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**A survey of methods, procedures, and materials used for  
teaching critical thinking in a selected school system**

Thorpe, Vivian Cameron, Ed.D.

The University of North Carolina at Greensboro, 1989

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A SURVEY OF METHODS, PROCEDURES, AND MATERIALS  
USED FOR TEACHING CRITICAL THINKING  
IN A SELECTED SCHOOL SYSTEM

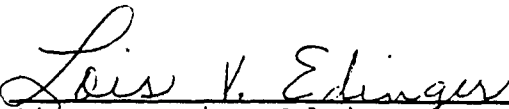
by

Vivian Cameron Thorpe

A Dissertation Submitted to  
the Faculty of the Graduate School at  
The University of North Carolina at Greensboro  
in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Education

Greensboro  
1989

Approved by

  
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APPROVAL PAGE

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THORPE, VIVIAN CAMERON, Ed.D. A Survey of Methods, Procedures, and Materials Used for Teaching Critical Thinking in a Selected School System. (1989) Directed by Dr. Lois V. Edinger. 115 pp.

This study centers on the teaching of critical thinking and the extent to which it is emphasized by some educators. Literature reveals that it has been of concern in the past and that interest in it seems to be increasing, especially since the 1960s. Critical thinking is defined as the use of basic thought processes to solve problems, analyze arguments, and generate insight into specific meanings and interpretations.

The study investigates experiences, activities, and materials that instructors in a selected public school system use for the purpose of teaching critical thinking in social studies classes. Within the study seven questions are addressed. They center upon how social studies teachers define critical thinking, skills believed to enhance critical thinking, components of critical thinking skills emphasized, activities used to stimulate or to develop critical thinking, the utilization of experiences outside the classroom to encourage critical thinking, the extent to which textbooks and other instructional material emphasize critical thinking, and how the teachers test for evidence of critical thinking.

The data were gathered by means of a questionnaire, by personal interviews, and by way of personal observations. The data are presented in terms of expository discussion and tables.

Findings reveal that respondents in the present study do not appear to differ substantially with respect to methods, procedures, and techniques of teaching critical thinking from teachers in general, as described by the literature.



## ACKNOWLEDGMENTS

The writer wishes to express sincere appreciation to her adviser, Dr. Lois V. Edinger, for providing the guidance, encouragement, and valuable suggestions toward the success of this dissertation. The writer also thanks each member of the committee, Dr. David E. Purpel, Dr. Sarah M. Robinson, and Dr. H. Svi Shapiro for their helpful contributions during the development and validation of the study.

The writer acknowledges with gratitude the cooperation of the officials and teachers of the school system who participated in this study.

The writer gratefully acknowledges the moral support and understanding provided by her daughters, Sharon K. Thorpe and Donna T. Pinnix; her granddaughter, Deidre Pinnix; and her sister, Evelyn C. McKoy.

The writer gratefully acknowledges and wishes to thank her sister, Lucille C. Hicks, for the help she provided in the initial and developmental stages of the dissertation and for her understanding, encouragement, and moral support given. Finally, the writer gratefully acknowledges the support of her husband, Dr. Claiburne Thorpe, and wishes to thank him for his support, encouragement, understanding, and valuable suggestions throughout the course of the work.

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CHAPTER I  
THE RESEARCH PROBLEM

Introduction

"One of the goals of education has been to form minds which can be critical, can verify, and not accept everything they are offered" (Piaget, cited in Ginsburg & Opper, 1978, p. 238). Research has indicated that it is not sufficient to tell students to think. What is needed is a curriculum that emphasizes thinking. In the early 1960s, social studies curricula showed little evidence of critical thinking, and investigation or research of the field was limited. Some authors such as Fair and Shaftel (1967) found that social studies teaching was usually descriptive. Teachers appeared to place emphasis on accumulating information, much of which was obsolete and was retained by the student for only a short time. Many educators voiced similar views and expressed a strong concern for more emphasis being placed on the development of autonomous thinking and critical thinking. Some indications of the lack of attention to critical thinking in the social studies classrooms during the 1960s were identified by Raths, Jonas, Rothstein, and Wasserman (1967). These were (a) students' dependence upon the teacher, (b) students' inability to concentrate, (c) a lack of

flexibility of behavior, (d) a lack of confidence in one's thinking, (e) an unwillingness to think, and (f) an inability to discern meaning from material.

In order for students to learn to think, it is imperative that they do the thinking and not simply absorb the products of thought processes performed by the teacher. Most students tend to follow a developmental sequence of moving from the simple and concrete operations to the more complex and abstract operations. To accomplish these tasks students should master certain specific skills such as differentiation, relating causes and consequences or analyzing the dimensions of a problem. In addition to this, the role of the teacher must be reversed from telling students, to soliciting responses which guide them to search for answers and at the same time lift their levels of thought (Fair & Shaftel, 1967).

Since the late 1960s more attention has been given to critical thinking, but there is still some doubt about just how much critical thinking actually is being promoted in the classroom. In a recent poll of professional educators most of the respondents said better instruction in thinking skills should be a major priority in educational planning for future years (Costa, 1985). The question remains, however, as to what educators do or can do to bring about improvements in the thinking skills that many people seek and expect.

Barry K. Beyer (1984) identified some factors significantly related to concerns in teaching thinking skills. These factors were (a) confusion about which skills to teach as thinking skills, (b) failure to identify the components of those skills we elect to teach, (c) the use of appropriate teaching techniques, (d) the lack of congruence between what we teach and what we test as thinking skills, and (e) curricula that attempt to "cover" too many skills in too little time.

A number of authors have stated their individual sets of thinking skills. For example, Beyer (1984) has described in detail a set of skills involved in critical thinking. They are:

(1) distinguishing between verifiable facts and value claims, (2) determining the reliability of a claim or a source, (3) determining the accuracy of a statement, (4) distinguishing between warranted and unwarranted claims, (5) distinguishing between relevant and irrelevant information claims or reasons, (6) detecting biases, (7) identifying stated and unstated assumptions, (8) identifying ambiguous or equivocal claims or arguments, (9) recognizing logical inconsistencies in a line of reasoning, and (10) determining the strengths of an argument. (p. 557)

Educators are still concerned with approaches to teaching critical thinking skills, suggesting that we have not yet fully realized our goal.

#### Purpose of the Study

The purpose of the present study was to investigate the extent to which critical thinking is being taught in the

social studies curriculum at the secondary level in a large school system. The operational definition of critical thinking will be that employed by Arthur Costa (1985) who believes that one thinks critically when using the basic thinking processes to solve problems, analyze arguments, and generate insight into particular meanings and interpretations.

#### Statement of the Problem

The problem investigated in this study was to ascertain what experiences, activities, and materials teachers in a selected school system are using for the purpose of teaching critical thinking in a social studies program. Questions to be addressed are derived from Beyer's (1984) five factors referred to earlier. Specifically, they are:

1. How do social studies teachers define critical thinking?
2. Among social studies teachers, what skills are believed to enhance critical thinking?
3. What components of those skills do instructors elect to teach or emphasize?
4. What kinds of course activities do teachers use to stimulate and develop critical thinking?
5. What other life experiences do teachers use to encourage critical thinking in the classroom?
6. To what extent do textbooks and other instructional materials emphasize critical thinking?



7. How do teachers test for evidence of critical thinking?

### Research Design

The research proposed in the present study is descriptive and is presented as a status report. The data were based upon a survey questionnaire devised by the author. The questionnaire addressed the seven questions listed above and was sent to all social studies teachers of Grades 9 through 12 in the school system utilized. There was a follow-up with the social studies coordinator of the system and with some selected teachers who responded to the questionnaire.

An analysis of textbooks and other materials used in the system was made by the researcher with reference to emphasis on critical thinking. Responses to the questionnaire are displayed in the form of tables and tabulations of answers to the statements. Evaluation of textbooks and other materials is summarized under the criteria used in the evaluation. Responses from the interviews are summarized according to patterns that evolved. Conclusions and implications are drawn from the general findings and expository discussions.

### Significance of the Study

The present study has significance for the way we teach our students to think critically and for the way we prepare teachers in terms of their ability to teach for critical

thinking. It will contribute information on what is currently being done in one public school system to teach critical thinking skills. It will also provide us with information about the textbooks and other instructional materials in use. It is important to be able to inform publishers of educational material as to what things are needed.

Through research it has been concluded that teacher behavior affects student behavior. In cases where teachers have had special training in critical thinking techniques, students make higher-level responses and ask higher-level questions. It is thus inferred that students' acquisition of higher-order cognitive skills and verbal abilities may create a shift in the role of both teachers and students because they both share in problem solving and decision making.

According to many researchers, critical thinking does not require a particular pattern for one to think, but it does require that one have knowledge. Hence it is important that skills and strategies be taught in conjunction with content. This suggests that organization and utilization are significant in problem solving. Teachers should present knowledge to facilitate problem solving and not as information to be memorized.

In preparing teachers for the future we must consider the many significant problems facing our society which

demand widespread qualitative improvements in thinking and understanding. Some of these problems have to do with health, employment, energy, population, environment, psychological well-being, and the meaningful education of our youth. Teachers must provide an atmosphere in which the students under guidance evolve goals, formulate and execute plans, then evaluate the results and incorporate learnings into their own values and attitude systems. These can then be used to act with and upon subsequent experiences. Findings of this study will help to facilitate a major objective of social studies instructors, which is to teach students to learn to think for themselves while in school so that they can function later in life and not follow others blindly.

The remainder of this study is organized as follows: Chapter II presents a review of literature related to critical thinking; Chapter III presents the methodology used; Chapter IV presents analysis and interpretation of findings; and Chapter V presents the summary, conclusions, and implications.

CHAPTER II  
REVIEW OF LITERATURE

Introduction and Background

A review of the literature pertaining to topics relevant to this study for the last 20 years is presented in this chapter. The review is organized under the following headings: Introduction and Background; Studies on Critical Thinking in Social Studies, 1960s-1980s; and Summary and Conclusions.

Studies pertaining to efforts to improve the ability to think critically through the social studies curriculum have been reviewed for the period of the 1960s-1980s. Scholars in the field have given different definitions of critical thinking. According to Giroux (1978) and Common (1982), the essence of critical thinking is informed skepticism, a trusting--yet skeptical--orientation to the world. It is to inquire rather than simply to accept tradition or authority. They believe that one who thinks critically does not take the social world as given or necessarily accept it at face value.

Costa (1985) believes that one thinks critically when using the basic thinking processes to solve problems, analyze arguments, and generate insight into particular meanings and interpretations. Thus critical thinking takes

place when one seeks to differentiate truth from falsehood and fact from fiction. Critical thinking is not necessarily orderly, logical, or sequential (Carpenter, 1963).

Furthermore, David Russell (1956) believes that critical thinking is the process of examining concrete and verbal materials, thus comparing the object or acting upon the judgment then made. Critical thinking has also been defined as comparing the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts (Sternberg, 1985, p. 46). Thus, critical thinking is also viewed as a complex of skills which can be applied to specific issues confronting an individual or group of individuals (Carpenter, 1963).

Though critical thinking has been defined by many scholars, the classical definition to which most writers on the subject pay tribute is the statement by John Dewey:

Reflective thinking, in distinction from other operations to which we apply the name of thought, involves (1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity. (Dewey, 1933, p. 12)

The concern for critical thinking is related to an important goal of education in which educators strive to stimulate individuals who can criticize and distinguish between what is proven and what is not proven. According to a variety of educators, the real purpose of education is to teach one to learn to think. If this is true, critical

thinking is a major part of social studies education. Realistically, all normal children have the capacity to think; however, the difference is found in the quality of each individual's thinking. Therefore, basic skills of critical thinking should be brought into schooling during the early stages (Fraenkel, 1980). It is a growing realization by educators and the general public that the level of a country's development is directly dependent upon the intellectual development of its people (Costa, 1985). Therefore, many educators believe that training in critical thinking skills should be brought into all aspects of the classroom endeavor. Furthermore, being trained to think critically should be the right of students (Sternberg, cited in Link, 1985).

Many educators also suggest emphasizing communication, higher problem-solving skills, and scientific and technological literacy so that we can better understand the technological world around us (Educating Americans for the 21st Century, 1983). Accordingly, our graduates should be able to cope with the movement from the industrial era into the information age. For that reason, the requirements of the information age appear to affect both educational goals and practices (McTighe & Schollenberger, 1985). In order that we achieve these goals, there appears to be a need for better training programs to improve critical thinking skills. This

should lead to a breakthrough in the quality of thinking employed by decision makers at all levels of society and in our daily affairs (Ornstein, cited in Costa, 1985). Thus, this should bridge the gap between classroom situations and situations outside of it that take place in everyday life (Sternberg, cited in Link, 1985).

