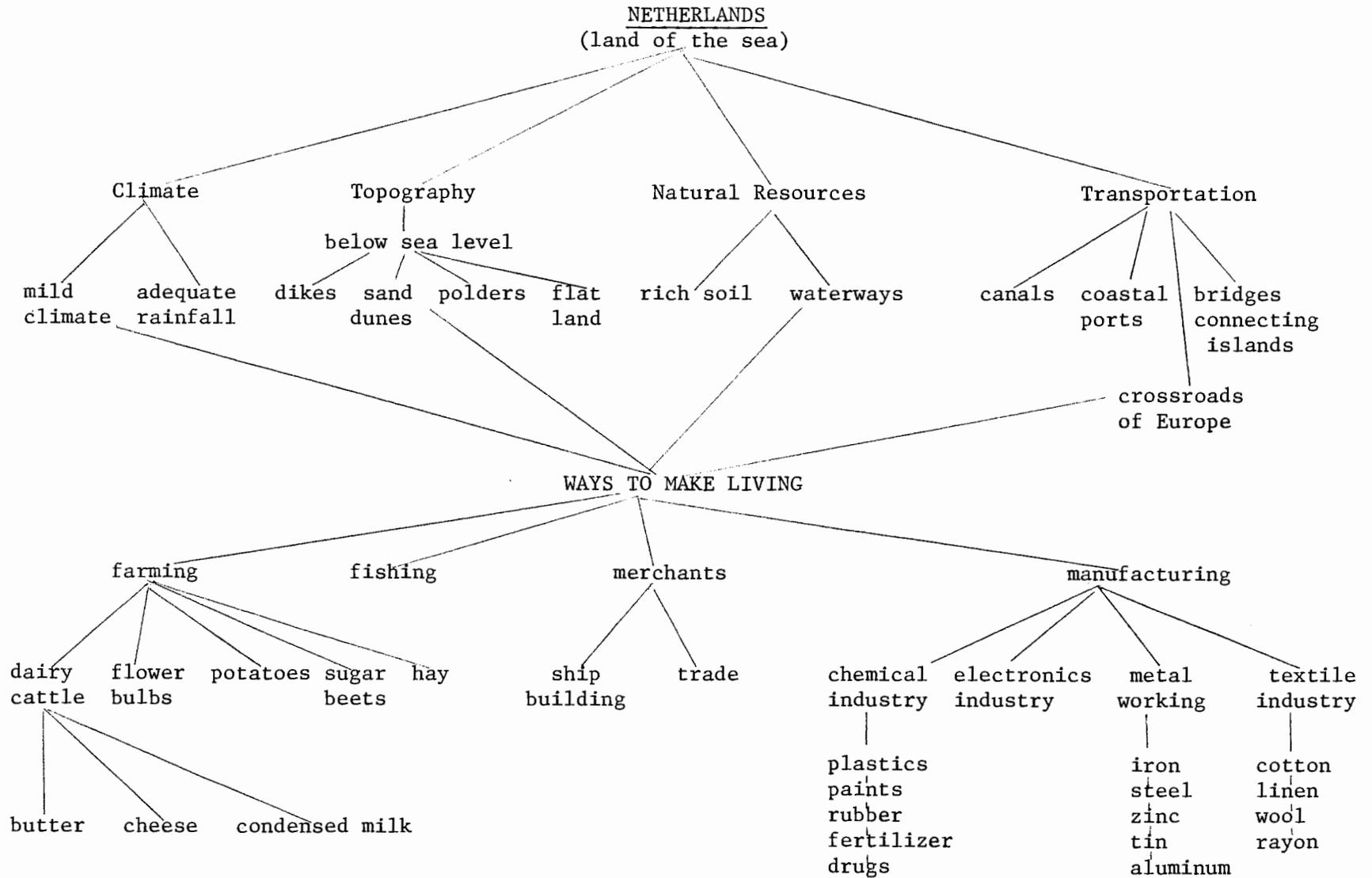


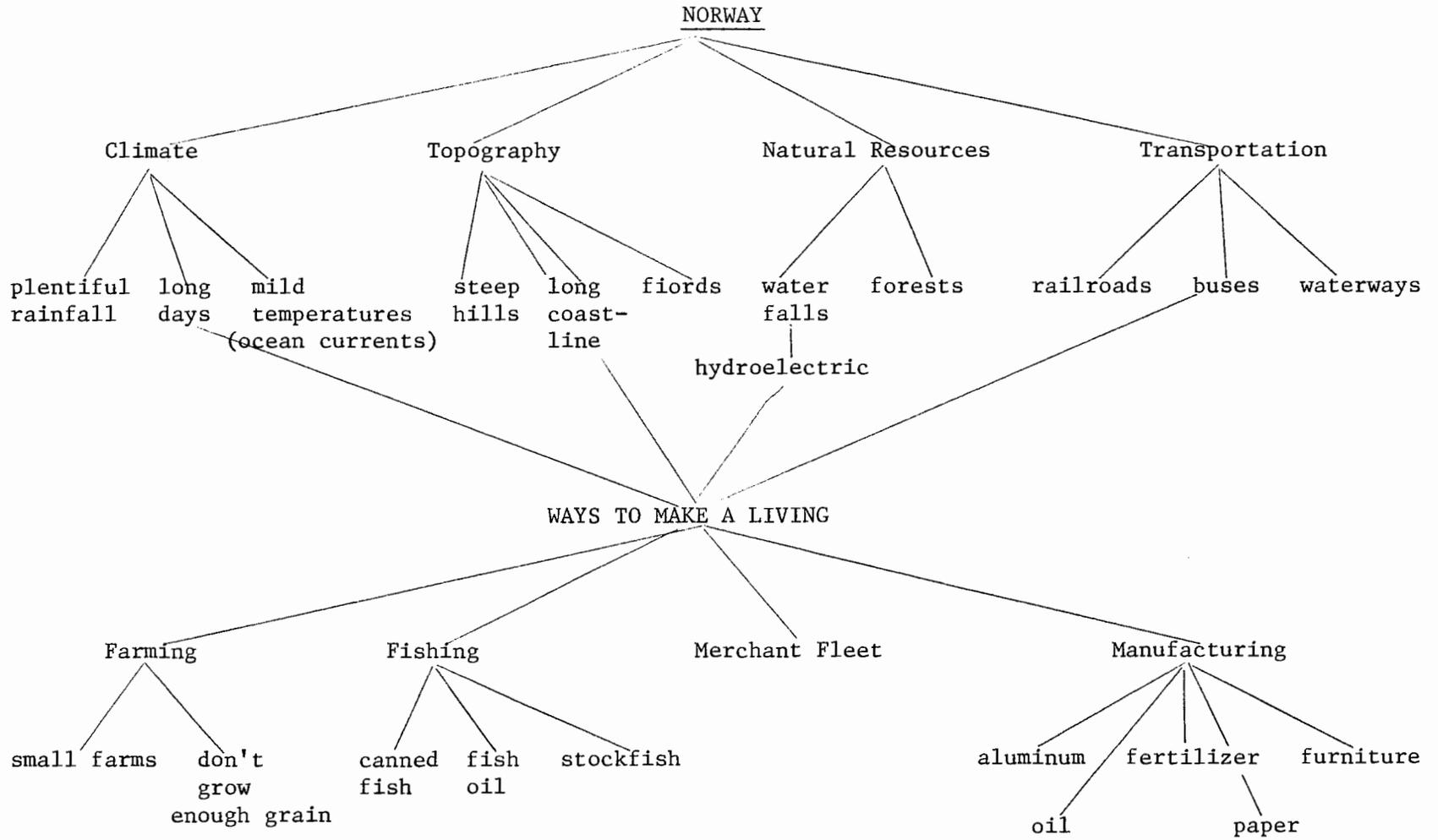












Appendix B
Sample Tests

PRETEST ON TRANSPORTATION

Name _____

This is a pretest. You have not read or studied about transportation. Do not be concerned if you do not know the answers. Please do your best. Answer the questions below by writing the correct letter in the space provided.