The general lack of attention given to the development of critical thinking in schools may be traced to faulty assumptions held by some educators about critical thinking. Three such assumptions generally believed necessary prior to one's being able to think critically are: (a) a person must acquire a great deal of factual information, (b) one can only learn thinking skills through subjects such as science and math, and (c) thinking is a capacity found only in very bright or gifted students. When educators used these assumptions they believed it futile to try and improve thinking significantly. There is, however, no body of research to support these assumptions.

How well students think depends among other things upon the significance of the content with which they work. It also depends upon their interest and their desire to participate in the endeavor. In addition to the above, the process students use and the initial assistance given to them in the process is of importance. Furthermore, no one subject has a monopoly on the appropriate context for thinking.

Since all normal children have the capacity to think, teachers must encourage students to seek out and consider a variety of views on data that they encounter on critical issues (Fraenkel, 1980). A major criticism of social studies teaching is that it is usually descriptive. Teachers appear to put a stronger emphasis on accumulating descriptive facts, many of which are obsolete and are retained only for a short duration, than they put on higher order cognitive skills. Based on this assumption, many educators are voicing a concern for a stronger emphasis on the development of both critical and autonomous thinking (Fair & Shaftel, 1967).

As we look at what is going on in schools, we find little evidence of critical thinking taking place. This may be caused by inadequate experiences with thinking. Symptoms on the part of students which reflect these inadequate experiences are students' dependence upon the teacher for answers, a lack of ability to concentrate, inability to detect the meaning from material studied, a lack of flexibility of behavior, and an unwillingness to engage in higher thought processes (Raths et al., 1967).

Some students adapt a specific learning strategy for the instructional task to be performed regardless of what the particular demands of instructions given may be. Learning styles are constructs originated to describe and account for individual differences in students. These styles are basically content-dependent and may vary according to the



learning task. Where individual differences in students exist, they are basically at the level of the way in which the student perceives or interprets his learning environment (Laurillard, 1979). According to research conducted, students seem willing to change their strategies and adjust their style of information processing depending on whether it is recall, comprehension, reasoning, or critical thinking that is expected (McConkie, 1977).

Arno Bellack's findings from his study on the language of the classroom revealed that some teachers use a dominant pattern in the way they ask questions of students. Most questions asked sought descriptive information, thereby asking what, when, where, and who. After the students' response, the teacher either approves, criticizes, reinforces, or corrects the statement. When a teacher wishes to improve thinking skills and generalizations, the pattern used should be: What? Why? What does it mean? (Fair & Shaftel, 1967).

Sometimes teachers emphasize the content expected to be learned rather than the process of learning. It is important for teachers to create a climate in the classroom that allows freedom for thinking. For example, students need time for explanation in developing thinking skills. They need time for reflection, for practice, and for evaluation. To achieve critical thinking skills, students need to become actively involved, to explore, discover, experience, plan, and make decisions (Raths et al., 1967).

Another obstacle to the development of rational learning emerges when students are told what to believe and what to do. This tends to undermine their independence of thought. Along the same line, Barry Beyer (cited in Costa, 1985) identifies the lack of sufficient proceduralization as a major problem in the teaching of thinking skills. He believes that the procedure for the instruction on how to use specific thinking skills should be provided in steps. This would allow time for discussion of the operational procedures.

A factor that contributes to critical thinking in schools is the desire to know and the usefulness of the knowledge gained. This is to say that students become motivated when they feel a need to know more or to find out something. The motive for critical thinking must be conscious. Although motives are not created by teachers, teachers may make students aware of such motives they already possess. It appears that students do little problem solving on their own. Most of the time, problems presented to students have already been structured for them. Moreover, a certain atmosphere favorable to the development of critical thinking does not appear in all classrooms.

Since these conditions play an important role in critical thinking, both the school and the community should provide a favorable climate for the teaching of critical

thinking skills and tolerance for differences of opinion which must be provided in the classroom and the community. The study of current affairs is essential because the teacher can involve students in effective studies of controversial issues. For instance, the case study is an adequate approach that can be used to teach controversial issues (Carpenter, 1963).

There are numerous obstacles that may hinder effective critical thinking. Some of these obstacles are community mores, sectarian or religious beliefs, sex and marriage issues, economic issues, race and minority group relations, social issues, and politics and government. It is important that teachers are in an environment in which there is freedom to teach and students are free to learn (Carpenter, 1963). Another factor, according to Carpenter, affecting the teaching of critical thinking in schools is the influence of the authoritarian home or classroom. An authoritarian home may cause a child to develop a block against critical thinking, while the authoritarian teacher will play it safe by conformity of thought and memorization without regard to meaning (Carpenter, 1963).

According to William E. Gardner, research has indicated that content and modes of presentation in social studies courses have failed in being able to stimulate the typical adolescent. The social studies curriculum does not readily

present to students an opportunity to become actively engaged with problems of interest which concern them and society as a whole (Gardner & Johnson, 1970).

Whatever content is taught in the social studies classroom should be taught by posing a problem casting doubt and encouraging intelligent inquiry to form a base for intelligent decision-making. Citizens do need to take an active role in a society which demands so much of them. One must know the issues if one is to exercise an opinion on the issues. Therefore, the approach to critical thinking in teaching social studies should enable students to understand their own values, their meanings and implications in relation to conflicts in society. So students must be given the opportunity to raise questions which will get at the essence of an issue.

Students must be given opportunities for illustrating decision-making. Decision-making opportunities in the social studies classroom may begin with simple situations which take the form of posing questions which require some thought and a synthesis of information provided in a descriptive paragraph to a complex social problem involving questions of public policy or individual behavior.

Educators must take steps to upgrade the quality of intellectual activity in social studies classrooms if, indeed, the quality of decision-making is to be the primary

concern of social studies instruction. Since social studies educators play a major role in providing appropriate information and in developing the character of people, decisions people make--whether public or private matters--determine the mark of good citizenship (Gardner & Johnson, 1970).

Research Studies on Critical Thinking  
in Social Studies, 1960s-1980s

For the purpose of this study, the reviewing of research studies on critical thinking in social studies was limited to research from the 1960s-1980s.

The decade of the 1960s was one in which teacher education appeared to have come under heavy attack from both the outside (Conant, 1963; Koerner, 1964) and from inside (Denmark & McDonald, 1967) the profession. According to Elish (1974), most social studies teacher educators were not professionally active. They were made aware of the need to use inquiry approaches; however, many teacher educators tended to rely on lecture-recitation methods in their own classes (Masemore, 1973). Jan Tucker (1972) suggested that teacher educators might experience dissonance with many features of the new social studies developed during the 1960s. The social studies of the 1960s stressed individuality and freedom at the expense of organization and control. Emphasis shifted to child-centered schools and experimental schools, and social studies teachers were under heavy fire to use the inquiry approaches.

A number of social studies educators suggested taking a strong look at the teacher education program during the '60s hoping to determine why teacher education in the social studies was no longer constant. It was found that teacher education lacked a strong research base. Reasons suggested for such were the orientation of professional reward structures and attitude of funding agencies toward materials development rather than research (Martorella, 1974). However, funding agencies began to appropriate some monies toward social studies research during the 1960s.

Scovel (1968) and McKenzie (1969) were among the few researchers in academic disciplines willing to study student inquiry behaviors as contrasted with student accomplishment as a criterion in their definition of teaching success in the social studies. Scovel conducted a study in which he used the ability of students to bring about higher order questioning. He found that instructional programs can be designed to achieve this goal. McKenzie found that thinking skills can be developed within a discipline by the use of frequent quizzes in inferential thinking within the discipline.

Educators were interested in teacher/pupil relationships, specifically in terms of teacher behavior influencing student behavior, attitude, achievement, and inquiry. According to Massialas (1963), the Indiana Experiments in Inquiry

established that students taught by methods using materials specifically designed to stimulate students to develop an inquiry attitude did as well when tested for factual information as did students taught in traditional manner. There were other studies conducted by Cox (1969), Gentry (1971), Hunkins (1968), and Oliver and Shaver (1966). In their research the focus was on questioning skills and strategies teachers used in instruction. Results were mixed in the social studies.

Adams (1974) also conducted a study for which she concluded that there was an important relationship between teacher questioning and the cognizant level of the pupils' responses. Findings indicated a greater response from students when teachers used higher-level questions. Teachers with special training compared to those lacking special training had better higher-level responses from their students.

Ehman (1969) developed a classroom climate scale characterized by numerous discussions in which students were encouraged to participate. There was a desire to expose students to social issues as well as exposure to regular discussions. However, discussions of social issues were more infrequent than the regular discussions, and students displayed an unwillingness to participate in the social issue discussions. The findings revealed that the amount of exposure students had to social issues in a classroom

atmosphere tended to stimulate students toward inquiry and responsiveness. In essence, it seems that the classroom/school climate may be a significant variable which affects students' attitudes and is considered important by educators. In fact, Patrick (1967) concluded that the schools' climate of opinion and also the educational atmosphere seem to be more influential in shaping political attitudes than the formal program of instruction. There was a profound interest in whether social studies teachers actually demonstrated inquiry behavior characteristics and dispositions. Davis and Tinsley (1967) concluded that secondary social studies student teachers use less higher-order questions and emphasize the use of more memory.

Research supports the idea that teachers can be trained to acquire inquiry-oriented behavior and dispositions. According to Shaver (1964), his research supports the idea that teachers can be trained to acquire inquiry-oriented behavior and dispositions. Both Shaver and Oliver were successful in training teachers in recitation-analytic and Socratic-analytic styles (Oliver & Shaver, 1966).

Research studies by Massialas and others in the late 60's (Massialas, Sprague, & Sweeney, 1971) and Adams in her study (1974) concluded that there was a significant relationship between the cognitive level of questions asked by the teacher and the cognitive level of the student response. The



correspondence between the cognitive level of teacher questions and that of the responses of the students was greater in classes where the higher level questions were used by the teacher. On the other hand, in classes where teachers received special training, their students made considerable leaps into higher-level responses more often than students in classes where the teachers had not received special training. The Adams study clearly demonstrated that teacher behavior affects student behavior. In instances of special teacher training, one could see teacher behavior change in desirable ways.

Two years prior to Adams' study, Atkinson (1972) did a clinical study that raised some questions about the function of questioning strategies teachers used in the management of the classroom plan. Some of the teachers were opposed to students asking questions which basically deprived the teachers of their autonomy to structure and control the class as they desired. This may well be a problem where teachers feel insecure and threatened, especially when student acquisition of higher-order cognitive skills and verbal abilities seem to create a shift in roles for the teacher and the student.

As a result of classroom/school climate research, Massialas et al. (1971) recommended that both faculty and students share in the decision-making. He also felt that programs in civics and history need revising to emphasize inquiry skills.

Another variable examined in the '60s was the effect of educational television on critical thinking. The major question viewed was: Do students who are in the conventional classrooms differ in the development of critical thinking from those who are instructed with the aid of television? Other factors considered were whether sex, the size of the school, and the number of years that students have had television instruction have any effect on the development of these skills as related to television.

Findings imply that television does not hamper critical thinking, and there is no significant difference in the development of critical thinking of students taught in conventional classes and those taught with the aid of television. It was also found that the size of the school or the number of years of experience with instructional television made no significant difference. Findings suggest that students probably do as well in developing the power of critical thinking in instructional television classes as they may do in the conventional classroom. It was recommended that greater attention be given to developing critical thinking in both types of classrooms (Edinger, 1963).

Rothstein (1960) did a study in which he tested the hypothesis that if teachers use certain thinking operations with students, their test scores on thinking would change a great deal. He believed that as students used essay-type

materials it would make a significant difference. In his study he used assignments related to comparing and interpreting. He also used problem-solving exercises whereby students had to make decisions. The result of his study, by using the thinking operations, supported the theory that these ways do stimulate thinking and show an increase in thinking test scores. He also found that students became more interested in classroom work, including the area of social studies.

One study was done by Wilson (1972) on student autonomy and self-pacing. The purpose of the study was to see what effects some degree of autonomy and self-pacing learning would have upon students. He used ninth-grade geography students in the study. The effects on geography knowledge and critical thinking from instructional approaches of tutoring by peers, small group discussions, and independent study were investigated. Findings did not show a significant difference in knowledge or critical thinking.

Hunkins (1968) did research on instructional approaches dealing with questioning. He used a group of sixth-graders in social studies for which he assessed the effects of a series of questions taken from three levels of Bloom's taxonomy of the cognitive domain. Each group received a series of questions on a different level. The questions were grouped according to knowledge-level questions, analysis, and

evaluation questions. Questions for each group were keyed to their social studies textbook. The students were to respond to the questions daily in writing. There was a follow-up with a multiple-choice test which covered all six levels of Bloom's taxonomy. Findings indicated that the analysis-evaluation group did significantly better on the test as a whole than other groups. They also did much better on the level of application and evaluation subtests. The other four subtests were found to be basically the same for both groups.

In social science problem-solving, the nature of social problems and acceptable goals are not always clear, and ways of resolving the problems are most often unknown or disputed. One reason for such is any information which might help solve the problem is not found in the problem statement. Alternative possibilities are not easily identified nor is relevant information easy to obtain.