1. A way of moving large numbers of people within urban areas is called _____.
a. Mass transit b. cars c. buses
1. _____
2. Logs were placed over low muddy roads. They kept coaches and wagons from getting stuck. These roads were called _____.
a. low roads b. corduroy roads c. dual highways
2. _____
3. Roads that charge tolls are called _____.
a. turnpikes b. freeways c. dual highways
3. _____
4. The means that people use to travel and carry goods is called _____.
a. communication b. travel c. transportation
4. _____
5. A narrow strip of land that connects two larger bodies of land is an _____.
a. isthmus b. island c. inland
5. _____
6. A boat which rises up in the water and speeds just above the surface is a _____.
a. ferryboat b. speed boat c. hydrofoil
6. _____
7. The most famous American sailing ships were the _____.
a. clippers b. steam ships c. Clermont
7. _____
8. _____ is the business of making and flying all kinds of aircrafts.
a. aviation b. pilot c. navigator
8. _____
9. Planes are able to land on water if they are equipped with _____.
a. large tires b. pontoons c. airfoils
9. _____

10. The equipment used by air traffic controllers to direct planes is called _____. 10. _____
a. radar b. light waves c. technology
11. American ships which crossed the ocean carrying letters and packages were called _____. 11. _____
a. clippers b. Packet ships c. steamships
12. A waterway dug across land is called a _____. 12. _____
a. canal b. bridge c. isthmus
13. An important factor in westward movement was _____. 13. _____
a. improved roads b. clipper ships c. helicopters
14. The fastest transportation is by _____. 14. _____
a. ship b. car c. plane
15. The Wright brothers made the first successful flight in our country of a _____. 15. _____
a. jet plane b. sea plane c. motor drive plane
16. The first highway in our country was built in 1811 by _____. 16. _____
a. the United States Government b. Daniel Boone
c. John McAdam
17. The first person to use the assembly-line method for making motor cars was _____. 17. _____
a. Henry Ford b. John Fitch c. Amelia Earhart
18. The Panama Canal was built by _____. 18. _____
a. Panama b. the United States c. France
19. Mass transit carries many people _____. 19. _____
a. long distances b. within rural areas
c. within urban areas
20. The Panama Canal connects _____. 20. _____
a. the Caribbean Sea and the Pacific Ocean.
b. the Gulf of Mexico and the Atlantic Ocean.
c. the Mississippi River and the Pacific Ocean.

21. The Erie Canal was completed in 1825. It connected _____ 21. _____
a. the St. Lawrence River with Lake Ontario
b. the Hudson River with Lake Erie
c. Lake Erie with Lake Ontario
22. Robert Fulton built _____ 22. _____
a. the steamship Clermont b. the first
successful seaplane c. the first horseless carriage
23. The first successful seaplane was built and flown 23. _____
by _____.
a. Henry Ford b. Glenn Curtiss c. Charles
Lindburgh
24. The first person who flew alone across the Atlantic 24. _____
Ocean was _____.
a. Charles Lindbergh B. Jacqueline Cochran
c. Amelia Earhart
25. A company formed by the Federal Government in 1970 to 25. _____
improve rail service is _____.
a. Lionel b. Amtrack c. Mass transit

Answer the following questions in the space provided.

26. Do you agree with the statement that, "Air travel has 26. _____
made the world seem smaller." Give one reason why or
why not.
27. Why does a country need good transportation systems?
28. How have cars affected life in the United States?
29. What are some jobs man can do with airplanes? List 3.

30. If you were a small company and needed to send ten computers from Lyndonville to California, how would you send them? (car, truck, bus, train, boat, mail, or plane). Why?