Voss has done major studies in the social sciences, specifically with political science problems. He and others used experts (political science faculty at the university) and novices (undergraduate students, and faculty and graduate students) in a study in which they were responsible for increasing crop production in the Soviet Union. Crop production had been low for several years in the Soviet Union. The novices were some students taking courses

on Soviet domestic policy; others were a combination of faculty and graduate students with various specializations. Voss and others used clinical interview and protocol analysis procedures to solve the problem.

There were differences in the nature of responses to the problem given by both experts and novices. These could inform teaching for critical thinking. The findings distinguished between experts' and novices' method of problem representation, the manner in which they solve the problem, and how they justify their decision. It was found that experts gave more attention to problem representation. They made use of the abstract solutions, developed supporting arguments, and evaluated the solutions relative to problem representatives. The experts made maximum use of their knowledge base in terms of relevant information, reasoning skills, and problem-solving strategies. On the other hand, the novices gave minimum attention to problem representation. They gave more attention to surface features of the problem with numerous simple solutions and hardly any justification or evaluation for solutions they proposed. The novices did evidence domain specific knowledge of the Soviet Union, but they were not effective when it came to using it in problem-solving context, probably because their knowledge seemed to be in bits and pieces of information (Voss, Greene, Post, & Penner, 1983).

The experts seem to have an idea of what to do and how it would be done. They had procedural, empirical, and conceptual knowledge which helped them elaborate, integrate, and clarify solutions in relation to their problem representatives.

Implications of the research are that social studies instruction should not end when students comprehend a couple of concepts. A continuation of practice and informative feedback may lead to the use of conceptual networks in interpreting new situations, problem-solving, and critical thinking. The problem-solving research has implications for problem-finding and question-raising aspects of critical thinking. It was concluded that experience in organization and utilization are significant in problem-solving; therefore, skills and strategies should not be taught in isolation from one another or from the subject matter content.

#### Summary of Research

Research suggests that we can teach for critical thinking in social studies. It also indicates that students can learn to think critically. It has been recommended that teachers make the necessary provisions to insure an opportunity for students to ask questions and pursue well reasoned answers. Therefore, teachers must use more inquiry approaches and less lecture-recitation in their instruction.

From research in the field one may conclude that teacher behavior does affect student behavior. It was found that teachers can be trained to acquire inquiry-oriented behavior and disposition. In instances where teachers had special training, students made higher-level responses and asked higher-level questions. It was also concluded that students' acquisition of higher-order cognitive skills and verbal abilities may create a shift in roles for teachers and students. Through research, it has been recommended that both teachers and students share in decision-making.

In regard to problem solving, research concludes that critical thinking does not take place in instances where the problems are not formulated or recognized. Students must recognize the situation as a problem to think critically about it.

Though critical thinking does not require a particular pattern for one to think, according to many researchers, it does require that one is knowledgeable. It is important that skills and strategies not be taught in isolation from one another which suggests that organization and utilization are significant in problem-solving. Finally, research indicates that the classroom/school climate may be a significant variable which affects students' attitudes. However, from research it was found that students do as well in developing the power of critical thinking by instructional television

classes as in conventional classes but could be improved in both situations. In conclusion, this author is convinced that critical thinking is important in our daily lives. Thinking goes on all of the time; it is basically the level of thinking that takes place that is essential. In a democracy, citizens are extremely important in the level of its people's intelligence. We might say that knowledge is one of the most powerful problem-solving tools in existence. Therefore, teachers must teach knowledge as a tool that facilitates problem-solving and not merely as facts to be memorized.

There are many significant problems facing our modern society today which demand widespread qualitative improvement in thinking and in understanding. There are problems of health, employment, energy, population, environment, and regular psychological well-being of individuals and meaningful education of our youth that are not being met; rather, we just accumulate more data or spend more time, more money, and more energy without finding real solutions to the problems. Because of the numerous problems facing our society, we need a breakthrough in the quality of thinking employed by decision-makers of all levels of society.

We believe that all learning comes as a result of a felt need and problem-solving comes from a necessity to make decisions. Young people today have a need to make more



decisions than ever before; however, they need facts on which to base reasoning. Teachers must provide an atmosphere in which the learner under guidance evolves goals, formulates and executes plans, then evaluates the results and incorporates learnings accepted into one's own values and attitude system that can be used to act with and upon subsequent experiences.

One important objective of social studies teachers is to teach students to learn to think for themselves while in school so that they can function later in life and not follow others blindly. Educators should provide more opportunities for interaction and dialogue in the classroom on a regular basis. Social studies teachers also need to put emphasis on creating an atmosphere of allowing students opportunities to develop a respect for words through serious writing which in essence can become a tool for thinking.

Research has shown that students can be taught to think about terms set forth without sacrificing knowledge of social studies content. It is our duty to develop among students the habit of critical thinking. It is also crucial that this habit of critical thinking be nurtured in reality in the community surroundings as well as at school.

Finally, critical thinking is fundamental to civic competence. We think of the ideal citizen as someone who cannot be deceived or manipulated by either leaders or the media, and as someone who reaches informed, autonomous conclusions and rationally justifies them to others.

## CHAPTER III

### METHODOLOGY

#### Introduction

The research for the present study is of a descriptive nature and is presented as a status report of methods, procedures, and materials used for teaching critical thinking in secondary social studies classes of a public school system. A metropolitan district of North Carolina in which the city and county systems have merged was chosen for the survey. Because the study focused on teaching critical thinking in high school, social studies teachers of Grades 9 through 12 were the ones surveyed. Within the school system, a supervisor coordinates all of the social studies in Grades K through 12. At the high school level (9-12), there are 69 teachers. Sixty-five percent of this number (45) responded to the questionnaire used to gather the data.

#### Collecting the Data

In order to determine the materials and techniques used by the teachers, this study addressed the following questions:

1. How do social studies teachers define critical thinking?
2. Among social studies teachers, what skills are believed to enhance critical thinking?

3. What components of those skills do instructors elect to teach or emphasize?
4. What kinds of course activities do teachers use to stimulate and develop critical thinking?
5. What other life experiences do teachers use to encourage critical thinking in the classroom?
6. To what extent do textbooks and other instructional materials emphasize critical thinking?
7. How do teachers test for evidence of critical thinking?

Based upon literature in the field, a questionnaire designed to respond to the questions posed for the study was prepared by the investigator. The completed questionnaire was pretested in a neighboring public school system. Six teachers took part in the pretest, and the results suggested that the questions were clear, the directions for answering the questions were clear, and that the questionnaire required about 15 minutes to complete.

Arrangements were then made with the coordinator of social studies teachers to distribute the questionnaire. She suggested that they be brought to her office and dispensed to all of the individual teachers from there. This was done, and each person responsible for providing instruction in a high school social studies class received a copy. The teachers were asked to complete the questionnaire and to

return it within a week. At the end of that time, 31 teachers had responded. A reminder was sent to the teachers, and by the end of the second week an additional 14 questionnaires had been returned. This brought the total number of responses to 45. Because the instructions had not been followed, or because so many of the questions had not been answered, four questionnaires could not be used. The data for the present study were drawn from the remaining 41 responses.

In the course of the investigation, a number of conversations were held with the coordinator. Subsequent to one of these, a complete list of all the textbooks used in social studies classes was provided. There were 13 books on the list. Copies of these books are on file at the central administrative office of this public school system. Several visits were made to this office, and each book there was carefully examined. The purpose was to ascertain how much emphasis was given to critical thinking skills in the textbook. Some of the books, although on file, were missing as a result of having been checked out. In each of these cases, the missing book was located in the resource center of McNutt Building on the campus of The University of North Carolina at Greensboro, so the examination was complete. A third source for collecting data was by way of personal interviews with the coordinator and with some selected teachers. Seven teachers were interviewed. This constitutes 10% of all

persons contacted. The interview with the coordinator of social studies was held in her office. In both of the interviews, the questions were designed to provide information related to the seven questions upon which the study focused. The interview guide is found in Appendix C.

Some data were also obtained by means of observation when the investigator was visiting the resource centers.

#### Analysis and Presentation of the Data

A copy of the questionnaire used to gather data for the present study is found in Appendix B. The questionnaire consisted of 28 statements. Twenty-six of these were related to activities or procedures concerned with critical thinking or with its components. The teachers were asked to respond to these statements in terms of a Likert Scale. All of the statements were tabulated in order to ascertain the number and percentage of respondents falling into each of the five categories of the Likert Scale. The results of the tabulations are presented in tables and in the form of expository discussion.

Statement Number 27 on the questionnaire contained a list of 10 thinking skills. The respondents were asked to rank these according to the frequency with which they emphasized them in their teaching. They were also asked to add and rank any skills not on the list but which they emphasized. The rank and weight of all the skills by all of the

respondents are presented in tabular form and expository discussion.

Statement Number 28 on the questionnaire had two parts. In Part A the teacher was asked to define "thinking skills" in his own words. In Part B the teacher was asked to define "critical thinking" in her own words. All of the responses to this statement are presented verbatim. Recurring themes are identified and interpreted in the analysis.

All of the data obtained by the means described above are to be found in Chapter IV where they are analyzed and interpreted. Implications and conclusions are drawn from the general findings.

CHAPTER IV  
ANALYSIS AND INTERPRETATION OF THE  
QUESTIONNAIRE AND OTHER DATA

Introduction

The primary instrument used to gather data for the present report was a questionnaire consisting of 28 statements. Each question appearing on the instrument is restated below. Following the restatement is an analysis and interpretation of the questionnaire data and its relationship to the problem upon which the report is focused and the seven questions emanating from that problem. Those questions are:

1. How do social studies teachers define critical thinking?
2. Among social studies teachers, what skills are believed to enhance critical thinking?
3. What components of those skills do instructors elect to teach or emphasize?
4. What kinds of course activities do teachers use to stimulate and develop critical thinking?
5. What other life experiences do teachers use to encourage critical thinking in the classroom?
6. To what extent do textbooks and other instructional material emphasize critical thinking?

7. How do teachers test for evidence of critical thinking?

A secondary means of gathering data was by interviewing the social studies coordinator and some of the teachers, along with observation. The questions asked in the interviews, the answers given by the respondents, and the results of the observations follow the analysis and interpretation of the questionnaire. The chapter concludes with findings pertinent to the seven questions upon which the study is focused.

#### Restatement of the Questionnaire

Questionnaire statements used to gather data for the study were as follows:

1. Since classroom time is limited, sticking close to the textbook is important and I tend to do so.
2. I make extensive use of educational television and audio visual material in my classroom.
3. The textbook I use follows the principle that learning should proceed from the known to the unknown, so the most complex and difficult part is near the end.
4. When students are shy or when they give incorrect answers I encourage them to talk more by rephrasing the question or statement.
5. I use objective examinations to evaluate my students.
6. I stress understanding of concepts in my teaching.
7. In my class I tend to use questions with one answer.
8. My students tend to challenge me and other students about some things in class.



9. I assign essay questions that appear at the end of chapters in the textbook.
10. I cover the entire textbook during the school year.
11. Most of my test questions come from assigned readings in the textbook.
12. I use symbolic language or dramatizations to make a point in class.
13. When questions are raised in class I let the discussion go on until the students are satisfied with the answers.
14. When I use a film I ask the students to critique it and to apply it to the lesson.
15. I change my lesson plans to deal with questions and issues raised in class, although they are not directly related to the topic at hand or the lesson planned for that day.
16. I encourage question and answer sessions following the comments of resource persons visiting my classes.
17. I encourage students to take a stand on issues and to discuss their position.
18. I tend to teach on the belief that facts are paramount and should be mastered first.
19. If questions have several answers or may confuse students I avoid them or use them sparingly.
20. My students tend to accept what the textbook says and to go along with whatever is said in class.
21. I formulate all or most of the questions discussed in class or used on tests.
22. When discussing in class my students often use metaphors or similes.
23. I present to my students the pros and cons of world problems and issues such as AIDS, nuclear energy, and the legalization of drugs.
24. When seeking to inform students of the significance of an issue of a social nature I use a two-sided argument.

25. I encourage my students to take part in community projects related to current issues such as acid rain, pollution, and drunken driving.
26. Following is a list of grade levels. Check those that you teach and state the approximate percent of essay examinations that you give.

Grade Level	Grade Taught	Percent of Essay Exams
9th	_____	_____
10th	_____	_____
11th	_____	_____
12th	_____	_____

27. Following is a list of thinking skills; rank each one according to the frequency in which you use them. Place a (1) beside the skill that you emphasize the most, a (2) beside the skill receiving the second greatest amount of emphasis, and so on until the list is completed. The skill receiving the least amount of emphasis should have the largest number beside it.

( ) questioning	( ) analyzing	( ) grouping
( ) observation	( ) inferring	( ) reasoning
( ) prioritizing	( ) comparison	( ) generalizing
		( ) defining

If there is a skill or skills that you emphasize and they are not listed above, please write them here and rank them accordingly.

( )                      ( )                      ( )                      ( )

28. In the space below please define in your own words the following terms:

- (1) thinking skills
- (2) critical thinking

### Interpretation of the Questionnaire

The teachers responding to the questionnaire were almost evenly divided about the importance of sticking close to the textbook because of limited classroom time. This issue was raised in Statement Number 1. Fifty-two percent said that it is important and they tend to do so. To the extent that teachers do this, facts and content are probably more likely to be emphasized than are critical thinking skills. On the other hand, in response to Statement Number 2, 68% of the teachers make extensive use of educational television and audio-visual material in the classroom, and this should enhance the development of critical thinking. Statement Number 3 was concerned with the idea that since learning should proceed from the known to the unknown, the most complex and difficult part of the textbook is near the end. Forty-nine percent of the respondents disagreed that this was the case in the books they are using. Twenty percent strongly disagreed. Statement Number 4 was related to the shy student or to cases where students give incorrect answers. In either situation, rephrasing the question provides an opportunity for the student to give further thought to it. Ninety-five percent of these social studies teachers do this and as such may stimulate additional reasoning, analyzing, and other critical thinking skills. Statement Number 5 was concerned with the use of objective examinations

to evaluate students. If one is evaluating critical thinking, an essay examination might be more in order. Even so, an objective examination may be adequate if it is properly prepared. For the respondents in the present study, objective examinations are used 80% of the time.

When a class of objects can be visualized as a general idea, the result is a concept. If concepts are stressed in the classroom, the critical thinking skill of generalization is being taught as a natural by-product. According to the responses for Statement Number 6, 98% of the teachers stress the understanding of concepts in their instructions.

In Statement Number 7, the teachers were asked about tendencies to use questions with one answer. Such questions would probably be objective in nature or geared more to inductive thinking rather than deductive. Critical thinking skills are required to a greater extent when the thought process is deductive. Seventy-five percent of the teachers tend to use multiple answer questions and thus emphasize deductive thinking.

When students challenge comments or answers that are given in class, the observing component of enabling skills is sharpened, the questioning component of processing skills is being sharpened, and so is the reasoning component of operation skills. Item Number 8 on the questionnaire examined the tendency of students in these social studies classes to

challenge their classmates and their teachers on some answers. Two percent of the teachers strongly agreed that this behavior characterized their students; 61% agreed that it did. Seven percent of the teachers were undecided, 23% disagreed, and 2% strongly disagreed. Five percent did not answer this question.

Many textbooks have essay questions related to the development of critical thinking skills at the end of chapters. When these questions are assigned, the skills inculcated in the question are being emphasized because the students are given practice in their use. In response to Item Number 9 on the questionnaire, 51% of these social studies teachers utilize these questions.

Statement Numbers 10 and 11 had to do with textbook coverage and with test questions coming from assigned reading in the textbook. Only 24% of the teachers strongly agreed or agreed on covering the entire textbook during the school year. Fifteen percent were undecided. If we look at Statement Number 1, we notice that 52% of the respondents acknowledge the importance of sticking close to the textbook because of limited time, but Item 10 shows that only 24% succeed in covering it. Some reasons, among others, may be the volume or number of pages in the book, and the willingness of the teacher to digress from the assigned material. Nevertheless, 54% of the test questions come from the assigned readings.

Statement Number 12 suggests that the social studies teachers in the present report are highly prone to use symbolic language and to make use of dramatizations to get a point over in class. Ninety-one percent strongly agreed or agreed that they do this. When it is employed, this technique should emphasize some of the critical thinking skills such as inferring, observing, and generalization.

Question Number 13 was related to the length of time teachers allotted to the discussion of issues or controversies that arose in class. Responses to this item suggest that 71% of the teachers will let such a discussion go on until the students are satisfied with the answers. Twelve percent strongly agree and 59% agree. This kind of in-depth pursuit of information could encourage or enhance all of the critical thinking skills.

An activity explored in Item Number 14 on the questionnaire was the use of films. When films are shown and students are not asked to critique them, the film may be regarded as entertainment. If the film has to be critiqued, the critical thinking skills of observation, analysis, inferring and some others must be used. Ninety-three percent of the social studies teachers responding ask the students for a critique and to apply it to the lesson. Twenty percent strongly agree on this and 73% agree.

In Statement Number 15, the questionnaire examined the teachers' willingness to change lesson plans in order to

deal with issues and controversies raised but not directly related to the topic at hand or the lesson planned for the day. The inquiry component of critical thinking is encouraged when this is done. Seventy-one percent of the respondents indicated flexibility relative to making the changes.

The inquiry component and others such as analysis, comparing, and observation are also enhanced by the use of question and answer sessions when resource persons visit the classroom. Twenty-four percent of the respondents strongly agree on the use of such sessions and 59% agree, making a total of 83% favoring this activity.

In Statement Number 17, the encouragement of students to take a stand on issues and to discuss their position was explored. When students do this, they are in a position to utilize all of the component skills that add up to critical thinking, whether they are attacking or defending. For this reason, or perhaps other reasons, it is totally encouraged. One hundred percent of the respondents strongly agree or agree on its value.

In the social studies facts are important. Sometimes a teacher may see them as being so significant that mastery of the facts overshadow everything else. According to responses for Item Number 18 on the questionnaire, the majority of the respondents teach on the belief that facts are paramount and should be mastered first. Sixty-one percent strongly agree

or agree. If such teaching is done in the context of separating fact from fiction, many of the critical thinking skills will come into play, and some of the teachers did define critical thinking in this manner.

As has been previously indicated, multiple answer questions can stimulate inductive thinking, but they may also confuse a student. In order to avoid this, teachers may shy away from such questions or use them sparingly. This is not the case for the respondents in the present study, however. Seventy-four percent either disagree or strongly disagree on the avoidance of such questions.

For many students there may be a natural tendency toward passivity in class. They accept whatever the textbook says or whatever comments are made. When this is the case, it is done at the expense of inquiry, questioning, and the use of other critical thinking skills. When it is not the case, it suggests that factors are at work to stimulate the thinking skills. The tendency toward passivity seems to characterize the students of most social studies teachers in the present investigation. Fifty-three percent agreed or strongly agreed that this was the case.

Questions discussed in class are likely to come from two major sources. One is the teacher and the other is the student. Questions used on tests are likely to come from three major sources. They are the two mentioned above and the



textbook. Whether the question is one used on a test or one discussed in class, within this public school system it is likely to be formulated by the teacher. As can be seen by the response to Statement Number 21 on the questionnaire, our respondents do this 78% of the time. Depending upon the nature or the structure of the question, any of the critical thinking skills may be emphasized or enhanced.

The fact that respondents make use of symbolic language and dramatization to get points across in class, as evidenced in Item Number 12 on the questionnaire, could stimulate a repetition of this by the students, and it does, but only to a limited degree. Responses to Statement Number 22 indicate that students make use of metaphors, similes, and symbolism only 47% of the time when they are discussing an issue in class. The use of this technique enhances the comparison component of critical thinking.

In 93% of the cases where a world problem or an issue related to natural resources or human resources come up for discussion, the teachers will make sure that both sides are presented. Accordingly, students are able to learn or to enhance comparison skills, prioritizing skills, and defining skills. These and others related to critical thinking are further reinforced by the use of a two-sided argument in all cases where the issue is of a social nature. One hundred percent of the respondents reporting agreed on the use of a

two-sided argument. This is seen in Statements Number 23 and 24 of the questionnaire.

Encouragement of students to take part in community projects like acid rain, pollution, or drunken driving and thereby experience real-life situations that might enhance their critical thinking abilities was explored in Statement Number 25. Sixty-six percent of the social studies teachers said they agree or strongly agree on this activity. Seventeen percent were undecided, 15% disagreed, and 2% strongly disagreed. The fact that only two-thirds of the respondents were in favor of students becoming involved in community projects related to current issues is noticeable.

The extent to which the teachers strongly agreed, agreed, were undecided, disagreed, strongly disagreed, or did not respond to the specific statements is shown in Table 1.

#### Interview with Social Studies Coordinator

To gain additional insight into the school system's philosophy and approach to the teaching of critical thinking, an interview was held with the coordinator of social studies who is responsible for the curriculum in Grades K-12. Following are the questions asked and the responses given.

Does your system have a list of thinking skills to be taught throughout the social studies curriculum?

No, there is no list as such, but consultants have been brought in to speak about different programs geared toward critical thinking and to make suggestions

Table 1

Extent to Which Respondents Agreed, Strongly Agreed, Were Undecided, Disagreed, Strongly Disagreed, or Did Not Answer Statements on the Questionnaire

Statement Number	<u>Strongly Agree</u>		<u>Agree</u>		<u>Undecided</u>		<u>Disagree</u>		<u>Strongly Disagree</u>		<u>Did Not Answer</u>	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	5	17	41	1	2	11	27	6	15	4	10
2	7	17	21	51	3	7	8	20	2	5	0	0
3	1	2	10	24	4	10	17	41	7	17	2	5
4	18	44	21	51	0	0	2	5	0	0	0	0
5	9	22	23	56	2	5	6	15	1	2	0	0
6	24	59	16	39	1	2	0	0	0	0	0	0
7	0	0	10	24	2	5	21	51	3	7	5	13
8	1	2	25	61	3	7	9	23	1	2	2	5
9	2	5	19	46	4	10	9	23	3	6	4	10
10	3	7	7	17	6	15	18	44	5	12	2	5
11	6	15	16	39	2	5	14	34	3	7	0	0
12	8	19	29	71	2	5	2	5	0	0	0	0

Table 1 (continued)

Statement Number	<u>Strongly Agree</u>		<u>Agree</u>		<u>Undecided</u>		<u>Disagree</u>		<u>Strongly Disagree</u>		<u>Did Not Answer</u>	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
13	5	12	24	59	5	12	7	17	0	0	0	0
14	8	20	30	73	0	0	3	7	0	0	0	0
15	7	17	22	54	9	22	2	5	0	0	1	2
16	10	24	24	59	5	12	2	5	0	0	0	0
17	16	39	25	61	0	0	0	0	0	0	0	0
18	4	10	21	51	5	12	9	22	2	5	0	0
19	2	5	7	17	1	2	23	57	7	17	1	2
20	2	5	20	49	4	10	12	29	1	2	2	5
21	7	17	25	61	2	5	6	15	1	2	0	0
22	5	12	14	35	7	17	10	24	3	7	2	5
23	13	32	25	61	0	0	3	7	0	0	0	0
24	8	20	33	80	0	0	0	0	0	0	0	0
25	7	17	20	49	7	17	6	15	1	2	0	0

relative to teaching it. The system is implementing a new program, Tactics. Within this program a number of different strategies for improving critical thinking skills will be included. Some of the teachers will receive special training in Tactics. Each school will select its own approach to incorporating the teaching of critical thinking into the curriculum.

What procedures are used in the various grades to insure that these skills are taught there?

Observation by the principal and the coordinator.

Do you observe teachers in action within the classroom?

To the extent that time permits. The coordinator has responsibility for all Grades K-12 and works with teachers who are initially certified, and with other teachers who need her assistance.

Does the teacher's language (questioning) invite students to think?

Within the system there are some teachers who make a point of questioning. Some progress has been made in teaching instructors how to ask questions, but it is difficult to generalize.

Are concepts and problem-solving strategies encountered repeatedly throughout the curriculum?

They are a part of the curriculum guide, in the textbooks, and in all of the workshops that are held.

What life experiences are you aware of that teachers use to encourage critical thinking?

Students are taken on field trips and sometimes they are asked to take part in special community projects.

What instructional materials are available for teachers to use to teach critical thinking?

Such materials include video tapes, decision simulation games, computer software, and a host of reading material.

In your opinion or belief, what are some skills that enhance critical thinking?

This is really a matter of helping students to become more self-assured, better able to distinguish between fact and opinion, and less prone to simply accept what they hear. It comes down to teaching them how to analyze, evaluate, and synthesize information.

What components of those skills do you feel that teachers choose to emphasize?

This question calls for a generalized answer, but most likely the components would be those highlighted by the textbook.

What kind of course activities do teachers use to develop and stimulate critical thinking?

Students are given research projects, they take part in simulation games, they make their own video tapes in some cases, and they take part in classroom debates and in simple discussions.

In what way do the teachers test for critical thinking?

Through factual recall and the use of political cartoons, and by editorial writing in some cases. (The coordinator could not respond to this directly because she does not see the test.)

Does the textbook selection committee have a prime objective in making its choice of material?

They do not have a prime objective as such. A list of criteria for textbook adoption is made available to the committee and selections are made on the basis of how well the books meet the criteria.

Do the teachers have any input on the choice of textbooks?

Each school has one vote by way of its representative. The coordinator does not have a vote but she works with the individual representatives from the different schools prior to their voting.

Do the teachers visit classrooms outside this school system to see what other teachers are doing relative to teaching critical thinking?

Not a great deal, but some.