If you needed to send some important computer parts which were needed immediately from Lyndonville to California, how would you send them? Why?

PRETEST ON SCANDINAVIAN COUNTRIES

Name _____

This is a pretest. You have not read or studied about these countries. Do not be concerned if you do not know the answers. Please do your best. Answer the questions below by writing the correct letter in the space provided.

1. To hold back the sea tides from flooding their land the Dutch people built _____.
1. _____
a. aqueducts b. dikes c. polders
2. In Norway the sea enters mountain valleys and forms deep narrow bays called _____.
2. _____
a. deltas b. fiords c. dikes
3. For weaving linen cloth the farmers in Belgium raise _____.
3. _____
a. flax b. sheep c. silkworms
4. Norway has few people per square mile. It is _____.
4. _____
a. densely populated b. sparsely populated
5. Fish that are cleaned and strung up on wooden poles to dry are called _____.
5. _____
a. stock fish b. canned fish c. dehydrated fish
6. Textile mills manufacture _____.
6. _____
a. chemicals b. paint c. cloth
7. Lands that are reclaimed from the sea are called _____.
7. _____
a. polders b. sand dunes c. islands
8. The part of a larger body of land that is almost surrounded by water is called a _____.
8. _____
a. peninsula b. plain c. plateau
9. Hydroelectric power is made when a dynamo changes water power into an _____.
9. _____
a. electric current b. water current c. wind power
10. A map that tells how many people live per square mile is called a _____.
10. _____
a. people map b. topographic map c. population map

11. Denmark's farmers belong to societies known as _____. 11. _____
a. agencies b. co-operatives c. collective farms
12. The groups of nomads who live in northern Sweden are called _____. 12. _____
_____.
- a. Lapps b. Vikings c. Raiders
13. Sand dunes border the coast along the North Sea in _____. 13. _____
a. Finland b. Netherlands c. Norway
14. The island of Greenland belongs to _____. 14. _____
a. Denmark b. Norway c. Sweden
15. A city that is built on peninsulas and islands connected by bridges is _____. 15. _____
a. Oslo b. Stockholm c. Rotterdam
16. The steel industry in Belgium is helped because that country has large deposits of _____. 16. _____
a. iron ore b. coal c. oil
17. Norway's climate is mild like England's because of _____. 17. _____
a. warm ocean currents and westerly winds
b. it is farther south than England
c. it is farther north than England
18. Norway's natural resources are _____. 18. _____
a. forest and waterfalls b. coal and iron c. rich soil
19. Sweden's natural resources are _____. 19. _____
a. iron ore, hydroelectric power and forests
b. coal and rich soil
c. minerals and forests
20. The farmers in Finland have _____. 20. _____
a. short growing season and poor soil
b. long growing season and rich soil
21. A country located on a group of islands and a peninsula is _____. 21. _____
a. Sweden b. Denmark c. Finland
22. Butter, bacon, eggs, meat, and cheese are exports of _____. 22. _____
_____.
- a. Sweden b. Denmark c. Finland

23. Two countries that are similar to the Scandinavian countries are _____ . 23. _____
 a. Belgium and Luxembourg
 b. France and Germany
 c. China and Japan
24. Belgium is _____ . 24. _____
 a. densely populated b. sparsely populated
25. Luxembourg is _____ . 25. _____
 a. smaller than Rhode Island
 b. as large as the United States
 c. the size of New York

Answer the following questions in the space provided.

26. How do natural resources affect the products a country produces?
27. How does climate affect the products a country produces?
28. How does topography affect the way people make a living?
29. Why do you think Belgium and Luxembourg are included in the chapter with the Scandinavian countries?

30. The chart below gives you some general information about the fictitious country of Dreamland. How could the people of this country make a living? Please try to think of three ways.

NATURAL RESOURCES	CLIMATE	POPULATION DENSITY	TOPOGRAPHY
many forests	plentiful	dense on coast	long coastline
rich soil	rainfall	sparse in mountains	mountains in north
steep streams	mild winter long growing season		steep streams flat land in South

POSTTEST AND DELAYED POSTTEST ON TRANSPORTATION

Name _____

Answer the questions below by writing the correct letter in the space provided.

1. Logs were placed over low muddy roads. They kept coaches and wagons from being stuck. These roads were called _____.
 a. low roads b. corduroy roads c. dual highways 1. _____
2. The means that people use to travel and carry goods is called _____.
 a. communication b. travel c. transportation 2. _____
3. A boat which rises up in the water and speeds just above the surface is a _____.
 a. ferryboat b. speed boat c. hydrofoil 3. _____
4. _____ is the business of making and flying all kinds of aircrafts.
 a. aviation b. pilot c. navigator 4. _____
5. The equipment used by air traffic controllers to direct planes is called _____.
 a. radar b. light waves c. technology 5. _____
6. A waterway dug across land is called a _____.
 a. bridges b. isthmus c. canal 6. _____
7. American ships which crossed the ocean carrying letters and packages were called _____.
 a. clippers b. packet ships c. steamships 7. _____
8. Planes are able to land on water if they are equipped with _____.
 a. large tires b. pontoons c. airfoils 8. _____
9. The most famous American sailing ships were the _____.
 a. clippers b. steam ships c. Clermont 9. _____
10. A narrow strip of land that connects two larger bodies of land is an _____.
 a. isthmus b. island c. inland 10. _____

11. Roads that charge tolls are called _____. 11. _____
a. turnpikes b. freeways c. dual highways
12. A way of moving large numbers of people within urban areas is called _____. 12. _____
a. Mass transit b. cars c. buses
13. An important factor in westward movement was _____. 13. _____
a. improved roads b. clipper ships c. helicopters
14. The Wright brothers made the first successful flight in our country of a _____. 14. _____
a. jet plane b. sea plane c. motor driven plane
15. The first person to use the assembly-line method for making motor cars was _____. 15. _____
a. Henry Ford b. John Fitch c. Amelia Earhart
16. Mass transit carries many people _____. 16. _____
a. long distances b. within rural areas
c. within urban areas
17. The Erie Canal was completed in 1825. It connected _____. 17. _____
a. the St. Lawrence River with Lake Ontario
b. the Hudson River with Lake Erie
c. Lake Erie with Lake Ontario
18. The first successful seaplane was built and flown by _____. 18. _____
a. Henry Ford b. Glenn Curtiss c. Charles Lindbergh
19. A company formed by the Federal Government in 1970 to improve rail service is _____. 19. _____
a. Lionel b. Amtrack c. Mass transit
20. The first person who flew alone across the Atlantic Ocean was _____. 20. _____
a. Charles Lindbergh b. Jacqueline Cochran
c. Amelia Earhart
21. Robert Fulton built _____. 21. _____
a. the steamship Clermont b. the first successful seaplane
c. the first horseless carriage

22. The Panama Canal connects _____ . 22. _____
a. the Caribbean Sea and the Pacific Ocean
b. the Gulf of Mexico and the Atlantic Ocean
c. the Mississippi River and the Pacific Ocean
23. The Panama Canal was built by _____ . 23. _____
a. Panama b. the United States c. France
24. The first highway in our country was built in 1811 24. _____
by _____ .
a. the United States Government b. Daniel Boone
c. John McAdam
25. The fastest transportation is by _____ . 25. _____
a. ship b. car c. plane

Answer the following questions in the space provided.

26. Do you agree with the statement that, "Air travel has made the world seem smaller." Give one reason why or why not.
27. Why does a country need good transportation systems?
28. How have cars affected life in the United States?
29. What are some jobs man can do with airplanes? List 3.

30. If you were a small company and needed to send ten computers from Lyndonville to California, how would you send them? (car, truck, bus, train, boat, mail, or plane). Why?