#### Interpretative Summary of Interview with Social Studies Coordinator

The interview with the coordinator of social studies suggests that within this public school system there is some concern about improving the thinking skills of students. This is evident in the creation of the new Tactics program which will include various strategies for teaching

critical thinking. It is also evidenced by the fact that concepts and problem-solving strategies are a part of all workshops held, and the fact that the teachers sometimes visit other school systems to see what is going on and what is being done relative to teaching critical thinking.

The things that the coordinator believed enhanced critical thinking are among those named most often by the teachers, and the kinds of course activities used to develop and stimulate critical thinking are also in line with those the teachers listed.

The answer to the question about skills that enhance or encourage critical thinking is very much in line with current literature findings that emphasize analysis and evaluation. Evaluation is important in assembling evidence. Teachers must design learning experiences in which students can examine information to distinguish statements of accepted fact from statements of opinion, identify faulty logic, evidence of bias, and unstated assumptions. Before information can be understood by a student, some type of translation by a teacher is often required. The information in its original form must be changed to another form. A teacher explaining the ward system to show how different candidates fared in a city-wide election might illustrate this. A political map of the city showing how each ward voted would be much more revealing than a list of the candidates and the number of votes each one received.



To help a student use or develop the skill of translation, some teachers use activities in which students report what they see or what they hear.

#### Interview with Specific Teachers

Some of the teachers who completed the questionnaire were also interviewed at the school. Following are the questions asked and a summary of the answers given.

What are some of the instructional resources that you have access to?

Films, film strips, record players, tape players, overhead projectors, VCR's, opaque projector, television monitor, micro fiche reader, computer, wall maps.

Where is this instructional material kept?

In the resource center, in different classrooms where it is used on a rotating basis.

What is your opinion of the textbooks that you use?

I teach legal and political systems. The book is satisfactory.

I teach legal and political systems and the book is all right. It provides for some critical thinking skills such as dialogue, comparing, contrasting, and distinguishing between fact and opinion.

My course is economics and the book is somewhat difficult for students to understand, so I use supplements along with it. Other teachers of economics don't particularly like this book either.

I do world history, I can't cover the book because it is two volumes, what I do is select my topics.

What choice do you have in the selection of the text-book?

I have very little choice except to make suggestions. Not much because I don't get to see the book until it is adopted. My input is through the representative on the selection committee. None at all.

Do you have an opportunity to visit the classrooms of your co-workers or teachers in other school systems to see what they are doing in critical thinking?

Yes, I can do that here, and I could visit another system on my own time. I don't know, I suppose it could be arranged.

Yes, and I have done this.

I am sure it could be worked out.

I guess so but I have not, at least not yet.

Yes.

Are there any workshops or inservice programs that you may attend to get more information on teaching critical thinking?

Yes.

Yes, there are many workshops and some of them deal with critical thinking skills.

Yes, there is, and I try to take advantage of them when I can.

Interpretative Summary of Interviews  
with Social Studies Teachers

The teachers interviewed were seven in number. This constitutes a fraction more than 10% of the total within the system. The questions they were asked were similar in nature to those put to the coordinator of social studies. Their answers to the questions did not differ to any great degree from the answers that the coordinator gave.

When visiting one of the resource centers, the coordinator of that center offered to show the equipment that it contained. Acceptance of the invitation revealed all of the instructional material that the teachers said was accessible, along with two copy machines, one for teachers and one for students. Students were allowed to use the one designated for them.

Some of the teachers are satisfied with the textbooks in use and some are not. They are aware of opportunities to enhance their techniques for teaching critical thinking and some are following through. Some others are planning to take advantage of these opportunities in the future.

They do have some input in the selection of textbooks, but it is indirect because it comes in the form of representatives.

Findings Pertinent to the Focal Questions

How Social Studies Teachers Define  
Critical Thinking

For the present study critical thinking has been defined in terms of analysis and argument leading to the generation of insight into particular meanings and interpretations and allowing one to differentiate between truth and falsehood and to separate fact from fiction. Teachers taking part in the investigation were asked to define the concept in their own words. These are the definitions that were given.

Relating facts to deeper concepts.

The ability to analyze the material.

The ability to think independently without bias or undue influence from others and to keep an open mind.

Asking questions, not accepting what I say as fact.

The ability as an historian, to see all sides of an issue on their own merit and then to make a subjective analysis based on hard fact.

The ability to conceive by careful analysis and/or evaluation.

To make a judgment on something, be it pro or con.

Students evaluating information for themselves.

The ability to analyze the various aspects of an issue and then draw conclusions.

The ability to suspend judgment when contradictory data exist.

The ability to identify similarities and differences in seemingly analogous situations.

The ability to connect ends and means.

Being able to make decisions based on judgments regarding the conflict of pros and cons of issues, also making decisions regarding problem-solving during crisis experiences.

Skills used when a student applies facts that he has learned to different situations. It is when students are able to see all sides of a situation and to question why events happened the way they did.

Thinking based on analytical research.

The assessing of facts weighing all possible alternatives.

Using data learned to forecast, or to apply it to other situations.

Being able to analyze a problem or issue and to arrive at an intelligent solution.

Using one's ability in analyzing, comparing, and evaluating in order to understand a situation better.

The ability to evaluate on the basis of facts, values, analysis, reasoning, and so on.

Making judgments and evaluating.

The skills requiring students to analyze and critique information they have received, making them use their own logic and reasoning to support their answers.

The ability to look at situations and events and use upper level Bloom's Taxonomy (analysis, synthesis, evaluation) to relate the events to their times.

Critical thinking requires analyzing the conclusions or answers.

The learner becomes skilled at dissecting the end results and categorizing the findings.

Judging one thing against another thing, equal comparing.

Basic fallacies in logic, comparing and contrasting, analytical grouping, inductive and deductive reasoning.

Careful, precise, persistent, and objective analysis of knowledge, claims, or beliefs to judge the validity or worth.

Being able to evaluate and discuss the differences between fact and opinion.

Higher level of thinking skills that require inferring and analyzing things.

Analyzing information to find problems and answers.

Analyzing what would be the possible solution to a problem.

Within these definitions the theme that is most recurring is the separation of a whole into its parts for individual examination. This adds up to analysis, and 14 of the 32 answers given contained this word.

Another often recurring theme is the formulation of an opinion or the making of a decision by a discriminating appraisal. This adds up to evaluation and judgment. Like the word analysis, evaluation and judgment appear in a significant number of definitions reported.

A third theme that recurred quite often was a healthy skepticism or a questioning attitude, and a fourth theme was problem-solving involving the use of information in practical situations.

From the responses given by these teachers, critical thinking is defined in terms of analyzing, evaluating, making judgments, questioning, and problem-solving.

### How Social Studies Teachers Define Thinking Skills

In addition to asking the respondents to define critical thinking in their own words, they were asked to define thinking skills in the same manner. The following responses were received.

The ability to use facts and concepts to analyze an issue or problem, then draw a conclusion or express an opinion.

Being able to think for yourself, being able to reason things out.

Memorizing.

Selection of relevant factual material to support one's own analytical theories.

Distinction between the general and the specific.

Reasoning.

Particular powers or abilities to conceive, reflect, hold, or form an opinion, a belief, or an attitude.

As they absorb information, students are questioning, analyzing, and generalizing.

Abilities used in critical thinking.

The ability to take information and apply it where needed.

The ability to make decisions deliberately, not impulsively.

The ability to make independent decisions, not overly dependent on the teacher.

Not to miss the meaning of.

Willing to express ideas and confidence.

Skills that relate to the item.

Skills used when a student applies learned facts to a different situation.

Those abilities or skills that students use to distinguish facts, opinions, and misinformation.

The process of adding two and two to reach a conclusion.

Dealing with facts on an interpretive level.

Skills that children learn only when they have material and are ready to take on responsibility for the acquiring of a skill.

Using one's thinking ability to solve everyday problems.

Continuation of the ranking in Question Number 27.

Those skills that produce the ability to reason, infer, and analyze.

Skills upon which decisions and conclusions are made.

The ability to logically approach a question to get an answer.

Not memorizing but using thought processes to arrive at a correct response.

Thinking skills are those that stress problem-solving through a series of steps.

Thinking skills help a learner to become skilled at gathering information needed and required to arrive at a conclusion or an answer.

Reasoning things out by defining, analyzing, and questioning.

The ability to ask questions about the material.

Distinguish between opinion and fact.

Evaluating, analyzing, problem solving.

Skills that the students use other than what they find in the textbook.

The practice of using the mind to work through information.

Being able to reason things out.

Look those up in any education textbook.



The idea that people can learn to think more effectively is generally accepted in the field of education. A major pioneer in this area is Moshe Rubinstein (1980) who has developed courses specifically designed to teach thinking skills. Strong evidence that thinking skills can be improved with instructions designed for that purpose is also to be found in the work of other scholars (Fox, Marsh, & Crandall, 1983). In one effort to improve thinking skills, a group of students were taught the general techniques of problem-solving, or structural programming, which involved an orderly way to solve problems that were not mathematical in nature by using a computer (Schoenfeld & Herrmann, 1982). These studies and others that are similar suggest very clearly that a student can learn to think better or to improve his thinking skills if he is given adequate instructions.

In providing a definition of thinking skills some of the teachers in the present study were vague. One teacher defined it as "not to miss the meaning of." Some of the definitions are contradictory. One teacher defined it in one word, "Memorizing," while another said "not memorizing but using thought processes to arrive at a correct response." In general, most of the teachers defined it along the same lines as critical thinking. This might be expected, however, because to think critically one must employ certain skills that one has inculcated within the thought process.

In defining thinking skills, the theme that recurred most often among these teachers was reasoning. It was mentioned directly or indirectly in 16 of the 37 responses. In identifying reasoning as a thinking skill, the respondents appeared to see it as a problem-solving technique in that comparing, decision-making, the elimination of a state of doubt, and drawing conclusions is so closely related to it.

Causation as a thinking skill is identifiable since some of the definitions suggested establishing cause and effect, the ability to make predictions, and assessment. Transformation as a thinking skill is identifiable because some of the teachers defined it as the ability to relate known characteristics to unknown, to formulate analogies, to construct metaphors, and to make logical inductions. The recognition of relationships between parts and wholes is brought out in thinking skills being defined as "the process of adding two and two to reach a conclusion," "skills used when a student applies learned facts to different situations," and "the ability to use facts and concepts to analyze an issue. . . ."

Accordingly, it may be that establishing causation, recognizing the relationship between parts and wholes, and the ability to make transformations within the thought process add up to thinking skills for the social studies teachers taking part in the present investigation. This appears

to be the case in spite of the differences in the definitions given and the contradictory nature that some of them expressed.

Skills Believed to Enhance Critical Thinking  
and Components Taught or Emphasized

In order to identify skills that the teachers believe enhance critical thinking and to determine those taught or emphasized by the teachers, three categories of critical thinking skills were identified. These were: (a) processes, operationally defined as actions, changes, or functions that achieve an end or result; (b) enabling, operationally defined as the means, opportunity, or knowledge to do something; and (c) operations, defined as a series of acts aimed at producing a desired effect (Costa, 1985). Within these categories a number of skills were identified, and a list was formulated and presented in the questionnaire. Skills listed were defining, observing, reasoning, questioning, analyzing, inferring, comparison, prioritizing, generalizing, and grouping. The list, along with these instructions, was given to the teachers.

Following is a list of thinking skills. Rank them according to the frequency you teach them and the emphasis put upon them. Place a (1) beside the skill that you emphasize the most. Place a (2) beside the skill receiving the second greatest amount of emphasis, and so on until the list is completed. The skill receiving the least amount of emphasis should have the largest number beside it. If there are skills that you emphasize and they are not listed above, please write them here and rank them accordingly.

To get an index of the answers, each skill or component was assigned a weight in terms of where it was ranked. If it was ranked Number 1, it received a weight of 10; if it was ranked Number 2, it received a weight of 9; and so on, with a last place ranking being worth a weight of 1. Table 2 depicts the final rank and weight of these skills.

Other competencies believed to enhance critical thinking and which are emphasized by the teachers, according to responses written in, were choosing, ranked first one time; impartiality, ranked first one time; study skills, ranked first one time and ranked fifth one time; listening, ranked second one time, writing, ranked third one time; note-taking, ranked third one time and ranked fourth one time; geographical skills, ranked fourth one time; and connecting or synthesis, ranked fifth one time.