If you needed to send some important computer parts which were very small and were needed immediately from Lyndonville to California, how would you send them? Why?

POSTTEST AND DELAYED POSTTEST ON SCANDINAVIAN COUNTRIES

Answer the questions below by writing the correct letter in the space provided.

1. In Norway the sea enters mountain valleys and forms deep narrow bays called _____.
 a. aqueduct b. dikes c. polders d. fiords 1. _____
2. Norway has few people per square mile. It is _____.
 a. densely populated b. sparsely populated 2. _____
3. Textile mills manufacture _____.
 a. chemicals b. paint c. cloth 3. _____
4. The part of a larger body of land that is almost surrounded by water is called a _____.
 a. peninsula b. plain c. plateau 4. _____
5. A map that tells how many people live per square mile is called a _____.
 a. people map b. topographic map c. population map 5. _____
6. To hold back the sea tides from flooding their land the Dutch people built _____.
 a. aqueducts b. dikes c. polders 6. _____
7. For weaving linen cloth the farmers in Belgium raise _____.
 a. flax b. sheep c. silkworms 7. _____
8. Fish that are cleaned and strung up on wooden poles to dry are called _____.
 a. stock fish b. canned fish c. dehydrated fish 8. _____
9. Lands that are reclaimed from the sea are called _____.
 a. polders b. sand dunes c. plateau 9. _____
10. Hydroelectric power is made when a dynamo changes water power into an _____.
 a. electric current b. water current c. wind power 10. _____
11. Denmark's farmers belong to societies known as _____.
 a. agencies b. co-operatives c. collectives 11. _____

12. The groups of nomads who live in norther Sweden are called _____. 12. _____
a. Lapps B. Vikings c. Raiders
13. The island of Greenland belongs to _____. 13. _____
a. Denmark B. Norway c. Sweden
14. The steel industry in Belgium is helped because that country has large deposits of _____. 14. _____
a. iron ore b. coal c. oil
15. Norway's climate is mild like England's because of _____. 15. _____
a. warm ocean currents and westerly winds
b. it is farther south than England
c. it is farther north than England
16. Sweden's natural resources are _____. 16. _____
a. iron ore, hydroelectric power and forests
b. coal and rich soil
c. minerals
17. A country located on a group of islands and a peninsula is _____. 17. _____
a. Sweden b. Denmark c. Finland
18. Sand dunes border the coast along the North Sea in _____. 18. _____
a. Finland b. Netherlands c. Norway
19. A city that is built on peninsulas and islands connected by bridges is _____. 19. _____
a. Oslo b. Stockholm c. Rotterdam
20. Norway's natural resources are _____. 20. _____
a. forest and waterfalls b. coal and iron
c. rich soil
21. The farmers of Finland have _____. 21. _____
a. short growing season and poor soil
b. long growing season and rich soil
22. Butter, bacon, eggs, meat, and cheese are exports of _____. 22. _____
a. Sweden b. Denmark c. Finland
23. Belgium is _____. 23. _____
a. densely populated b. sparsely populated

24. Luxembourg is _____ . 24. _____
- a. smaller than Rhode Island
 - b. as large as the United States
 - c. the size of New York
25. Two countries that are similar to the Scandinavian countries are _____ . 25. _____
- a. Belgium and Luxembourg
 - b. France and Germany
 - c. China and Japan

Answer the following questions in the space provided.

26. How do natural resources affect the products a country produces?
27. How does climate affect the products a country produces?
28. How does topography affect the way people make a living?
29. Why do you think Belgium and Luxembourg are included in the chapter with the Scandinavian countries?

30. The chart below gives you some general information about a fictitious country. How would the people of this country make a living? Please try to think of three ways.

NATURAL RESOURCES	CLIMATE	POPULATION DENSITY	TOPOGRAPHY
Many forests	plentiful	dense on coast	long coastline
rich soil	rainfall	sparse on mountains	mountains in North
steep	mild winters		steep stress
streams	long growing season		flat land in South