The findings clearly show that these teachers place the most emphasis on questioning and analyzing. The least amount of emphasis is placed upon grouping and upon prioritizing. In the final weight column of the table, it is to be seen that only one point separates comparing and defining, ranked Number 4 and 5 respectively. It is also to be seen that only two points separate inferring from observation, and one point separates observation from generalization. Inasmuch as these differences are so small, the 10-tier category of skills has been reduced to a 5-level category of rankings based on

Table 2

Ranking and Weight of Skills Emphasized

Kinds of Skill	<u>Number of Times Ranked at Each Position</u>										Final Weight	Final Rank
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th		
Questioning	15	4	4	3	1	0	0	0	0	0	245	First
Analyzing	2	6	5	7	3	1	3	1	1	0	203	Second
Reasoning	5	4	4	3	3	4	0	3	3	0	192	Third
Comparing	0	4	5	4	7	1	4	1	2	0	174	Fourth
Defining	3	4	3	3	4	2	5	1	1	3	173	Fifth
Inferring	1	1	1	4	4	5	3	4	2	4	136	Sixth
Observation	2	3	2	2	0	4	3	3	6	4	134	Seventh
Generalizing	0	3	2	2	2	5	3	5	2	5	133	Eighth
Prioritizing	0	0	3	1	0	5	5	3	7	6	105	Ninth
Grouping	0	0	1	2	3	2	4	1	2	10	83	Tenth

emphasis as follows. First is questioning and analysis; second is reasoning; third is defining and comparing; fourth is inferring, observation, and generalizing; and fifth is prioritizing and grouping.

If the universe of critical thinking skills is divided into the broad areas of enabling, processes, and operations, we can see that these are the categories where a considerable amount of emphasis is placed.

Enabling skills provide the means, opportunity, or knowledge to do something so their central components would be observing, comparing, grouping, and prioritizing. Processing skills center upon actions, changes, or functions that achieve an end or result. The central components are questioning, analyzing, and inferring. Operation skills center upon acts aimed at producing a desired effect. The central components are reasoning, defining, and generalizing (Winocur, 1981).

In Table 3 the three categories of skills and the components emphasized are shown. The total weight for each category is also given.

It is to be seen that of the three categories, processing skills have the greatest average weight, so one may conclude that the teachers emphasize the components of questioning, analyzing, and inferring most heavily. Operations skills with the components of reasoning, defining, and

Table 3

Categories of Skills and the Components Emphasized

Type of Skill	Components	Weight
<u>Enabling</u>	Observing	134
	Comparing	174
	Grouping	83
	Prioritizing	<u>105</u>
Average Weight of Enabling Skills		496
<u>Processing</u>	Questioning	245
	Analyzing	228
	Inferring	<u>136</u>
Average Weight of Processing Skills		609
<u>Operations</u>	Reasoning	192
	Defining	173
	Generalizing	<u>133</u>
Average Weight of Operations Skills		498
Average Weight of Operations Skills		166

generalizing are the second most heavily emphasized; and enabling skills with the components of observing, comparing, grouping, and prioritizing are the third.

#### Course Activities Used to Develop and Stimulate Critical Thinking

Among other questions, the present study raised that of kinds of course activities teachers use to develop and stimulate critical thinking. It has been said that we learn by doing. To the extent that a teacher subscribed to this philosophy, he would have his students learn critical thinking by providing activities or situations for them to do it. One such activity that the respondents appear to use is the debate. It is suggested in most of the textbooks and seems to be a natural sequel to the way that Statement Number 24 on the questionnaire was answered. The statement read: When seeking to inform students of the significance of an issue in social studies, I use a two-sided argument. Every teacher either agreed or strongly agreed. Apparently, they view the structuring of classroom debates, either formal or informal, as a good technique for the critical examination of issues and topics.

The teachers also make extensive use of audio-visual activities, especially in relation to films. Sixty-eight percent of the respondents make use of films, and 93% of these require the students to critique the film and apply it to the lesson (Statement Number 2).



Another activity often used is role-playing or dramatization where students are asked to put themselves in a specific position or play a specific part in a real or make-believe situation. This, along with the use of symbolic language, is something that 90% of the respondents do. They bring resource persons to class and follow the presentation with questions and answers. Eighty-three percent of the teachers reporting said they do this (Statements Numbers 12 and 16).

Questions are also used as a peripheral part of "other class activities." When questions are raised in class, 70% of the teachers will let the discussion continue to the satisfaction of the students. This may be significant for several reasons. According to responses, 50% of the questions arising in class come from assigned reading. This means that the others result from inquiry or some additional source. Another reason is that the teachers are prone to assign the essay questions appearing at the end of chapters in the textbook, and such questions are likely to call for reasoning of an inductive or a deductive nature. Questions of this type are assigned more than 50% of the time. Thinking skills with which they are directly related include perceiving, seriating, processing, and application (Statement Number 9).

The extraction of information from graphs, charts, diagrams, globes, scale models, photographs, drawings,

slides, and filmstrips are additional course activities employed by the teachers to develop and stimulate critical thinking. All of these activities are suggested by the textbooks, and 51% of the respondents said they adhere closely to the text because of limited time (Statement Number 1).

#### Other Life Experiences that Teachers Use to Encourage Critical Thinking

The modern world abounds with problems whose solution or amelioration will require the use of critical thinking skills. These problems include nuclear energy and the peaceful use of the atom. Other problems are "the hole in the sky" or the dissipation of the ozone layer and acid rain, both of which are related to pollution. Some additional problems are related to human resources and include such things as the legalization and use of drugs, the AIDS epidemic, and drunken driving. All of these problems lend themselves to collective efforts of human groups in the search for answers. These groups often take the form of community projects spearheaded by churches, youth groups, and other organizations. Participation in such groups provides real-life experiences that encourage critical thinking because the pros and cons must be thoroughly understood if adequate solutions are to be found and applied.

Of the social studies teachers in the present investigation, 93% said they present the pros and cons of issues

like those mentioned above when questions concerning or related to them arise in class (Statement Number 23). All of the teachers encourage their students to take a stand and to discuss their position (Statement Number 17), and 66% encourage active involvement in efforts to settle social issues or to solve social problems. By becoming involved, a student would experience the real-life situation. He would be forced to utilize his thinking skills and thereby enhance his capability (Statement Number 25).

An additional concern of the present study was to determine the extent to which textbooks and other instructional material used in this school system emphasize critical thinking. The question is significant because improving thinking skills may be seen as part of a job to be done. Textbooks and other instructional material are the tools with which to do it. Following is an account and a description of such material and textbooks.

#### Extent to Which Instructional Material and Textbooks Emphasize Critical Thinking

Instructional material. Instructional material available to these teachers and utilized by them include films, film strips, record players, tape players, VCR's, opaque projectors, televisions, television monitors, micro fiche readers, globes, wall maps, computers, and a variety of printed matter. All of these things lend themselves to the

improvement of critical thinking skills, but the extent to which they do depends upon the teacher. In the present study, all of the material falling under the heading of audio-visual is used by social studies teachers in the system; 68% make frequent use of it.

Textbooks. In order to ascertain the extent to which textbooks being utilized by the school system emphasize critical thinking, a list of these books was compiled and is to be seen in Table 4. An examination of the individual books revealed the following findings.

Economics. There are three textbooks in the area of economics. The titles are Economics: It's Your Business, Littell Economics, and Scribner Economics. Scribner Economics contained 594 pages, and the teacher's edition included 22 worksheets dealing specifically with critical thinking. The topics covered were: (a) Inferring the Main Idea; (b) Reading for Meaning; (c) Distinguishing Facts from Emotional Appeal; (d) Recognizing Cause and Effects; (e) Organizing Information; (f) Evaluating Information; (g) Identifying Main Ideas from Supporting Details; (h) Drawing Conclusions; (i) Charting Information; (j) Making Hypotheses; (k) Distinguishing Between Facts and Opinion; (l) Predicting Future Events; (m) Sequencing Information; (n) Clasifying Information; (o) Contrasting Information; (p) Interpreting Information; and (q) Deductive Reasoning. Each chapter in

Table 4

Social Studies Textbooks Used by the School System  
in the Present Investigation

Subject	Grade Level	Title of Textbook	Author of Textbook	Publisher of Textbook
Economics	9 & 11	Economics: It's Your Business	Henry Billings	New Reader's Press
Economics	9 & 11	McDougal, Littell Economics	L. McDougal	McDougal Littell & Company
Economics	9 & 11	Scribner Economics	R. Miller	Scribner Educational Publishers
Legal and Political Systems	9 & 11	Civics: Government and Citizenship	J. Fraenkel T. Kane; A. Wolf C. Cornbleth	Allyn and Bacon Prentice-Hall
Legal and Political Systems	9 & 11	American Civics, Constitution Edition	W. H. Hartley W. S. Vincent	Harcourt Brace Jovanovich
United States History	9	United States History The Republic	J. Davison M. Little	Prentice-Hall
United States History	9	United States History	J. Reich E. Beller	Holt, Rhinehart & Winston, Inc.

Table 4 (continued)

Subject	Grade Level	Title of Textbook	Author of Textbook	Publisher of Textbook
United States History	9	Triumph of the American nation	L. Todd M. Curti	Harcourt Brace Jovanovich
United States History	9	Land of Promise	C. Berkin L. Wood	Scott, Foresman and Company
World Georgraphy	10-12	Heath World Geography	Educational Challenges, Inc.; Consultantes: J. Cirrincione B. Ainsworth	D. C. Heath and Company
World History	10-12	Pageant of World History	G. Leinwand	Allyn and Bacon Prentice-Hall
World History	10	A World History	H. Howe R. Howe	Longman, Inc.
World History	10	Patterns of Civilization	B. S. Beers	Allyn and Bacon

the book identified four general objectives. Of these objectives, one (for each chapter) was the improvement of critical thinking skills. Questions dealing with each of these skills appear at the end of the chapters. There is also a set of transparencies to accompany each chapter and which centers upon four general objectives. The book offers a list of suggested teaching strategies to reinforce the learning objectives for critical thinking. It provides a set of activity sheets to reinforce this objective; it suggests specific films to be shown and analyzed for reinforcement of the topic and a list of test questions to measure the achievement of the objectives. The questions are of a reading interpretation, graphic interpretation, multiple choice, and essay nature. The important principles of the major topics, including critical thinking, are summarized and a set of overhead charts provided.

Littell Economics contained 564 pages and is organized along the same lines as the first textbook, with one major difference being the absence of overhead charts. It provides activities for developing "enabling skills" such as perceiving, comparing, and observing; for developing "processing skills" such as analyzing and inferring; and for developing "operations skills" such as reasoning and evaluating. Interpretation and explanations are also provided for the various questions and activities that the author suggests teachers consider using.

Economics: It's Your Business is almost completely fact-based. Critical thinking skills are noticeably absent. Questions at the end of the chapters are basically single answer questions.

United States history. In the area of United States history, four textbooks were examined. The titles were: (a) United States History: The Republic; (b) Triumph of the American Nation; (c) United States History; and (d) Land of Promise. The latter textbook, Land of Promise, consists of nearly 800 pages. The book is divided into 10 units and 35 chapters, with a set of review questions at the end of each section to help students sum up the main ideas. A special skills exercise is provided to enhance abilities in making interpretations and recognizing bias. There are also a number of open-ended discussion questions. In the teacher's edition, beginning on page 1 are notes and lesson plans. The opening page of each unit lists books and audio visual materials. Each chapter's notes begins with an overview, a summary of the chapter's contents, and a description of the special skills activity. Included in each lesson are suggestions for integrating the "thinking critically" questions. In the last lesson of each chapter is a section called optional activities which includes projects that can be assigned to students needing more experience with the chapter's content.



The teacher's guide contains 35 worksheets presenting activities that reinforce important social studies and critical thinking skills. Suggestions for using them are also given. Five extra worksheets to be used at various points throughout the course include techniques for the preparation and evaluation of debates. Answers to all worksheets are provided. The skill worksheets include two duplicating masters for each chapter plus extra activities on the following topics related to critical thinking: using evaluation, group participation, completing a research assignment, how to study for an objective test, and an interview checklist. Some specific critical thinking skills emphasized in this textbook are small group discussions, modified debates, oral reports, interviews, surveys, role playing, assigning activities, and evaluation.

The textbook, United States History, has 864 pages. The book is divided into units and chapters, with learning objectives spelled out. A lesson plan is suggested for each chapter. A general skills review and a series of critical thinking review questions follow each chapter. An illustration of a critical thinking activity appearing in this textbook is given below.

Pretend you or your parents have just lost your job. There is no such thing as unemployment, social security, aid to families with dependent children, and so on. Devise a strategy of survival. How would this affect you emotionally?

The Vikings' trip to America is used as an example of interpreting information. A letter to Christopher Columbus is used as a document of analysis exercise.

The textbook entitled United States History: The Republic is similar to the one described above. This book has a great deal of colored pictorial work and presentations. They include work scenes, famous people, and crossword puzzles. Critical thinking objectives are clearly defined in some assigned questions and activities. Students are asked such questions as "Is a two-party system good or bad for the nation?" "Why do you think this way?" Each chapter contains some questions that are geared primarily to the development of thinking skills in that the answers to them require making judgments, evaluations, classifications, and researching among other things.

The textbook entitled Triumph of the American Nation is voluminous. It has 1,060 pages and is fact-based. This book emphasizes the organization and interpretation of ideas, the interpretation of viewpoints, the use of historical information, and comparison as critical thinking skills to be developed. A focus for reading is also provided. The teacher's manual and the textbook contain a number of political cartoons for reinforcing, interpreting, and analyzing the facts and concepts that are presented. Graph interpretation is also stressed. So is the technique of drawing

conclusions. The Supreme Court is used as an example of the latter. Suggested test questions are both essay and objective in nature.

World history. In the area of world history, three books were examined. One of these was entitled A World History. It consists of two volumes; one volume has 550 pages, and the other 543 pages. There is a source book and a teacher's handbook. The textbook is written in chronological order, beginning with the earlier periods and moving toward the present. It is designed to allow flexibility in sequencing material, however, so each teacher may select material suitable for a particular point, time, or topic within the course. At the end of the textbook there is a source section with official documents, inscriptions, letters, and biographies among other things. There also are study questions relating to each source. At least one paragraph is written to explain the contribution that reading the source should make to the students' critical understanding of its historical time period.

The teacher's guide has six sections. They are:

- (a) additional questions and activities;
- (b) supplementary information;
- (c) listing of audiovisual aids;
- (d) sample worksheets to help students develop critical thinking skills;
- and (e) sample document-based questions.

Some of the questions and activities are geared to individual students, some

to small groups, and some to the entire class. The purpose of these is to help pupils improve reading comprehension and to build writing skills and critical thinking skills. The students are required to locate information, organize it, and communicate it effectively to others in oral and written form.

The supplementary material in the second section includes information designed to enliven class discussion and to stimulate the students' thought processes. The section on audio-visual aids consists of films and film strips that re-create historical events. In Section 5 there are sample worksheets dealing with the ancient and medieval world designed specifically for helping students develop critical thinking skills. The document-based questions in Section 6 are structured along the lines of an exercise to test the student's power of comprehension, imagination, organization of information, and thinking skills. The sample worksheets for critical thinking are designed to acquaint students with historical evidence, official proclamations, conversational fragments, proscriptive literature, paintings, sculpture, and other historical genre. They should also help strengthen the students' competencies in observing, reasoning, studying, speaking, and listening. They provide the students with opportunities to be active learners and interpreters of the historical past. The exercises encourage evaluating sources,

close and careful reading, conceptualization and categorization of evidence, reasoned explanation to art and literature, and a defensible judgment about what has happened in the past. Among other things, these worksheets can be used for making home assignments, written exercises, classroom discussions, debates, role playing, scenarios, and stimuli for further explanation of topics, evidence, or events.

Another textbook in world history is entitled The Pageant of World History. A guide to go with each chapter contains an activity designed to promote student interest and participation. At various points questions appear in the captions that accompany the illustrations in the book. Some of these questions have clear definitive answers. Others are meant to foster student inquiry. Each end of chapter section contains headings such as Events to be Described and Mastering the Fundamentals. Questions designed to challenge a wide range of student abilities, including thinking skills, are included under the latter heading. The end of chapter sections also list several activities involving both oral and written reports, panel discussions, and debates. Students are enticed to learn critical thinking by asking the right kind of questions and by being asked questions. A list of suitable audio-visual aids is included at the end of each chapter organized under headings such as Filmstrips (title and producer or distributor) and Films (title, length, and

distributor or producer). A complete list of addresses for distributors of audio-visual aids referred to through the teacher's guide is presented. At the end of each unit in the textbook there are a series of follow-up activities for the individual and group participation. These, too, provide exercise in a wide variety of thinking skills such as oral reports, written reports, discussions, and debates. One of the things that this textbook tends to place emphasis upon is the planning and discussion of controversial issues, defined as a problem on which there are honest differences of opinion. Obviously world history is filled with such issues. Teachers are warned against trying to solve such problems because so many of them are open-ended and have no pat answer. If, however, students can explore the many facets of the problem, their critical thinking skills are likely to improve. This textbook encourages teachers to use current events to introduce a lesson. (The French Revolution might be introduced by discussing recent uprisings in the world.) It also encourages newspaper reading as a means of helping students become more skillful in distinguishing between fact and opinion, and in determining the role that propaganda plays. The text strongly advocates the use of audio-visuals, holding that if properly used they serve to motivate students to think critically in many cases. Specific audio-visual equipment like tape recorders and overhead projects are suggested.

Relative to evaluation, the text holds that if we teach for the development of sound work habits and critical attitudes toward world affairs, these things should be taken into account. It encourages the use of multiple choice questions on the assumption that if properly prepared, they stimulate reflective thinking and reasoning. It holds that some provision should be made to test students' ability to discuss and organize difficult ideas through the use of essay questions on every test.

Legal and political systems. The school system investigated in the present study uses two different books for the government or legal and political courses. One book entitled Civics: Government and Citizenship is utilized at the basic level and also at the regular level. This book has 564 pages in it. Students' understanding of the information is facilitated through activities to complete and through skills to practice. The written material in the textbook is presented along lines designed to enrich the student and to improve skills. As a result, all of the chapters contain two special features. One of these, focusing on enrichment, consists of stories, vignettes, dialogues, and questions and answers. The other is focused upon the development of skills related to understanding, attitude formation, acquisition of facts, and to the formation of ideas. Specific skill objectives include the ability to distinguish

between fact and opinion, to distinguish between evidence that supports a conclusion and between evidence that does not, to observe carefully and systematically and report accurately, to interview people, to compare, contrast, and categorize, to recognize biases, to interpret meaning from cartoons, to clarify obscurely stated problems, to suggest logical hypotheses as a way of solving problems, and to consider alternatives.

The other book used in the government courses is entitled American Civics: Constitution Edition. This book consists of 578 pages. It encourages students to develop critical thinking abilities and to apply these in the identification, comprehension, and remediation of the nation's strengths and weaknesses. There are 25 chapters in the book, and each one contains a civics skill lesson related to critical analysis. Some of these center upon important issues at the forefront today, such as energy conservation, foreign relations, and pollution. Special goals and objectives are highlighted under headings like knowledge to be sought, skills to be practiced, and attitudes to be developed.

The book is divided into eight units. Each unit supports and illustrates central concepts leading to meaningful generalizations. The suggested activities at the end of chapters and units call for an active response to the factual information. There are opportunities for students to voice



their ideas in the practice of critical thinking. Twelve case studies that illustrate citizenship in action are presented as a method of stimulating student interest in community affairs by role playing and discussion. Students are challenged to learn and to interpret visually from historical pictures or paintings, identification and recognition by interpreting political cartoons, and decision-making by defining problems, identifying alternatives, and evaluating the results. Some other activities the book uses for emphasizing critical thinking skills are newspaper assignments, using television as a resource, working in groups, distinguishing fact from opinion, comparing points of view, conducting a straw poll, and the use of primary sources.

World geography. For the geography course, the textbook in use is entitled World Geography. This book is fact-based and follows a strict pattern throughout each of its 17 chapters. At the end of the chapter there is a section headed Working Toward the Future. It contains four to five essay questions and at least one of these is geared toward critical thinking skills or activities that will involve taking a stand and defense or refutation, inquiry, explanation or analysis, or some other skills-developing component. the following is an example of such questions.

Study the list of changes related to energy:  
(a) the discovery of a major source of energy such as coal or petroleum, (b) the building of a nuclear

reactor, (c) the building of a solar power plant. What changes might take place in your community if one of these events happened there soon? Include both positive and negative changes. Find out how these changes might affect your community's people, environment and government. Write a letter to the mayor or governor and give your opinion about these effects.

In Table 4 all of the social studies textbooks used by the school system in the present investigation are shown. The grade level for each textbook, along with the author and the publishing company, is also presented.

#### How Teachers Test for Critical Thinking

Perhaps the most direct means of testing for critical thinking in the public school classroom is the essay question. This is a technique that is spelled out clearly by many of the textbooks used in the system involved in the present study. To assess the extent to which this or some other method was the one employed most often by the respondents, they were asked what proportion of their examinations were essay. The findings are presented in Table 5.

As is to be seen in this table, respondents teaching ninth-grade students use some type of examination other than the essay 79% of the time. The same is true for those teaching 10th and 11th grade students. For those with 12th grade students, an examination other than essay is given about 63% of the time. For these social studies teachers, the essay examination is not used frequently as a means of testing for

Table 5

Teachers' Use of Essay Examinations by Grade Level

Grade Level	Less than One-fourth	One-fourth to One-half	Between One-half and Three-fourths	More than Three-fourths	Total
9th	54%	25%	8%	13%	100%
10th	50%	29%	4%	27%	100%
11th	49%	29%	0%	22%	100%
12th	45%	18%	14%	23%	100%

critical thinking. The majority of them, 78%, use objective examinations for evaluation purposes in general, and apparently this includes critical thinking skills.

There is another dimension to this question, however. These teachers may have responded in terms of written or formal test. Many of the things that go on in the classroom might be seen as test for critical thinking skills. The use of the probe question as explored in Statement Number 4 on the questionnaire may exemplify this. The rephrasing of the question several times if need be provides an opportunity for some evaluation and identification of strengths or weaknesses which the teacher might note and react to accordingly.

#### Summary

This chapter has dealt with the analysis and interpretation of the data which were gathered by means of a questionnaire, by way of interviews with the coordinator of social studies, seven teachers in the area who responded to the questionnaire, and by way of visual observation.

Interpretation and analysis of the data provided some answers to the major questions with which this report is concerned. The teachers are prone to define critical thinking in terms of questioning, analyzing, and reasoning. They see thinking skills as being synonymous with thinking critically. Some things that they believe enhance critical thinking are processing skills, enabling skills, and operations skills.

The components of these that they elect to emphasize are questioning, analyzing and inferring under processing, observing, comparing, grouping, and prioritizing under enabling, and reasoning, defining, and generalizing under operations.

Things used to develop and stimulate critical thinking in the classroom include debates, audio-visual material, role playing and dramatization, discussion of issues, simulation games, and divergent questions.

Life experiences that enhance critical thinking and which teachers suggest students take part in center upon social problems. Students are urged to get involved with community projects and collective efforts to deal with these problems, by some of the teachers.

Within the textbooks, critical thinking is emphasized to the extent that several books include special provisions and materials for teaching it. These take the form of specific exercises, questions, and skills activities.

When testing in the formal manner, the teachers tend to use objective examinations. Teachers with upper division classes are more prone to use essay examinations than those with lower division classes. In an informal manner, the teachers test for knowledge, comprehension, and skill by way of the daily activities, discussions, and other things that go on in class.

CHAPTER V  
SUMMARY, CONCLUSIONS, IMPLICATIONS,  
AND RECOMMENDATIONS

Summary

In the field of education the formation of minds that can be critical, that can verify, and that do not accept all knowledge offered without question has been, and still is, a major goal. Thinking skills of this nature are particularly pertinent to the area of social studies. If students are going to learn to think more effectively they must be required to do more than simply absorb and give back, in an almost verbatim manner, the information to which they have been exposed.

Although the teaching of critical thinking has been of concern to educators in the past, more emphasis has been placed upon it since the late 1960s; however, there is still some concern as to the degree that it is promoted in public school classrooms. A basic question is: What can teachers do and what are they doing to bring about improvements in the thinking skills of students? Some factors significantly related to this question include confusion about which skills to teach, the inability to identify the components of the skills elected to be taught, appropriate teaching techniques, and methods of testing for evidence of critical thinking.

The purpose of the present study was to investigate the extent to which critical thinking is being taught in the social studies curriculum at the secondary level in a large public school system. The definition of critical thinking is that given by Arthur Costa (1985), who said that one is thinking critically when using the basic thinking processes to solve problems, analyze arguments, and generate insight into particular meaning and interpretations.

The problem investigated in the present study was to ascertain the experiences, activities, and materials which teachers in a selected school system use for the purpose of teaching critical thinking in a social studies program. In the course of this, seven questions were addressed:

1. How do social studies teachers define critical thinking?
2. Among social studies teachers, what skills are believed to enhance critical thinking?
3. What components of those skills do instructors elect to teach or emphasize?
4. What kind of course activities do teachers use to stimulate and develop critical thinking?
5. What other life experiences do teachers use to encourage critical thinking in the classroom?
6. To what extent do textbooks and other instructional material emphasize critical thinking?
7. How do teachers test for critical thinking?

In reviewing the literature it was found that scholars in education did not always define critical thinking the same way, but there were some common threads in that all of the definitions involved skepticism, inquiry or questioning, analysis, and reasoning. Teachers in the present study did not define it exactly the same way either. The common threads in the teachers' definitions were analysis, evaluation, questioning, and making judgments. The teachers were in general agreement with the various definitions found from the review of the literature.

Since neither scholars in the field nor classroom teachers in this study were in complete agreement on a definition of critical thinking, it was unlikely that total agreement would be found on the skills that enhance it, but once again there were some common threads. They included communication, opportunities for decision-making, listening, and comprehension. The skills teachers identified were categorized as processing skills, enabling skills, and operations skills. The results of the study indicated questioning, analyzing, and inferring are components of critical thinking emphasized under processes; observing, grouping, comparing, and prioritizing are components emphasized under enabling; and reasoning, defining, and generalizing are components emphasized under operations skills. It was assumed that these would be the skills taught or emphasized.



Whether teachers elect to emphasize the content to be learned or the process of learning or a combination of both, the creation of a classroom climate that allows for and reinforces freedom for thinking is the critical factor. A student needs time for reflection, practice, and evaluation. He needs experiences, involvement, the opportunity to explore, and the opportunity to discover. In order to gain some assessment of the extent to which this is the case in the school system investigated, the teachers were asked about the course activities they used to stimulate and develop critical thinking. Experiences and involvement were provided by way of debates, discussions, dramatizations, the use of symbolic language, and role playing. The interpretation of graphs, charts, diagrams, globes, drawings, paintings, and scale models were additional activities. The teachers also used resource persons in the form of visitors to the class. Questioning by the teacher should not be overlooked. As a general rule, teachers raise approximately 80% of the questions discussed in class. Teachers in the present study tended to conform; they raised most of the questions. Student questions are important, however, because they can provide evidence of effective teaching by their frequency and quality.

Relative to other life experiences used to encourage critical thinking, the teachers utilized personal involvement. In some cases students were urged to take an active

part in finding solutions to social problems. This was done more frequently by teachers of 11th and 12th grade students than by teachers of 9th and 10th grade students.

With regard to the question of the extent to which textbooks and other instructional material emphasize critical thinking, findings revealed that most of the books in use give some attention to the development of these skills. In some of the books it is limited to specific content material reinforced with essay questions that require critical thinking to be answered. In other books or cases, it includes additional items such as transparencies, slides, films, and special guides for the teachers.

The skill components highlighted in the textbooks are the same as those generally identified in the literature. They included comprehension, interpretation, comparison, application, questioning, and analysis.

The means of testing for critical thinking, employed by the teachers, were written examinations and general classroom activities in the form of debates, discussions, critiquing of films, and question and answer sessions.

Comprehension was tested when students provided evidence of understanding a reading assignment. There was some overlap between reading skills and thinking skills. Interpretation was tested in learning to read maps, globes, charts, and graphs. Association was tested when students were required

to link causes and effects in either oral or written assignments. Other critical thinking skills were tested in similar ways. All of the teachers in the present investigation were more prone to use objective examinations for testing purposes; however, an objective examination can test for critical thinking quite well if it is properly prepared.

### Conclusions and Implications

On the basis of the preceding information and my experiences in the classroom, the following conclusions and implications appear to be in order. Within our public school systems it may be that students are not given as much opportunity as they should have to do independent work, that is, that which begins with their own curiosity, questions, and incentive. Teachers may be too prone to supply students with information and expect them to assimilate it or to internalize it. Collecting and organizing material provide situations that are thought provoking and challenging. Students in the public schools can profit from such stimulation.

At the same time there are some students who may not be inclined to think in a critical manner. If the teacher will spell out the work to be done, they will do it; but activities such as group projects, discussions, research, and independent work do not appeal to them at all. Perhaps they believe that all of the answers are in the textbook, or if they are not the teacher will have them. Exposure

to multiple types of teaching activities may be required if the mind-set of these students is to be changed. Such a process is apt to be slow because along with continued exposure to situations that call for critical thinking, the teacher must be concerned and exhibit patience, thoughtfulness, and friendliness. In addition to these qualifications the teacher must be familiar with methods and materials associated with the thinking process if the student is to receive the optimum benefit and if they, themselves, are to avoid possible frustrations.

Respondents taking part in the present study did not appear to be significantly different from teachers in general relative to the approach and emphasis placed upon critical thinking. Consider the components of interpretation and of generalization. A major approach to the development of the interpretation skill involved multiple experiences accompanied by or followed by practice in the derivation of what these experiences mean. A convenient way of creating activities aimed at sharpening the ability to interpret is to utilize material already within the classroom such as pictures, records, charts, books, and other items. The teachers in the present study tended to do this. Generalizing skills are related to the ability to think in the abstract. They play an important part in one's ability to recognize ideas that are significant, characteristics that are different, and concepts that are important.

Possession of this skill allows one to separate the trivial from the fundamental. Summaries of all kinds are associated with the development of the ability to generalize. The showing of a film and the subsequent critiquing of it is an illustration. The use of films is widespread among teachers. Those in the present study were no exception.

Consider the matter of questioning. Questions are at the heart of the teaching-learning process. Among the things that stimulate thinking and set the tone for cognition, questions are in the forefront. If they are divergent, skills of analysis, synthesis, and evaluation are sharpened. If they are convergent, skills of comprehension and application are sharpened. If a teacher has a system for classifying different types of questions and knowledge of what each category demands, he should be able to stimulate a questioning attitude within the classroom and to help students develop the questioning skills essential for critical thinking.

Respondents in the present study were somewhat vague in their general perception of what constitutes critical thinking. This was evidenced in the way that they defined the term. There was, however, some limited consensus as to what the term means.

The teaching of critical thinking does appear to be going on, although much of it may be latent rather than

specifically intended with regard to particular assignments.

The authors of the textbooks in use in the classroom recognize the value of critical thinking to some extent, and they make provisions for emphasizing it in some of the suggested lesson plans. Since many of the teachers stay close to the text, it is inevitable that some of these skills will be covered.

The nature of the activities going on within the classroom, other than assigned readings, also contributes to the development of critical thinking. So do some of the out-of-class activities that students are urged to participate in.

Teachers usually try to evaluate what they believe has been taught or what they consciously have tried to teach. Since the respondents in the present report use objective examinations most of the time, they may be testing for facts or recall and not for evidence of critical thinking ability.

While the investigation has shed some light upon the seven questions on which the report focused, additional questions have been raised and the following recommendations are suggested.

#### Recommendations

This study looked at only one school system and its efforts to teach critical thinking. As a result of findings

in this study, it is apparent that further research should be undertaken. Other school systems, as well as teacher training institutions, can also profit from the findings of this study. The recommendations that follow address both of these issues.

1. The public school system in this study is implementing a program that could result in the instructors being better prepared to teach students how to think critically; however, the instructors may choose not to participate. Because the long-range returns of programs such as "Tactics" are so valuable to a better quality of critical thinking for students, this program should be required in the system and encouraged in other systems.

2. Teachers in the present system have some input in the selection of books and other instructional materials, but it is limited to the single individual who represents them on the selection committee. Attitudes about books and instructional materials might be more positive if the teachers believed they had more to do with the selection. While the current method of choosing material might be practical and functional, some other alternatives might result in each teacher having more voice and publishers being better able to provide appropriate materials. It is recommended that the system explore other alternatives with this in mind.

3. The system described in the present report has 69 social science instructors at the secondary level. One

person in the central office is responsible for coordinating all of these classes and all other classes in social science down to kindergarten. Much of the coordinator's time is spent in some way other than structuring innovative techniques or evaluating traditional ones. Helping teachers with things such as self-improvement in providing instruction for thinking skills is, therefore, limited. All of the teachers could profit from such aid and so would the students. For this reason it is recommended that the number of people involved and the time factor associated with this responsibility be assessed.

4. It is recommended that greater emphasis be given in both pre- and inservice teacher education to techniques and experiences for encouraging critical thinking.

5. It is recommended that similar studies be undertaken at all grade levels K-12 to determine the sequential nature of attempts to enhance critical thinking in social studies.

6. It is recommended that this survey be conducted on a larger population of social studies teachers within the state to determine if this finding could be generalized to a larger population.

7. Since teachers tend to follow textbooks and other materials provided in the school system, publishers of textbooks should give greater attention to techniques and activities related to content that enhance critical thinking skills.



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APPENDIX A  
LETTER TO TEACHERS

Dear Teacher:

I am a doctoral student at The University of North Carolina at Greensboro, conducting a study of materials and procedures used by teachers to teach thinking at the high school level. The accompanying questionnaire will be distributed to you by Mrs. Harriet Parrish. Please return it to her by April 10th. It is important to hear from all of you. I realize that you are very busy so the questionnaire is brief. It is in no way an evaluation of you or your school. It is a part of an ongoing effort to understand the teaching of thinking in public schools. I want you and your school to remain completely anonymous so do not identify yourself in any way.

Your cooperation is sincerely appreciated.

Respectfully yours,

Vivian C. Thorpe

APPENDIX B  
QUESTIONNAIRE



Directions: Below are statements that describe decisions we make in teaching. Each statement is followed by five characterizations--strongly agree (SA), agree (A), undecided (U), disagree (D), strongly disagree (SD). Please indicate the characterization that best describes your teaching practices by placing a check under the proper heading for each statement. Use only one check for each statement.

	SA	A	U	D	SD
1. Since classroom time is limited, sticking close to the textbook is important and I tend to do so.					
2. I make extensive use of educational television and audio visual material in my classroom.					
3. The textbooks I use follow the principle that learning should proceed from the known to the unknown so the most complex and difficult part of a textbook is near the end.					
4. When students are shy or when they give incorrect answers I encourage them to talk more by rephrasing the question or statement.					
5. I use objective examinations to evaluate my students.					
6. I stress understanding of concepts in my teaching.					
7. In my class I tend to use questions with one answer.					
8. My students tend to challenge me and other students about some things in class.					
9. I assign essay questions that appear at the end of chapters in the textbook.					
10. I cover the entire textbook during the school year.					

	SA	A	U	D	SD
11. Most of my test questions come from assigned readings in the textbook.					
12. I use symbolic language or dramatization to make a point in class.					
13. When questions are raised in class I let the discussion go on until the students are satisfied with the answers.					
14. When I use a film I ask the students to critique it and apply it to the lesson.					
15. I change my lesson plans to deal with questions and issues raised in class although they are not directly related to the topic at hand or the lesson planned for the day.					
16. I encourage question and answer sessions following the comments of resource persons visiting my classes.					
17. I encourage my students to take a stand on issues and to discuss their position.					
18. I tend to teach on the belief that facts are paramount and should be mastered first.					
19. If questions have several answers or may confuse students I avoid them or use them sparingly.					
20. My students tend to accept what the textbook says and go along with whatever is said in class.					
21. I formulate all or most of the questions discussed in class or used on tests.					
22. When discussing in class my students often use metaphors or similes.					

	SA	A	U	D	SD
23. I present to my students the pros and cons of world problems and issues such as Aids, nuclear energy, and legalization of drugs.					
24. When seeking to inform students of the significance of an issue of a social nature I use a two-sided argument.					
25. I encourage my students to take part in community projects related to current issues such as acid rain, pollution and drunken driving.					

26. The following is a list of grade levels. Check each grade level you teach under the heading grades taught and give the approximate percent of essay examinations you give at each grade level under the heading percentage.

<u>Grade Level</u>	<u>Grades Taught</u>	<u>Percentage</u>
9th	_____	_____
10th	_____	_____
11th	_____	_____
12th	_____	_____

27. Following is a list of thinking skills; rank each according to the frequency in which you use them. Place a (1) beside the skill that you emphasize the most, a (2) beside the skill receiving the second greatest amount of emphasis, and so on until the list is completed. The skill receiving the least emphasis should have the largest number beside it.

- ( ) questioning      ( ) analyzing      ( ) grouping
- ( ) observation      ( ) inferring      ( ) reasoning
- ( ) prioritizing      ( ) comparison      ( ) generalizing
- ( ) defining

If there is a skill or skills that you emphasize and they are not listed above please write them here and rank them accordingly.

( )                      ( )                      ( )                      ( )

28. In the space below please define in your own words the following terms:

A. thinking skills

B. critical thinking

APPENDIX C  
INTERVIEW QUESTIONS

Interview Questions for Social Studies Coordinator:

1. Does your system have a list of thinking skills to be taught throughout the social studies curriculum?
2. What procedures are used in the various grades to insure that these skills are taught there?
3. Do you observe teachers in action within the classroom?
4. Does the teacher's language (questioning) invite students to think?
5. Are concepts and problem-solving strategies encountered repeatedly throughout the curriculum?
6. What life experiences are you aware of that teachers use to encourage critical thinking?
7. What instructional materials are available for teachers to use to teach critical thinking?
8. In your opinion or belief, what are some skills that enhance critical thinking?
9. What components of those skills do you feel that teachers choose to emphasize?
10. What kind of course activities do teachers use to develop and stimulate critical thinking?
11. In what way do the teachers test for critical thinking?
12. Does the textbook selection committee have a prime objective in making its choice of material?
13. Do the teachers have any input on the choice of textbooks?
14. Do the teachers visit classrooms outside this school system to see what other teachers are doing relative to teaching critical thinking?

Interview Questions for Specific Teachers:

1. What are some of the instructional resources that you have access to?
2. Where is this instructional material kept?
3. What is your opinion of the textbooks that you use?
4. What choice do you have in the selection of the textbook?
5. Do you have an opportunity to visit the classrooms of your co-workers or teachers in other school systems to see what they are doing in critical thinking?
6. Are there any workshops or inservice programs that you may attend to get more information on teaching critical thinking?